

Date: 10 January 2025

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Dear Matt and Simon,

This letter covers the changes to the suite of consumer price inflation statistics that will be implemented in 2025 as part of the standard production cycle. It also covers changes to the suite of consumer price inflation statistics in 2025 made as part of ONS's Prices Transformation Project. This work aims to improve the quality and granularity of these statistics by identifying new data sources, improving methods, and developing new systems.

Issue

A request for the Bank of England to assess the changes to the Retail Prices Index (RPI) proposed by UK Statistics Authority (the Authority) for implementation in 2025.

Action requested

The Authority is required, under Section 21 of the Statistics and Registration Service Act 2007, to consult the Bank of England before making any changes to the coverage or basic calculation of the RPI, to ask its opinion on whether the proposed changes constitute a fundamental change in the index that would be materially detrimental to the holders of relevant index-linked gilts. You are asked to review the proposed changes outlined below and to respond by Friday 17th January 2025.

Context

The ONS (as the executive arm of the UK Statistics Authority) aims to ensure the continued high quality of all its statistical outputs including the RPI. [Our policy](#) is to address the shortcomings in the RPI in full at the earliest legal and practical opportunity (in February 2030) by bringing the methods and data sources from CPIH into the RPI.

In earlier statements, the ONS has outlined a policy of focusing development work on our headline consumer prices statistics (CPI and CPIH) while maintaining RPI through "routine changes" and giving due regard to our obligations under the Statistics and Registration Service Act 2007. As work on consumer prices transformation has progressed in the past few years, it has become clear that there is some degree of conflict between maintaining the quality of our headline statistics and keeping changes to RPI "limited and predictable". This is because the CPI transformation programme involves substantial modernisation of sources and systems: if we wanted to preserve existing data sources and systems for use in RPI only, this would require significant investment in legacy systems, and additional resource costs in monthly production. As a result, we are allowing methods and data improvements being applied to CPI to flow through to RPI, where they are not substantially similar to the elements of RPI that we do not expect to be able to address before 2030 - most notably the Carli formula and methodology for owner occupiers' housing (OOH) costs.

The rest of this letter describes what we intend to implement in our consumer price inflation statistics in March 2025, beginning with the more routine changes to coverage, sampling and reference years.

Proposals for changes to be implemented in consumer price inflation statistics in March 2025:

1. Annual basket and weights update

The standard procedures for the annual updating of the baskets are well rehearsed. Although fixed within each year, the contents of the baskets of goods and services and their associated expenditure weights are updated annually to ensure that they are properly representative of household spending patterns. The updating mitigates potential biases that might otherwise occur from not allowing for changing consumer expenditure habits.

The annual update of the suite of consumer price inflation statistics will take effect with the February 2025 indices, which will be published on 26th March 2025. An accompanying article describing the changes to the baskets will be published on the ONS website about a week earlier. A full description of the reweighting and updating process can be found in the [basket article](#) and the [weights article for 2024](#). The items in the Consumer Prices Index including owner-occupiers' Housing costs (CPIH), Consumer Prices Index (CPI) and Retail Prices Index (RPI) baskets will be updated in 2025, so that they remain representative of consumer spending and trends.

As with last year's weights update, the RPI will continue to be weighted principally using annual Living Costs and Food survey data at a lag of 6 months. One additional change we plan to make to the RPI weights in 2025 arises as a result of re-referencing the UK House Price Index (HPI), which is used in the calculation of weights for mortgage interest payments (MIPs). The UK HPI previously used a reference year of 2015 and we are now updating this to 2023. We had originally intended to re-reference in 2021, but postponed in order to select a reference year with a more 'typical' mix of property transactions. The change in reference year leads to a fall in the estimated UK average house price by 5%-6%, which would have led to an average fall in the MIPs weight in RPI of around 1½ parts per thousand between 2012 and 2023. The change in reference year has no effect on measured price changes in the five components which take HPI as an input (MIPs, house depreciation, ground rent, estate agent fees and surveyors' fees). Updating the reference period in UK HPI is part of an ongoing programme of improvements to UK HPI production. These are primarily focused on reducing dependence on legacy software, but some methods improvements may also be implemented during this process throughout 2025. We propose to let these improvements to UK HPI measurement flow through to the calculation of RPI in line with our normal practice.

2. Location rotation and re-enumeration

Approximately 140 locations in the UK are visited each month as part of the local price collection. These locations are carefully selected according to retail turnover and controlled to avoid overlaps with current locations within the sample. To maintain the sample of locations, each year 30 locations are refreshed, either by excluding a location and replacing it with a new one (rotation) or refreshing the list of outlets in the existing location (re-enumeration). We have refreshed a full 30 locations again in readiness for our 2025 collections.

3. Inclusion of fixed price energy tariffs in consumer inflation

Up to now, the ONS has only included variable tariffs for gas and electricity within the calculation of consumer price measures. Implicitly we have assumed that the price index for fixed tariffs equals that for variable tariffs. With fixed tariffs accounting for a growing share of

expenditure in the recent past, ONS views it as important to improve the coverage, in line with changing consumer behaviour, in order to keep our suite of consumer price statistics relevant. Some other countries are in the process of making similar changes. We present an impact analysis in Annex A to this note.

4. Improvement to the low-level item methodology for mobile phone applications

The series for mobile phone apps is based on a collection of quotes for apps included in best-seller charts. We propose to change the methodology so that in future we track the prices of specific apps rather than the price of positions in best seller charts. Although some apps move in and out of the basket within a typical year, we have investigated the turnover and feel that sufficient numbers remain consistently in the chart for the proposed method to be robust. This is a more standard methodology, and also significantly reduces monthly volatility in the series (see Annex 2).

5. Changes to how data are processed, to allow us to move the production of RPI off of legacy platforms

The incorporation of groceries scanner data into our consumer prices statistics is an unusually complex change. We have built a new reproducible analytical pipeline using a Cloud Platform (CP), which is capable of processing big datasets such as these. The broader coverage of the data also necessitates changes to the classification structure. Furthermore, we have taken the opportunity to move the processing of data collection in the field ('locally collected data') from the existing Ingres legacy system to our new CP system. This includes a number of changes to the way locally collected data are aggregated (see Annex 3).

6. The incorporation of data from the Northern Ireland Housing Executive (NIHE) into our measure of private rentals, using a nowcasting methodology to deal with the lag in data supply

In 2023, we wrote to you regarding the introduction of the new Price Index of Private Rents (PIPR) for Great Britain, and the introduction of PIPR-consistent rental indices into the RPI. We now wish to introduce private rental data from the Northern Ireland Housing Executive (NIHE) using the PIPR methodology (see Annex 4).

Ongoing improvements to our quality assurance processes

For completeness, we have included a summary of the improvements made to our quality assurance processes. The current scrutiny process is an important part of our production as it prevents incorrect prices from impacting the published RPI, CPIH and CPI figures. Due to the human nature of many of the errors that occur, and the need to make decisions that don't always have a clear outcome, this cannot be easily automated. An intensive manual process is therefore completed monthly to investigate any observations deemed as outliers, to either validate, correct, or remove the associated prices and/or metadata.

We will also improve training and supporting information provided to price collectors, particularly regarding accurate assigning of indicator codes (used to provide additional information as to whether a product is on sale or a replacement, for example). These changes will allow us to streamline the process and improve traceability of any changes made, ultimately providing additional reassurances over the quality of price quotes and quality adjustments being made in our suite of consumer price statistics. The change will also reduce our reliance on legacy IT systems and allow further enhancements to methods and processes to be made more easily in future.

Further quality improvements and developments in consumer prices statistics as part of the Prices Transformation Project

A key on-going priority in terms of Prices Transformation is preparing for the planned inclusion of point-of-sale transaction (scanner) data for groceries into our headline inflation indices (including RPI) in March 2026. We have already made substantial progress in accessing both historic and regular feeds of these data, currently covering up to 50% of the grocery sector. Indices produced using retailer scanner data will be aggregated with traditionally collected data in calculating price indices, at first for food and non-alcoholic beverages, and alcohol and tobacco categories.

In preparation for the inclusion of grocery scanner data, we have been publishing regularly as part of our research and developments in the transformation of UK consumer price statistics articles series as well as liaising regularly with our Advisory Panels for Consumer Price Statistics, our users, and the Office for Statistics Regulation.

In 2025 we will produce an analysis of the impact of introducing groceries scanner data, as well as conducting an internal parallel run of these combined indices alongside current traditionally collected data and methods. We also plan to continue to improve our coverage of this sector using scanner data in the coming months and years.

Please let me know if you have any queries or would like to discuss any of the changes raised in this letter further.

A copy of this letter goes to Carleton Webb at the Bank of England, to Ellie Price, Tara Murphy, Tom Hemingway and Dan Gallagher at the Treasury and to Mike Keoghan, Grant Fitzner, Jason Zawadzki, Chris Payne and Chris Jenkins here at ONS.

Yours sincerely,



Stephen Burgess

Deputy Director, Prices Division (Production), Office for National Statistics



Michael Hardie

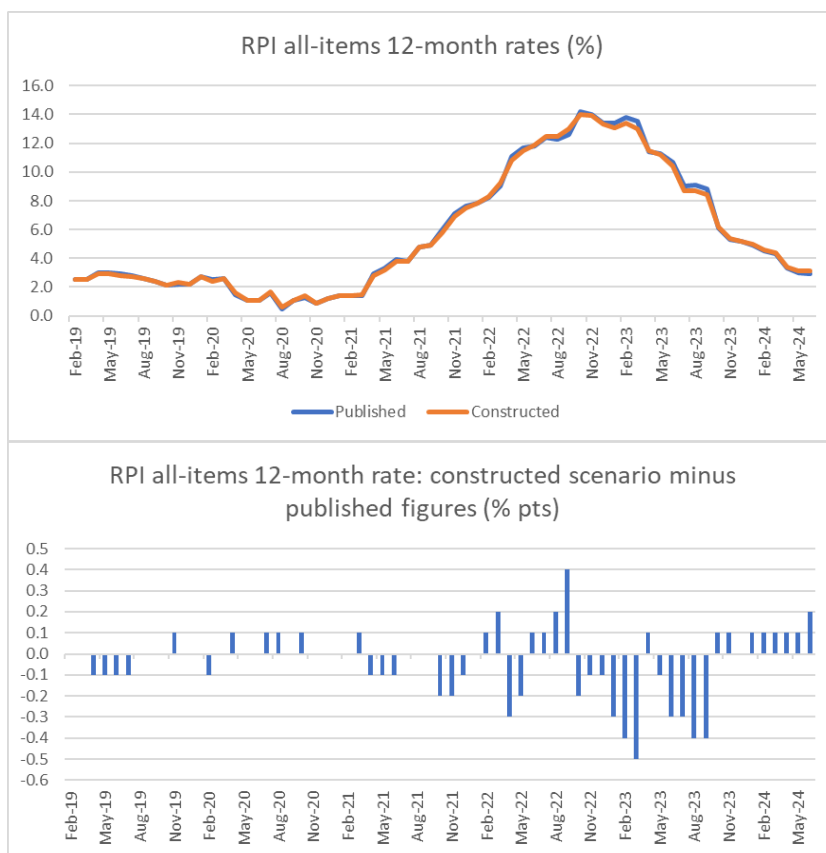
Deputy Director, Prices Division (Transformation), Office for National Statistics

Annex 1: Impact on inflation measures over the past from increasing coverage to include fixed tariff domestic energy contracts

ONS has used data on energy tariffs to construct an estimate of what the proposed fixed tariff gas and electricity indices might have looked like, if the proposed collection had been running between 2019 and 2024. The charts below then weight together these constructed fixed tariff indices with the published variable tariff indices, to provide an estimate of the effect on the RPI all-items 12-month inflation rate.

This analysis shows that the largest differences between the constructed RPI 12-month rate and the published RPI 12-month rate were in 2022/2023, when energy prices were growing most rapidly. We have constructed the impact analysis here in order to be as transparent and helpful as possible, but would note that the analysis comes with a number of caveats, including the low number of fixed tariff data points in 2022-23 (we have not attempted to model any imputation strategy), and the fact we have not had the resource to quality assure the historical estimates to the same degree that we would do were they to be used in live production.

Figures 1 and 2: Impact of including fixed energy tariff contracts on recent RPI outturns



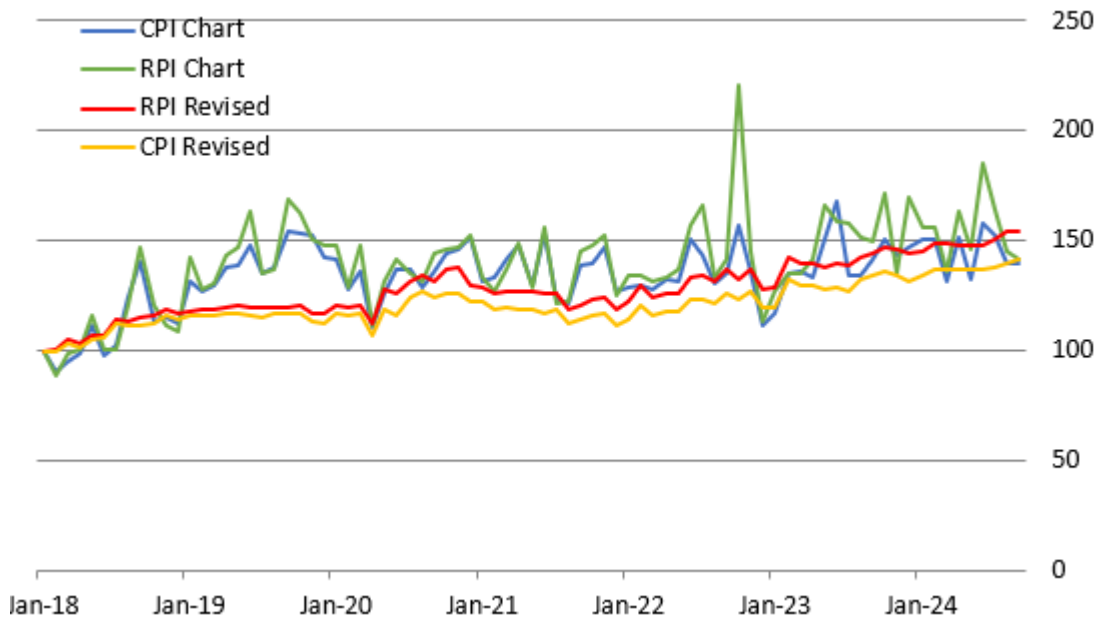
For RPI, the constructed all-items 12-month rate was lower than the published 12-month rate in 24 out of 78 months considered; the constructed rate was higher than the published rate in 21 out of 78 months considered; the constructed and published rates were equal in 33 out of 78 months. The largest difference between the constructed and published rates was in March 2023, when the constructed rate was 0.5 percentage points lower than the published rate; the next largest differences were in February, August and September 2023, when the constructed rate was 0.4 percentage points lower than the published rate, and in September 2022, when the constructed rate was 0.4 percentage points higher than the published rate. The equivalent estimates for CPI and CPIH are not shown here but they are similar in direction and of somewhat smaller magnitude.

Annex 2: Impact of changes to mobile phone app methodology

Chart collections are used for a variety of products in the consumer price indices. They are used where there is a relatively quick turnover of products in order to ensure sufficient sample numbers exist to produce a reliable price index. They also prevent any danger of downward bias caused by the index capturing prices falling quickly after the initial product release but then not picking up any price rise when they are replaced, with the replacement being marked as non-comparable. Having investigated, the degree of turnover for mobile phone apps is less than other chart collections. Additionally, reworking historical data using standard methodology tracking product prices, not chart position prices, does not suggest a downward bias compared with the existing series.

Figure 3 shows the impact of the proposed change in methodology on data from 2018-24, where we have used a simplified chaining approach between calendar years. The green series shows the path of the phone apps item index in RPI under the current methodology where we select particular chart positions, and the red line shows the effect of monitoring the prices of specific apps. The proposed series exhibits substantially less monthly volatility. The weight of this series in RPI is currently 2.3 parts per thousand.

Figure 3: Mobile Phone Apps Item Index (Jan 2018=100)



Annex 3: Summary of the proposed transformation changes to the Retail Prices Index

In order to incorporate scanner data into our headline consumer prices statistics, we have built a new reproducible analytical pipeline using a Cloud Platform (CP), which is capable of processing big datasets such as these. The broader coverage of the data also necessitates changes to the classification structure. Furthermore, we have taken the opportunity to move the processing of data collection in the field ('locally collected data') from the existing Ingres legacy system to our new CP system. This includes a number of changes to the way locally collected data are aggregated.

Specifically, the components of change in how data are processed are as follows.

Stratification changes arising from the introduction of consumption segments

Currently, price movements for RPI expenditure categories are estimated through a sample of "items". In order to be able to make better use of the groceries data in our scanner datasets, we want to replace this sample of items with broader "consumption segments", which are designed to give an exhaustive classification of the groceries basket. More information can be found in [Introducing alternative data into consumer price statistics: aggregation and weights](#).

However, the introduction of consumption segments will impact on how locally collected RPI data are processed.

We will still be using a sample of locally collected "items" for smaller, independent stores, and for larger retailers for whom we have not yet incorporated groceries scanner data. In these cases, items are mapped to the relevant consumption segment. Items are currently stratified by either region, shop-type (multiple or independent), both or neither. Consumption segments will necessarily impose the same stratification type on items that are mapped to it. Therefore, the stratifications assigned to each item will, in a few cases, be changed.

We will use "upwards coercion" to impose the same stratification within a consumption segment. The process of upwards coercion will always result in the most detailed stratum type being imposed. For example, for a consumption segment containing two items - one stratified by region only, and the other by region and shop-type - upwards coercion would impose the region and shop-type stratification on both items (see Table 1). A consequence of upwards coercion is that we may end up with empty strata as a result. In general, empty strata will be imputed using the approach described in section 2.1 (imputing from the consumption segment).

Table 1: Upwards coercion scenarios

For a consumption segment which is comprised of two items (say item A and item B), the following scenarios apply under upwards coercion.

	Original stratification	Upwardly coerced stratification
Scenario 1		
Item A	No stratification	No stratification
Item B	No stratification	No stratification
Scenario 2		
Item A	No stratification	Region only
Item B	Region only	Region only
Scenario 3		
Item A	No stratification	Shop-type only

Item B	Shop-type only	Shop-type only
Scenario 4		
Item A	No stratification	Region and shop-type
Item B	Region and shop-type	Region and shop-type
Scenario 5		
Item A	Shop-type only	Region and shop-type
Item B	Region only	Region and shop-type
Scenario 6		
Item A	Shop-type only	Region and shop-type
Item B	Region and shop-type	Region and shop-type
Scenario 7		
Item A	Region only	Region and shop-type
Item B	Region and shop-type	Region and shop-type

Where there is a one-to-one mapping, or where items in a consumption segment have the same stratification, there will be no direct impact from this change. There will only be a direct impact in expenditure categories where an item stratification has changed.

There will also be indirect impacts where no data points are available in an elementary aggregate. An index value is imputed by extending the previous month's index using the month-on-month growth rate at the consumption segment level. In the existing legacy system, missing elementary aggregates are instead omitted from the calculation (weights are re-scaled) so, for consumption segments that contain more than one item, the new imputation method will give different results. This will also affect any base prices that are imputed in the following months.

The "consumption segment" impact analysis shows the historical impact of imposing a consistent stratification on RPI items within a consumption segment. The impact analysis uses the historical locally collected data processed through the consumption segment scenario of the new system. It is compared with RPI processed through the new system using the original stratification types.

Imputation of base prices

Under the current process, new base prices for non-comparable replacements are imputed at a lag. If an item is out-of-stock item for three consecutive months, the price collector must choose a replacement product that matches the item description. If the replacement product cannot be directly compared with the original product, then it is marked as "non-comparable."

For non-comparable items, a new base price is imputed using the relevant RPI elementary aggregate index (excluding the replacement item). For non-central-spreadsheet items, in the month in which the replacement is made, no action is taken. In the second month, the Ingres legacy system will impute the new base price using the price of the product in the second month. This imputed base price is not used in the calculation until the third month, when the replacement item is incorporated into the index.

The new pipeline will reduce the lag with which the replacement product is incorporated into the sample: in the first month, a new base price is imputed using the price of the product in the first month and, in the second month, the replacement product is incorporated into the index calculation.

Further, for the Consumer Prices Index (CPI) and the CPI including owner occupiers' housing costs (CPIH), we will incorporate a further change in the new system so that the relevant CPI elementary aggregate index (excluding the replacement item) is used to impute the new base price. However, CPI and CPIH are out of scope of section 21 of SRSA07.

The "base price imputation" impact analysis shows the historical impact of reducing the lag with which base prices are imputed by one month. It uses the historic locally collected data processed through the consumption segment and base price imputation scenarios of the new system, and compares it with local RPI data processed through the consumption segment scenario only.

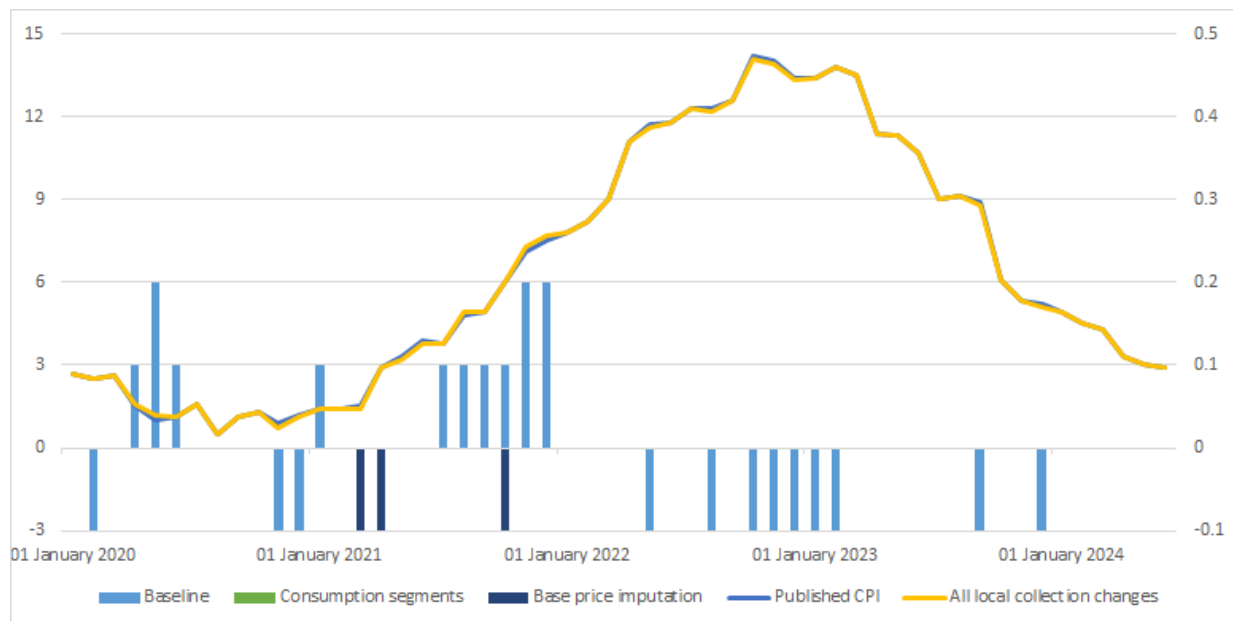
Setting the baseline

We have used the new GCP system to produce a "baseline" CPI and RPI, produced according to the current system specification. This provides a consistent baseline to use for comparisons with the impact analysis, also produced on our GCP system.

The differences between our all-items published data and our baseline measures are small. These differences can be accounted for by small historical ad-hoc adjustments that can't be readily replicated. Unlike the existing process, we have not used quotes that were rejected in January to set base prices. Differences also arise over the pandemic period, where it was not possible to replicate the imputation methods for unavailable items.

We have also made an improvement to the way that seasonal base prices are imputed. Previously, the base prices for "out-of-season" seasonal items were set by carrying the latest available price forward. We now intend to set these base prices by using the overall COICOP4 inflation rate. For example, if men's shorts are introduced in April, we would use the overall COICOP4 month on month growth rate for Garments to impute the base prices when they become available again. This change also accounts for part of the difference between published data and our baseline scenario.

Figure 4: Impact of planned processing changes on RPI annual growth (%)



Annex 4: Northern Ireland private rental data

In 2023, we wrote to you regarding the introduction of the new Price Index of Private Rents (PIPR) for Great Britain, and the introduction of PIPR-consistent rental indices into the RPI. We now wish to introduce private rental data from the Northern Ireland Housing Executive (NIHE) using the PIPR methodology.

Rental price data for Northern Ireland are provided by the NIHE working in partnership with Ulster University and propertynews.com. These data are entirely based on advertised rents. Rental price data is kept in the sample for PIPR for 14 months allowing PIPR to be our best estimate for the 'stock' of rental prices; this reflects the fact that once let a property's rental price will remain unchanged until the tenancy ends.

The new approach uses a hedonic regression model to estimate the value of each characteristic and estimate the price of properties with every combination of features. An Ordinary Least Squares model is used to create coefficients to calculate a rental price. The existing price index for Northern Ireland private rents is based on data collected locally by Verian.

An additional consideration is that the NIHE data are not available in a timely way, as data are lagged by two months. It will therefore be necessary to incorporate an element of now-casting into the methodology. Our now-casting approach is to use the Northern Ireland PIPR growth over the most recently available two months as an estimate of growth over the two unavailable months. For example:

$$Priv\ rents\ index\ (NI)_{RPI}^{Oct} = PIPR\ index\ (NI)_{RPI}^{Aug} \times \frac{PIPR\ index\ (NI)_{RPI}^{Aug}}{PIPR\ index\ (NI)_{RPI}^{Jun}}$$

This method was chosen as it provides a good predictive power (as measured by the average deviation from the actual PIPR annual inflation rate) and can be readily explained to users.

At the all-items level, the historical impact of using nowcasted NIHE data in RPI is to change the annual rate by between -0.016 percentage points and 0.01 percentage points between January 2016 and July 2024. Figure 5 shows the impact of using PIPR data including NIHE data, and PIPR data including nowcasted NIHE data, compared with the existing methodology at the the item level.

Figure 5: Impact of NIHE PIPR data on RPI UK private rentals annual growth rate (%)

