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Measuring Inflation

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Economic Affairs Committee

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See Appendix 1.

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CONTENTS

	<i>Page</i>
Summary	3
Summary of conclusions and recommendations	5
Chapter 1: Consumer price indices	9
Box 1: Statistical authorities in the UK	9
Inflation and price indices explained	10
The ‘inflation’ basket	10
Box 2: Changes to the inflation basket for 2018	11
The weighting of items in the inflation basket	11
Calculating a price index	12
Box 3: A method of calculating an average price change	12
Uses of price indices	13
A brief history of consumer price indices	14
The Cost of Living Index	14
The Retail Prices Index	16
The Consumer Prices Index	18
Box 4: Price aggregation	20
Table 1: Formulas used in price indices, per cent of total index weight (2012)	21
Figure 1: Annual percentage change in CPI, CPIH and RPI from January 1997 (January 2006 for CPIH) to November 2018	22
Chapter 2: Criticism of the Retail Prices Index	23
Recent issues with RPI	23
Figure 2: Difference between 12 month changes in RPI and CPI due to the formula effect, January 2005 to November 2018 (%)	23
Effect of the changes to clothing price collection	24
Figure 3: RPI’s estimate of the annual price change of women’s outerwear, 1987 to 2017 (%)	24
Figure 4: Comparison between the CPI’s and RPI’s estimate of the annual price change of clothing items, 2005 to 2017	25
Response from the statistical authorities	26
RPI as a legacy measure	27
Current position of the statistical authorities on RPI	28
Should RPI be a legacy measure?	29
Shortcomings of the Carli formula	29
Box 5: Illustrating upward bias in the Carli formula	29
Other shortcomings of the RPI	32
The decision to make no further improvements to RPI	33
Box 6: Summary of the legal duties of the UK Statistics Authority when producing official statistics	33
Chapter 3: Towards a single measure of inflation	38
The need for multiple measures of inflation	38
Recent government practice of ‘inflation shopping’	39
Table 2: Government use of consumer price indices for uprating	39
Which is the best index for a single official measure?	41
RPI	41
CPI, CPIH and the treatment of owner-occupier housing costs	41

Household cost indices	43
Index-linked gilts	44
New issuances of CPI-linked gilts	44
Existing RPI-linked gilts	46
Private sector bonds and pension schemes	48
Appendix 1: List of Members and declarations of interest	51
Appendix 2: List of witnesses	53
Appendix 3: Call for evidence	56
Appendix 4: Chained and direct Carli indices	57

Evidence is published online at <https://www.parliament.uk/the-use-of-rpi> and available for inspection at the Parliamentary Archives (020 7219 3074).

Q in footnotes refers to a question in oral evidence.

SUMMARY

Consumer price inflation is the rate at which the prices of goods and services purchased by households rise or fall. The UK has three main estimates: Consumer Prices Index (CPI), Consumer Prices Index including owner-occupiers' housing costs (CPIH) and Retail Prices Index (RPI). These indices differ in the goods and services which they take account of (for example, the RPI includes a measure of owner-occupier housing costs and the CPI does not) and the way in which price changes are combined to calculate averages.

The UK Statistics Authority has admitted that there is a problem with the RPI. The problem is an unintended consequence of a routine methodological improvement to the collection of price quotes for clothing. It has caused the 'formula effect'—the difference in the annual rate of change in the RPI compared to the CPI due to the way in which price averages are calculated—to widen: the gap was around 0.5 percentage points before 2010, the year the change was made, and it has been around 0.8 percentage points since.

The Authority has a statutory duty to promote and safeguard the quality of official statistics. This includes ensuring the accuracy of official statistics. But despite these responsibilities, the Authority has refused repeatedly to correct the problem.

This is far from just being a technical debate about the correct way to measure inflation. The Authority's error created winners and losers.

Who benefited? Holders of RPI-linked Government bonds. We heard that the value of the interest payments they received has increased by around £1 billion each year.

Who lost out? Amongst others, commuters and students. Annual rail fare increases and the interest on student loans are linked to RPI.

The increased divergence between changes in the RPI and CPI has also encouraged governments to 'index shop': benefits, tax thresholds and public sector and state pensions were all switched from being uprated by the higher RPI to the lower CPI in 2011.

This is clearly unsatisfactory. But why is the UK Statistics Authority unwilling to fix a statistic that it has admitted openly is flawed?

Position of index-linked gilt holders

A correction of the error would cause the RPI to rise more slowly which would mean that the price of index-linked gilts—those purchased before and after the 2010 change—would fall and index-linked gilt holders would lose out.

The Statistics and Registration Service Act 2007 provides that for some gilt issues, a proposed change to the RPI that will cause a "material detriment" to index-linked gilt holders requires the approval of the Chancellor of the Exchequer. The Chair of the UK Statistics Authority told us that there was no point requesting to correct the clothing change, because the Chancellor would say no. The Authority told us that the RPI "is not a good measure of inflation, does not have the potential to become one, and we strongly discourage its use."

Retail Prices Index as a legacy measure

The Authority consulted on the future of the RPI in 2012. It decided to make no further improvements to the RPI. Its status of a ‘National Statistic’ was revoked in 2013 and the statistical authorities began to advocate actively against its use.

This position was confirmed by a 2015 review of consumer price indices by Paul Johnson, which concluded that the RPI should be maintained only as a ‘legacy measure’ and that the Government and statistical authorities should work towards ending its use as soon as possible.

Four years on from the Johnson Review however, the RPI remains in widespread use. As well as the uses above, the RPI is used to uprate private sector pensions and in corporate bonds. It is also embedded in some contracts for many years: the last RPI index-linked gilt matures in 2068.

Fixing RPI

The present position of the Authority is untenable. Rather than pre-empting the decision of the Chancellor, it should fulfil its statutory duty to promote and safeguard the quality of official statistics and to do that, it should request a fix to the clothing problem. The Chancellor should approve this change regardless of the effects on index-linked gilt holders, holders of which before 2010 received an unwarranted windfall.

Given RPI remains in widespread use, the Authority should stop treating RPI as a legacy measure and resume a programme of periodic methodological improvements.

Using inflation indices fairly

We believe it is confusing for the public to have multiple official measures of consumer price inflation in use. The Authority and the Government should agree on a single general measure of inflation for official use within the next five years. This will prevent a government from engaging in index or inflation shopping.

To have credibility, the single general measure must have a satisfactory measure of owner-occupier housing costs. There are critics of how these costs are measured presently in CPIH and RPI (CPI does not include a measure). The Authority, together with its stakeholder and technical advisory panels, and in consultation with a wider range of interested parties, should agree on a best method for capturing owner-occupier housing costs in the single general measure of inflation.

To prevent index shopping in the interim, the Government should switch to CPI from RPI in all areas of present use that are not governed by private contracts. This includes issuing new gilts that are linked to CPI rather than RPI.

Once the single general measure has been agreed, the Government should begin to issue gilts linked to that index. The UK Statistics Authority and the Government should then decide whether to continue to publish the RPI as a separate index for legacy measures, or whether it should set out a programme of adjustments so that RPI converges on the single general measure in the long-term.

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

Shortcomings of the RPI

1. We heard evidence that the Carli formula, as used in the RPI, produces an upward bias. But expert opinion on the shortcomings of the RPI differs. (Paragraph 99)
2. There is however broad agreement that the widening of the range of clothing for which prices were collected has produced price data which, when combined with the Carli formula, have led to a substantial increase in the annual rate of growth of RPI. (Paragraph 100)
3. We are not in a position to reach a conclusion on the question of whether the Carli formula is problematic in areas other than clothing. Given the properties of the Carli formula that may lead to upward bias have long been evident, yet expert opinion still differs, it may be a perpetual debate. (Paragraph 101)

Fixing RPI and the statutory duties of the UK Statistics Authority

4. Given its widespread use, it is surprising that the UK Statistics Authority is treating RPI as a ‘legacy measure’. The programme of periodic methodological improvements should be resumed. (Paragraph 116)
5. We are unconvinced by the National Statistician’s suggestion that in publishing statistics that serve the public good, the interests of those who may be affected negatively by any change should be taken into account. It is not clear from section 7 of the Statistics and Registration Service Act 2007 that this is a relevant consideration for the statistical authorities to be taking into account when they are producing and publishing statistics. (Paragraph 117)
6. What is clear from section 7 is that the UK Statistics Authority has to promote and safeguard the quality of official statistics, which includes their impartiality, accuracy and relevance, and coherence with other statistics. In publishing an index which it admits is flawed but refuses to fix, the Authority could be accused of failing in its statutory duties. (Paragraph 118)
7. We believe section 7 requires the Authority to attempt to fix the issue with clothing prices. Section 21 may require the Authority to consult the Bank of England over the change and obtain the consent of the Chancellor of the Exchequer, however this provision cannot be cited as a reason for not requesting the change in the first place. (Paragraph 119)
8. If the Authority requests the change, the Chancellor of the Exchequer should consent to it. It is untenable for an official statistic, that is used widely, to continue to be published with flaws that are admitted openly. (Paragraph 120)

Towards a single general measure of inflation

9. While we accept the arguments that consumer price indices have different purposes, we do not believe this warrants the production of multiple indices for government use. Two different measures of inflation allow a government to engage in ‘inflation shopping’. (Paragraph 134)
10. The Government should address the imbalance in its use of consumer price indices. It risks undermining public confidence in economic statistics. It is encouraging to see that the present Government is taking some steps to

address the imbalance, for example with the change to uprating business rates by CPI and recent discussions around rail fares. (Paragraph 135)

11. In future there should be one measure of general inflation that is used by the Government for all purposes. This would be simpler and easier for the public to understand. But the UK Statistics Authority should also continue to develop the Household Cost Indices, discussed below. (Paragraph 136)

Candidates for the single general measure

12. We disagree with the UK Statistics Authority that RPI does not have the potential to become a good measure of inflation. With the improvements to RPI that we set out in the previous chapter, and a better method of capturing owner-occupier housing costs as discussed below, we believe RPI would be a viable candidate for the single general measure of inflation. (Paragraph 139)
13. We are not convinced by the use of rental equivalence in CPIH to impute owner-occupier housing costs. The UK Statistics Authority, together with its stakeholder and technical advisory panels and a consultation of a wide range of interested parties, should agree on the best method for capturing owner-occupier housing costs in a consumer price index. (Paragraph 153)
14. Once a method of capturing owner-occupier housing costs has been agreed, the UK Statistics Authority, after consulting the stakeholder and technical panels, should decide which index to recommend as the Government's single general measure of inflation. The Government should have adopted the preferred candidate as its single general measure of inflation within five years. (Paragraph 154)

Preventing index shopping

15. Our recommendations will not however solve the issue of index or inflation shopping immediately. The Government will need to take action in the interim to address this. (Paragraph 155)
16. While the single general measure is being determined, the Government should switch to CPI for uprating purposes in all areas where it is not bound by contract to use RPI (except for the interest rate on student loans which, as we recommended in our *Treating Students Fairly* report, should be set at the ten year gilt rate thus reflecting the Government's cost of borrowing). (Paragraph 156)

Gilts

17. The Government should begin to issue CPI-linked gilts and stop issuing RPI-linked gilts. We heard evidence to suggest there was sufficient demand to make a viable market. (Paragraph 170)
18. Once the long-term single official measure of inflation has been agreed, gilts should begin to be issued that are linked to that index. The prospectuses for new issuances of index-linked gilts should be clear that the inflation index will change to the Government's single general measure of inflation once it has been agreed. (Paragraph 171)

Long-term future of the RPI

19. Once the single general measure of inflation has been introduced, the UK Statistics Authority and the Government should decide whether RPI should

continue to be published in its existing form for the purposes of existing RPI-linked contracts, or whether a programme of adjustments should be made to the RPI so that it converges on the single general measure. (Paragraph 194)

20. To avoid disruption, we envisage any programme of convergence would take place gradually, over a sufficiently long time, and that the plan for that should be published at the outset. (Paragraph 195)
21. We note that the consent of the Chancellor of the Exchequer to changes to RPI that cause material detriment to index-linked gilts holders is no longer required after the last issuance to which that clause relates to expires in 2030. (Paragraph 196)

Measuring Inflation

CHAPTER 1: CONSUMER PRICE INDICES

1. The Committee holds an annual evidence session with the Governor of the Bank of England. One of the topics raised during his appearance in January 2018 was the Retail Prices Index. The Governor told us that as the Retail Prices Index had “known errors”, it should not be further embedded in Government contracts. He said that “if there is anything that this Committee can do, with farsightedness, to advance this process, it would be a real service.”¹
2. This prompted us to schedule two public evidence sessions into the use of the Retail Prices Index in June 2018. But with strong opinions on both sides of the debate, it became clear a more thorough investigation was required and we launched a full inquiry the following month.
3. This chapter sets the context for the inquiry. It provides background information on consumer price indices. In Chapters 2 and 3 we set out criticism of the Retail Prices Index and explain the steps we believe the Government and statistical authorities need to take to address these criticisms.
4. We would like to thank the Royal Statistical Society for their advice in producing this report.
5. Box 1 sets out the bodies involved in producing and maintaining statistics in the UK.

Box 1: Statistical authorities in the UK

The origins of the UK’s current statistical system date to the establishment of the Central Statistical Office, a governmental body, in 1941. A series of mergers between various governmental bodies involved in producing and publishing statistics over the rest of the century led to the creation of the Office for National Statistics in 1996. A Statistics Commission was established in 2000 to provide independent advice and oversight.

The Statistics and Registration Service Act 2007 created a statistical system that was independent from Government. The Statistics Commission was abolished.

The Act created the UK Statistics Authority with responsibility for “promoting and safeguarding the production and publication of official statistics”. It was established in 2008 and the statistical system is comprised now of four entities:

- The Board of the UK Statistics Authority: responsible for oversight of the statistical system.
- The Office for National Statistics: the executive office of the UK Statistics Authority, it is the largest producer of official statistics and the UK’s National Statistical Institute. It is led by the National Statistician, who is the chief executive of the UK Statistics Authority.

1 Oral evidence taken on 30 January 2018 (Session 2017–19), [Q 11](#) (Dr Mark Carney)

- The Office for Statistics Regulation: created as the regulatory arm of the UK Statistics Authority, with responsibility for assessing the compliance of official statistics with the newly established Code of Practice for Official Statistics. It is led by the Director General of Regulation.
- The Government Statistical Service: a cross-government service of statisticians involved in the production of official statistics. It is led by the National Statistician.

The current Chair of the Board is Sir David Norgrove and the Board has eight other non-executive members and three executive members. The executive members are the National Statistician, the Director General of Regulation and a Director General from the Office for National Statistics on a rotational basis.

The National Statistician is advised by two independent advisory panels: a technical panel which advises on technical aspects of the statistics and a stakeholder panel to provide advice on the uses and applications of price indices.

Source: UK Statistics Authority website, 'UK statistical system': <https://www.statisticsauthority.gov.uk/about-the-authority/uk-statistical-system/> [accessed 21 December 2018]

Inflation and price indices explained

6. Consumer price inflation is the rate at which the prices of goods and services bought by households rise or fall. The Office for National Statistics produces estimates of these price changes every month, usually in the form of the change on 12 months earlier. These estimates—often referred to as the rate of inflation—are important indicators of how the British economy is performing and of the rate at which prices are increasing. The three main estimates produced by the Office for National Statistics are the Consumer Prices Index (CPI), Consumer Price Index including owner occupiers' housing costs (CPIH) and the Retail Prices Index (RPI).
7. These estimates of inflation are produced by using price indices. A price index works by combining two types of data: the increase or decrease in the price of certain goods and services over a given period and the proportion of household expenditure that is spent on those goods and services.

The 'inflation' basket

8. The most accurate way of measuring inflation would be to measure the change in price of every item that is purchased by every household. As this would be impractical, the Office for National Statistics instead tracks the prices of a selection of consumer goods and services which are believed to be representative of purchases by households. This is referred to as the 'inflation basket'.
9. The present basket contains around 700 goods and services. The contents of the basket are updated every year to reflect changing spending patterns. Box 2 gives a flavour of the considerations that are taken into account. Sample prices for each item are collected monthly from shops, the internet, by

telephone or from other sources. Around 180,000 separate price quotations are used each month in compiling the indices.²

Box 2: Changes to the inflation basket for 2018

Items added to the inflation basket in 2018 by the Office for National Statistics included:

- Action camera: “This reflects a growing sector of the camera market and has been added partly to maintain the number of items in this class following the removal of the camcorder.”
- Soft play session: “An adult-supervised soft play session has been introduced principally to improve and diversify the coverage in an under-represented area of the basket.”
- Quiche: “This has been added to improve coverage of the pizza and quiche sub-class within bread and cereals. Previously only pizza prices were collected to represent this group.”

Items removed from the inflation basket in 2018 included:

- Bottle of lager in a nightclub: “Removed from an over-covered area of the basket. The item was chosen because of collection difficulties and reduced expenditure as the number of nightclubs is falling.”
- Digital camcorder: “The number of models available and market share have fallen as people have switched to using smartphones.”
- Full leg wax: “This item has been removed from an over-covered area of the basket and can be dropped without any significant loss of precision in the overall index. It was chosen since it has a lower weight than the other beauty services.”

Source: Office for National Statistics, ‘Consumer Price Inflation: The 2018 Basket of Goods and Services’: <https://www.ons.gov.uk/file?uri=/economy/inflationandpriceindices/methodologies/consumerpriceinflationbasketofgoodsandservices2018tablesandannexes/basketofgoodstables4.pdf> [accessed 21 December 2018]

The weighting of items in the inflation basket

10. Households spend more on some goods and services than others. A 10 per cent increase in the price of petrol will have a bigger effect on household spending than a 10 per cent rise in the price of a punnet of raspberries.³ The goods and services in the basket are therefore weighted to reflect the relative amounts that households spend on them. The weights are calculated from sales and survey data of consumer spending.

2 A contractor (TNS) carries out price collection on behalf of the Office for National Statistics. Price collectors visit a variety of shops in around 150 locations around the UK. Most shops are visited in person although some work is done over the telephone. The price collectors go to the same shops each month. For other goods and services, staff from the Office for National Statistics collect prices by telephone, websites, brochures or catalogues. Office for National Statistics, ‘Consumer price inflation basket of goods and services: 2018’ (13 March 2018): <https://www.ons.gov.uk/economy/inflationandpriceindices/articles/ukconsumerpriceinflationbasketofgoodsandservices/2018> [accessed 21 December 2018]

3 A punnet of raspberries was added to the basket in 2018: “added to rebalance the sample of fruits by including more soft fruit items with an offsetting reduction in the number of stoned fruits. The addition will reduce the weight of other soft fruits such as strawberries and it is expected to reduce the variability in the overall estimate of fruit price movements.” Peaches and nectarines were the casualties amongst the stoned fruits, which remain represented by plums and avocados.

11. These weights are reviewed and updated every year to ensure they remain representative of household expenditure patterns. For example, a large rise in the price of tea may cause consumer spending to switch towards coffee, thus requiring a shift in the relative weights the following year. Changes also reflect the fact that spending on new goods and services replaces spending on older items.

Calculating a price index

12. The prices of goods and services are compared with their prices in the corresponding month of the previous year. The price changes are all weighted and an overall average price change for the 12-month period can be calculated. Box 3 provides a simple example of one method of calculating an annual average price change from a basket of goods.

Box 3: A method of calculating an average price change

For the purposes of illustration, this example uses an inflation basket containing four goods: beer, bread, potatoes and tea.

Between October 2017 and October 2018, the prices of these goods changes as follows:

- Beer: increase from £3.50 to £4.00 (a 14.3 per cent increase)
- Bread: increase from £0.80 to £0.85 (a 6.2 per cent increase)
- Potatoes: increase from £3.00 to £3.20 (a 6.6 per cent increase)
- Tea: decrease from £3.00 to £2.90 (a 3.4 per cent decrease)

For the purposes of this example, it is assumed that a household spends 40 per cent of its income on bread, 40 per cent on potatoes, 10 per cent on beer and 10 per cent on tea. These percentages will form the weightings for the index.

To calculate the average rise in all prices, the average expenditure on all four items in October 2017 is compared with the expenditure on all four items in October 2018.

Average price rise = (Beer (14.3 × 10) + Bread (6.2 × 40) + Potatoes (6.6 × 40) + Tea (-3.4 × 10)) ÷ 100 = 6.26

The average rise in all prices from October 2017 to October 2018 is therefore 6.26 per cent.

13. The goods and services which make up the inflation basket differ slightly in each of the three main inflation indices produced by the Office for National Statistics—Consumer Prices Index (CPI), Consumer Prices Index including owner-occupiers' housing costs (CPIH) and Retail Prices Index (RPI).⁴ In addition, the weightings used in CPI and CPIH differ from those used in RPI.
14. There are many ways in which the data on price and expenditure can be combined to produce estimates of the changes in price level. For much of the calculation process where expenditure weights are available, the method used in all three indices are identical. But where expenditure weights are not available, different formulas are used at the first stage of what is termed

⁴ Office for National Statistics, 'Consumer price inflation, updating weights: 2018' (19 March 2018): <https://www.ons.gov.uk/economy/inflationandpriceindices/articles/consumer-priceinflationupdatingweights/2018> [accessed 21 December 2018]

‘price aggregation’ (where an average price change is determined across similar types of products), as discussed below.⁵

15. The differences between how the main consumer price indices are calculated at the first stage of price aggregation are at the heart of the arguments which this inquiry has heard for and against the use of RPI. We consider these arguments in the next chapter. The rest of this chapter explains the purposes for which consumer price indices are used today and outlines how and why they were developed.

Uses of price indices

16. The UK Statistics Authority commissioned a review of British price indices by Paul Johnson, Director of the Institute for Fiscal Studies, in 2013. His report identified five main uses of price indices:

- The setting of interest rates through inflation targeting;
- As a compensation index, for increasing payments to compensate the recipient for increasing costs (for example, in wage negotiations and how state benefits, pensions and tax thresholds should be increased to keep pace with the value of money);
- As a deflator to express other financial data, such as earnings or economic output, in real terms (for example, removing the effect of price changes reveals how the UK’s GDP has changed over time);
- To make comparisons between inflation in the UK and in other countries (which requires the same methods to measure inflation to be deployed);
- To inform the public as to the changes in costs that they face.

17. The evidence we received has focused largely on the second of these uses—in particular the choice of whether to use CPI or RPI to ensure regular payments are not eroded over time by inflation. As RPI has generally been around one per cent higher than CPI in recent years, the choice of index can have a substantial effect on the value of pensions, index-linked gilts or the cost of any inflation-linked item such as rail fares or certain commercial contracts.⁶

18. The Government summarised uses of price indices in the 2018 Budget:

“The Government uses measures of inflation to uprate some taxes and benefits; to determine changes in rail fares, reflecting industry costs; to uprate the rate of interest on student loans; when setting the inflation target for the Bank of England; and as the reference rate for government bonds linked to inflation. In the private sector, inflation is used in some wage agreements; to uprate certain pension payments, particularly defined benefit pensions; and in financial markets.”⁷

5 See para 45.

6 Office for National Statistics, ‘Consumer price inflation tables’, Table 1 (14 November 2018): <https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/consumerpriceinflation> [accessed 21 December 2018]

7 HM Treasury, *Budget 2018*, HC 1629 (October 2018): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/752202/Budget_2018_red_web.pdf [accessed 21 December 2018]

19. Many witnesses to our inquiry have suggested that the Government in recent years has elected to use CPI to uprate regular payments that it makes, such as state benefits, and elected to use RPI to uprate regular payments that it receives, such as the interest on student loans. We will assess the issue of ‘inflation shopping’ or ‘index shopping’ in Chapter 3.

A brief history of consumer price indices

“The inquiry, which has been of a somewhat elaborate description, has occupied several years ... So far as is known this is the first attempt to compile continuous records of the retail prices of commodities in the United Kingdom in an official report. The available data are much less abundant than in the case of wholesale prices, and a considerable portion ... represents original research.” H. Llewellyn Smith, Board of Trade, August 1903.⁸

20. The first recorded consideration of the change in the general level of prices, and how to measure it, is believed to be a 1707 book by Bishop William Fleetwood.⁹ Further attempts to address the problem were made over the 18th and 19th centuries, and economists began to consider different methods for collecting and measuring price changes and the use of weights.
21. By the start of the 20th century, the government had begun to explore recording changing retail prices as interest developed in the living conditions of the working classes. The Board of Trade published a report on wholesale and retail prices in 1903, “with comparative statistical tables for a series of years.”¹⁰ As the quotation above from the deputy comptroller-general of the Board of Trade indicates, this was the first official attempt to make such a record. The importance of wholesale prices to businesses meant that these had been much better recorded than retail prices previously.
22. The information in the 1903 report on retail prices was regarded as incomplete, “notably in regard to the usual rents of workmen’s dwellings and the range of prices most commonly paid by the working classes for food commodities.”¹¹ The Board of Trade produced further reports in 1908 and 1913 to correct these deficiencies. A further aim of these studies “was to obtain a standard of comparison in regard to the cost of living, which could be applied as between the various districts of the United Kingdom, and also to foreign countries.”¹²

The Cost of Living Index

23. Building on this work, the Ministry of Labour began to publish the ‘Cost of Living Index’ from 1914. The inflation basket included food and drink, rent

8 Board of Trade, ‘Wholesale and Retail Prices’ (6 August 1903): <https://babel.hathitrust.org/cgi/pt?id=osu.32435000683722;view=1up;seq=5> [accessed 21 December 2018]

9 The Bishop had been tasked with determining whether a 15th century stipulation by an Oxford college—that a fellow of the college must vacate his fellowship if his annual income exceeded five pounds—should still be adhered to. He investigated the change in the value of money over the period by assessing changing price levels and found that five pounds in the mid-15th century was worth 25 to 30 pounds in the late 17th century/early 18th century. He concluded that the intention behind the 15th-century stipulation was to allow for the changing value of money. Robert O’Neill *et al* (2017), *Inflation: History and Measurement*, Palgrave Macmillan.

10 Board of Trade, ‘Wholesale and Retail Prices’ (6 August 1903): <https://babel.hathitrust.org/cgi/pt?id=osu.32435000683722;view=1up;seq=5> [accessed 21 December 2018]

11 Board of Trade, ‘Cost of Living of the Working Classes’ (1908): <https://babel.hathitrust.org/cgi/pt?id=njp.32101072921875;view=1up;seq=9> [accessed 21 December 2018]

12 *Ibid.*

and rates, clothing, fuel and lighting. The weightings for the items in the basket were set in 1914 and never updated.¹³

24. A review of working-class expenditure in 1937/38 found that the 1914 weightings did not accurately reflect household spending, particularly on alcohol and tobacco.¹⁴ After the Second World War, a ‘Cost of Living Advisory Committee’ was established to advise the Minister of Labour and National Service on “the basis of the official cost-of-living index figure and on matters connected therewith”.¹⁵
25. In an interim report published in 1947, the Advisory Committee recommended that a temporary index using the expenditure spending data from the 1937/38 survey should be introduced to replace the Cost of Living Index. This temporary index, the ‘Interim Index of Retail Prices’, began in June 1947.
26. The Advisory Committee also considered the nature of a permanent replacement for the cost of living index and discussed the “fundamental question” of the purpose for which a revised index should be used:

“The existing index is designed to show the average percentage increase in the cost of maintaining unchanged the standard of living of a selected group of families as at a fixed date. Our discussions have disclosed that the entire conception of an index purporting to measure the changes in the cost of maintaining an unchanging standard of living of a section of the community may be strongly challenged, the description of an index as a “cost-of-living” index being felt to be inappropriate and misleading.”¹⁶

27. The Advisory Committee said the alternative to an index based on an unchanged standard of living was one where the weights in the index were kept continuously up-to-date. To maintain such an index, it envisaged “inquiries into consumers’ expenditure would be instituted to take place at regular intervals and periodically the weights would be adjusted to take account of changes that had been disclosed.” It felt however that with rationing, spending conditions were not sufficiently stable at that point for a new inquiry into consumer expenditure.

13 Ministry of Labour and National Service, *Interim Report of the Cost of Living Advisory Committee*, Cmd 7077, March 1947: <https://www.ons.gov.uk/ons/guide-method/user-guidance/prices/cpi-and-rpi/rpi-advisory-committee-historic-reports-1947-1994/historic-report-1947-cmd-7077.pdf> [accessed 21 December 2018]

14 *Ibid.* The weightings for food were based on a 1904 survey of household expenditure. Of the 1,038 household records from this survey which were published by the University of Sussex in 2013, only 56 households recorded expenditure on tobacco and only six on beer. Neither alcohol nor tobacco were therefore included in the Cost of Living Index, not being considered necessities. The January 1941 issue of the Ministry of Labour Gazette said of the surveys that there were “indications, however, in some of the budgets received, that expenditure on tobacco and cigarettes was not in all cases fully stated ... The experience of previous inquiries into household expenditure has indicated that the particulars given in large-scale collections of family budgets are unlikely to disclose the full amount of expenditure either on tobacco and cigarettes or on alcoholic drink.”

15 *Ibid.*

16 *Ibid.* The notion of a ‘cost of living index’ is considered in Living Costs and Food Survey, Chapter 2.

The Retail Prices Index

28. The expenditure survey eventually took place in 1953/54 and a new index—‘The Index of Retail Prices’—commenced in January 1956 following further work by the Advisory Committee.¹⁷
29. The new index, which would become known as the ‘Retail Prices Index’, or ‘RPI’, differed from the Cost of Living Index in a number of ways:
- The scope of the new index would include “the whole field of goods and services over which households distribute their expenditure” where possible, as opposed to the Cost of Living Index which included only items that were considered necessities or appropriate spending (hence the exclusion of alcohol and tobacco);
 - Coverage would be expanded from working class-households to all households, except very high and very low-earning households (the logic behind these exclusions was that these households were likely to spend their money on atypical items, and their inclusion would distort the average);
 - The expenditure weights used would be updated regularly; the 1953/54 survey led to the creation of the regular Family Expenditure Survey in 1957, the results of which meant the weights in the RPI could be updated annually from 1962.¹⁸

Developments from the 1960s to the 1990s

30. By the late 1960s the inflation basket for the index contained around 350 items with 120,000 price quotations captured each month. There were occasional methodological changes, such as the introduction of a ‘meals out’ category and a move to measuring owner-occupier housing costs by mortgage interest costs rather than equivalent, or imputed, rents (the cost of housing in price indices is considered in Chapter 3). Changes were considered and proposed by the Advisory Committee, which met five times in the 1960s and 1970s and made recommendations to government.¹⁹
31. A new Advisory Committee was convened in 1984 and a wide-ranging report published two years later made many methodological changes. The report set out some principles to be used when evaluating the effectiveness of the index and considering changes:
- (a) The value of the RPI arises from its consistency and continuity—change should be made only where necessary;
 - (b) The RPI is an index of price changes, not a cost of living index;
 - (c) Maintaining public confidence in the index is important—methods used should be understandable to ‘the man on the street’;
 - (d) The index should be appropriate to its uses.²⁰

17 Data were supplied by 12,911 households selected at random. Analysis showed again that alcohol and tobacco was under-reported (see footnote 34) as it did not correspond with figures from Customs and Excise. Adjustments were made accordingly.

18 Expenditure weights in the RPI today are based on the Living Costs and Food Survey, a successor to the Family Expenditure Survey.

19 It was renamed the Retail Prices Index Advisory Committee in 1971. Office for National Statistics, *Consumer Prices Indices Technical Manual* (April 2010): <http://www.ons.gov.uk/ons/guide-method/user-guidance/prices/cpi-and-rpi/consumer-price-indices-technical-manual---2010.pdf> [accessed 21 December 2018]

20 Robert O’Neill *et al* (2017), *Inflation: History and Measurement*, Palgrave Macmillan, p 152

32. There were three further Advisory Committees in the early 1990s, with changes made including the introduction of depreciation as an element of housing costs and council tax.²¹ The Advisory Committee last met in 1994.
33. When the Government adopted an inflation-targeting regime in 1992, the RPIX index (RPI minus mortgage interest payments) was chosen as the measure of inflation. The justification for choosing RPIX was that if mortgage interest payments were included, the Government could have influenced the achievement of the target directly through the setting of interest rates.²² There was a target range of between one and four per cent initially, with a fixed-point target of 2.5 per cent introduced in 1995.²³

Developments since the 1990s

34. Between 1995 and 2007 improvements to the RPI were made through “a series of protocols between the Bank of England, HM Treasury and the Office for National Statistics.”²⁴ The Office for National Statistics described this as a period of “no governance”.²⁵
35. The Statistics and Registration Service Act 2007 established new governance arrangements (see Box 1). Under section 21 of the Act, the UK Statistics Authority must compile and maintain the Retail Prices Index and publish it every month.²⁶ The legislation sets out the process for changing the coverage or calculation of the index:
- “Before making any change to the coverage or the basic calculation of the Retail Prices Index, the Board must consult the Bank of England as to whether the change constitutes a fundamental change in the index which would be materially detrimental to the interests of the holders of relevant index-linked gilt-edged securities.”²⁷
 - “If the Bank of England considers that the change constitutes a fundamental change in the Index which would be materially detrimental to the interests of the holders of relevant index-linked gilt-edged securities, the Board may not make the change without the consent of the Chancellor of the Exchequer.”²⁸

21 Office for National Statistics, *Consumer Prices Indices Technical Manual* (April 2010): <http://www.ons.gov.uk/ons/guide-method/user-guidance/prices/cpi-and-rpi/consumer-price-indices-technical-manual---2010.pdf> [accessed 21 December 2018]

22 Robert O’Neill *et al* (2017), *Inflation: History and Measurement*, Palgrave Macmillan, p 224

23 Andrew Haldane, ‘Targeting Inflation: The United Kingdom in Retrospect’ (2000): <https://www.imf.org/external/pubs/ft/seminar/2000/targets/strach7.pdf> [accessed 21 December 2018]

24 Office for National Statistics, ‘History of and differences between the Consumer Prices Index and Retail Prices Index’ (2011): <https://www.ons.gov.uk/ons/rel/cpi/consumer-price-indices/history-of-and-differences-between-the-consumer-prices-index-and-retail-prices-index/history-of-and-differences-between-the-consumer-price-index-and-retail-price-index---article.pdf> [accessed 21 December 2018]

25 Written evidence from Office for National Statistics ([RPI0041](#))

26 Statistics and Registration Service Act 2007, [section 21\(1\)](#)

27 Statistics and Registration Service Act 2007, [section 21\(2\)](#)

28 Statistics and Registration Service Act 2007, [section 21\(3\)](#)

36. The main change to RPI since the Act has been an alteration to the collection of clothing prices. This instigated a chain of events that led to the downgrading of RPI as a National Statistic.²⁹ This is discussed in Chapter 2.
37. The 1990s also saw the birth of a new price index: the Harmonised Index of Consumer Prices, later renamed in the UK as the Consumer Prices Index.

The Consumer Prices Index

38. The Harmonised Index of Consumer Prices (HICP) was developed in the 1990s because of the need across the European Union to develop harmonised statistics for measuring EU economies. This was a result of the launch of the Economic and Monetary Union in 1992, enshrined in the Maastricht Treaty, which aimed for increasing economic convergence across the Union.³⁰ A harmonised measure of inflation would allow member states to be assessed against the inflation convergence criteria for membership of the Economic and Monetary Union and be the measure of inflation used by the European Central Bank.
39. Member states agreed on a shared approach to measuring inflation and the ‘Harmonised Index of Consumer Prices’ was created, the specifications of which were contained in an EU regulation.³¹ Member states were required to compile and publish the index from January 1997.
40. The HICP for the UK was renamed the ‘Consumer Prices Index’ in 2003.³² That year, the Government switched the inflation target (by then the responsibility of the Bank of England) from RPIX to CPI, reducing the target to 2.0 per cent to reflect the difference in how the indices are calculated.
41. There are similarities between CPI and RPI. They are both based on a fixed basket of goods and services, the vast majority of which are common between the two indices, and the same price quotes are collected for these items.³³ There are however important differences in terms of the population covered by the indices, the composition of the index and the coverage of goods and services.

Population base

42. The CPI is based on spending by all private and institutional households and spending by foreign nationals when visiting the UK.³⁴ The RPI however,

29 There are three types of official statistics: National Statistics, which have been assessed by the Office for Statistics Regulation as fully compliant with the Code of Practice for Statistics; experimental statistics; and statistics that have not been assessed as fully compliant with the Code of Practice for Statistics. The Office for Statistics Regulation provides independent regulation of all official statistics produced in the UK. UK Statistics Authority, ‘Types of official statistics’: <https://www.statisticsauthority.gov.uk/about-the-authority/uk-statistical-system/types-of-official-statistics/> [accessed 21 December 2018]

30 European Commission, ‘What is the Economic and Monetary Union? (EMU): https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/economic-and-monetary-union/what-economic-and-monetary-union-emu_en [accessed 21 December 2018]

31 Council Regulation (EC) No 2494/95 of 23 October 1995 concerning harmonized indices of consumer prices, (OJ L 257, 27 October 1995)

32 Office for National Statistics, ‘History of and differences between the Consumer Prices Index and Retail Prices Index’ (2011): <https://www.ons.gov.uk/ons/rel/cpi/consumer-price-indices/history-of-and-differences-between-the-consumer-prices-index-and-retail-prices-index/history-of-and-differences-between-the-consumer-price-index-and-retail-price-index---article.pdf>. [accessed 21 December 2018]. It remains the HICP for the UK.

33 *Ibid.*

34 Institutional households include educational and health care institutions, institutions for retired or elderly people, military institutions and religious institutions.

as noted above, excludes the highest-earning households (the top four per cent) and pensioner households where three quarters of income is from state pensions and benefits.³⁵

43. The CPI includes spending by foreign visitors to the UK but the spending of UK households abroad is excluded. The RPI does the opposite, excluding spending by foreign visitors but including the spending of UK households abroad.
44. The spending data used to calculate weights are taken from different sources. The RPI uses the ‘Living Costs and Food Survey’, a descendant of the Family Expenditure Survey which is conducted by the Office for National Statistics. The CPI uses ‘Household Final Monetary Consumption Expenditure’, which is taken from the National Accounts.³⁶

Index construction

45. For around 60 to 70 per cent of the prices collected for price indices, expenditure weights are not available for the level at which prices are collected.³⁷ For example, one class of item in the inflation basket is “Loose and pre-packed potatoes—old, new and baking varieties”. Expenditure weights based on surveys will be available only for potatoes as a whole class, not for individual varieties of potato. But as the price quotes collected will be at the individual variety level—for example, the price of King Edward potatoes—a method of aggregating these prices is required so that an average price increase for the class of item can be calculated. Box 4 explains this point in more detail.
46. The RPI uses two methods of calculating an average to aggregate lower level prices where expenditure weights are not available. Both methods use the ‘arithmetic mean’ where an average is derived from the sum of values. Both methods have strengths and weaknesses and the choice of which one to use depends on the nature of price changes for a given item.³⁸ The two methods are known as the Carli formula and the Dutot formula:
 - Carli formula (the average of price changes): the price relatives (the current price divided by the previous or base period price) for a number of products are added up and divided by the number of products within the class;³⁹
 - Dutot formula (the ratio of price averages): the current period prices of all the products within the class are added up and divided by the

35 The Office for National Statistics have estimated that these exclusions represent around 13 per cent of private household spending: Office for National Statistics, ‘History of and differences between the Consumer Prices Index and Retail Prices Index’.

36 Living Costs and Food Survey data is fed into this but combined with other information.

37 For the remaining items, expenditure weights can be calculated at the lowest level of aggregation, for example, gas and electricity bills, car purchases and mobile phone charges: UK Statistics Authority, *UK Consumer Price Statistics: A Review* (January 2015): <https://www.statisticsauthority.gov.uk/archive/reports---correspondence/current-reviews/uk-consumer-price-statistics---a-review.pdf> [accessed 21 December 2018]

38 The Dutot is used for items where there is relatively little variation in price between products within the same class (for example, food, alcohol and tobacco) as it can produce odd results when products at very different price levels are combined; the Carli is used where there is more variation in prices between products (for example, household appliances or furniture).

39 This method of calculating a price change was developed by Count Giovanni Rinaldo Carli, an 18th century economist who served Leopold of Tuscany. Robert O’Neill *et al* (2017), *Inflation: History and Measurement*, Palgrave Macmillan, p 244.

number of products to get an average current period price; this process is repeated with base period prices and the average current period price is divided by the average base period price.⁴⁰

The operation of both methods is shown in Box 4.

47. The CPI however uses a third method known as the Jevons formula.⁴¹ This uses the ‘geometric mean’ where an average is calculated from the product of the values. The price differences (current price compared to the previous price) are multiplied together and the nth root (where n is the number of products) is taken. Its operation is shown in Box 4.
48. The EU Regulation permits the use of the Dutot and Jevons index in the harmonised price index but discourages the use of the Carli index.

Box 4: Price aggregation

For the purposes of illustration, it is assumed that there are four varieties of potato available in shops: Charlotte, King Edward, Maris Piper and Vivaldi. The table below shows the price of each variety in October 2017 and October 2018, and the percentage increase/decrease in price, expressed as a ratio, between the two periods.

Variety	Price in Oct 2017 (£)	Price in Oct 2018 (£)	Price ratio
Charlotte	2.00	1.90	0.95
King Edward	2.00	1.60	0.80
Maris Piper	1.80	1.89	1.05
Vivaldi	2.00	2.50	1.25

The price change for each variety is collected. The proportion of average household spend on potatoes is known but the proportion spent on each variety is not. A method is therefore required by which the price change of the varieties can be combined, so as to produce a single figure for the average price change of potatoes over the 12-month period.

The three formulas discussed above provide three different methods for calculating the average price change for potatoes:

- Carli: the price ratios are added together and divided by the number of products: $(0.95 + 0.80 + 1.05 + 1.25) \div 4 = 1.0125$

40 Nicolas Dutot was a French economist who had purchased Bishop Fleetwood’s book (see footnote xx) and built on it to produce a price index in 1738 using the ratio of the average of prices. Robert O’Neill *et al* (2017), p 247.

41 The British economist William Stanley Jevons set out his formula in an 1863 pamphlet in which he argued that the average of price ratios used must be the geometric rather than the arithmetic mean. He gave an example of where the price of cocoa has doubled and the price of cloves has halved. The Carli formula would say that prices have risen overall by 25 per cent but Jevons said this logically inconsistent as if one has doubled and the other halved there has been “no alteration of price whatsoever”. The example is discussed in Chapter 2.

- Dutot: the ratio of price averages in October 2017 and October 2018 is calculated:

Average price in Oct 2018: $((1.90 + 1.60 + 1.89 + 2.50) \div 4) = 1.9725$

Average price in Oct 2017: $((2.00 + 2.00 + 1.80 + 2.00) \div 4) = 1.95$

Ratio of average prices: $1.9725 \div 1.95 = 1.0115$

- Jevons: the price ratios are multiplied together and the 4th root is taken: $(0.95 \times 0.80 \times 1.05 \times 1.25)^{1/4} = 0.9900$

In this example, the Carli and Dutot formulas produce a 1 per cent average price increase in potatoes over the period whereas the Jevons formula produces a 1 per cent decrease.

49. The choice of which formula to use for which class of goods will have a bearing on the outcomes of an index. Table 1 shows the extent to which the three approaches are used in the CPI, CPIH and RPI.

Table 1: Formulas used in price indices, per cent of total index weight (2012)

Formula	CPI	CPIH	RPI
Carli	0	0	27
Dutot	5	4	29
Jevons	63	55	0
Other/weighted formula	33	41	43

Source: UK Statistics Authority, *UK Consumer Price Statistics: A Review (January 2015)*: <https://www.statisticsauthority.gov.uk/archive/reports---correspondence/current-reviews/uk-consumer-price-statistics---a-review.pdf> [accessed 21 December 2018]

50. Opinion amongst our witnesses was divided about the properties of the Carli formula and its use in the RPI. The debate around the best formula to use is centuries old. These arguments are considered in Chapter 2.

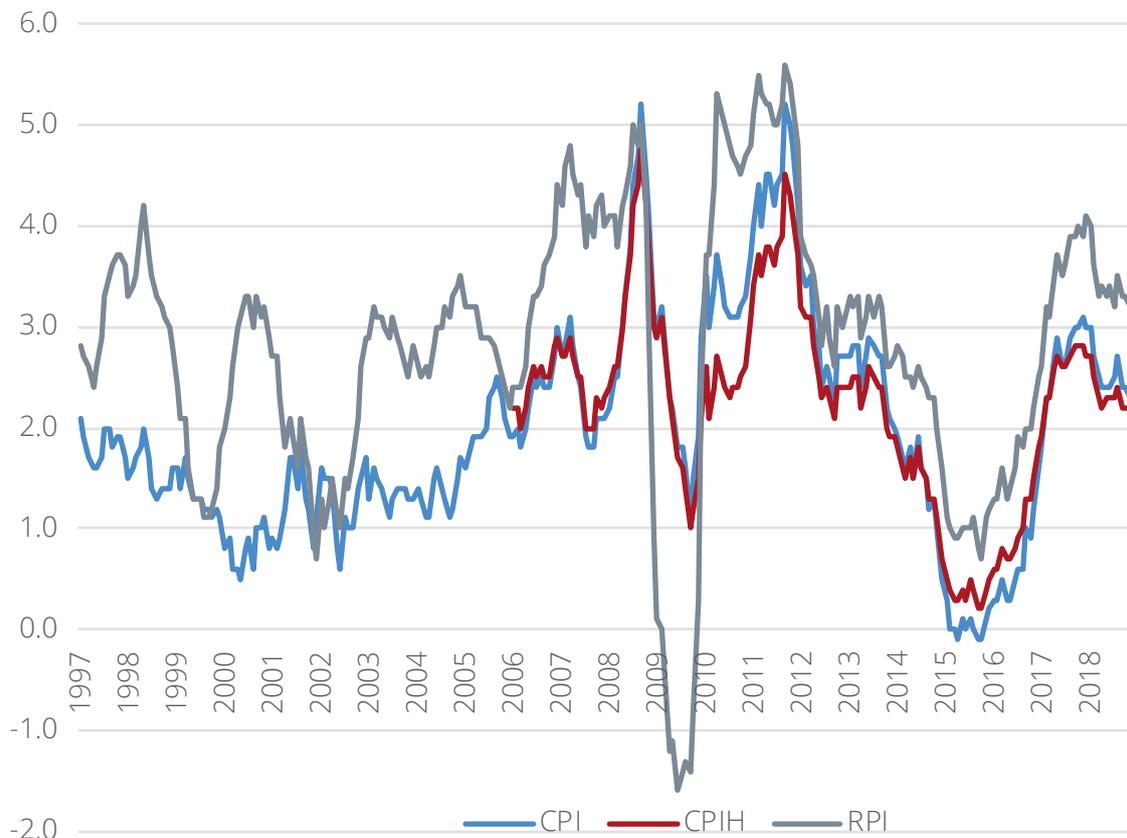
Commodity coverage

51. One of the largest differences between the two indices is that the RPI includes measures of owner-occupier housing, such as mortgage interest payments, whereas they are largely excluded in the CPI.⁴² Figure 1 shows the difference that this can cause: the decrease in interest rates as a response to the financial crisis caused RPI to go negative, whereas CPI remained above one per cent.⁴³ The chart compares CPI and RPI since CPI was introduced in 1997.

42 This is due to difficulties some EU members had in implementing the agreed common approach.

43 Other differences in coverage: the RPI includes council tax but the CPI does not; the CPI includes university accommodation fees and stockbroker fees but the RPI does not.

Figure 1: Annual percentage change in CPI, CPIH and RPI from January 1997 (January 2006 for CPIH) to November 2018 (% , monthly figures; CPI/CPIH 2015 = 100, RPI 1987 = 100)



Source: Office for National Statistics, 'Inflation and price indices': <https://www.ons.gov.uk/economy/inflationandpriceindices#timeseries>

52. Figure 1 also includes CPIH.⁴⁴ This was developed by the Office for National Statistics to remedy the exclusion of owner-occupier housing costs from CPI.

Consumer Prices Index including owner occupiers' housing costs

53. The Consumer Price Index including owner-occupiers' housing costs (CPIH) was introduced by the Office for National Statistics in 2013. The index is the same as CPI, except that it includes council tax and attempts to measure owner-occupier housing costs. It does the latter through an approach known as 'rental equivalence', where the rent paid for an equivalent house in the private sector is taken as a proxy for the costs faced by an owner-occupier. It is updated and maintained in the same way as CPI.⁴⁵

54. The CPIH lost its designation as a National Statistic in 2014 after concerns about the methodology behind rental equivalence. Following a series of improvements, CPIH regained its status as a National Statistic in July 2017. The treatment of housing costs in the CPIH is considered further in Chapter 3.

44 CPIH was introduced in 2013 but has been calculated back to Q1 2006 by the Office for National Statistics.

45 Office for National Statistics, 'Introducing the New CPIH Measure of Consumer Price Inflation': <https://www.ons.gov.uk/ons/guide-method/user-guidance/prices/cpi-and-rpi/introducing-the-new-cpih-measure-of-consumer-price-inflation.pdf> [accessed 21 December 2018]

CHAPTER 2: CRITICISM OF THE RETAIL PRICES INDEX

55. There have been several reviews of RPI in recent years, both by the statistical authorities and independent experts. This spate of work was prompted by a change in 2010 to the collection of clothing prices. The result was that RPI lost its status as a National Statistic in 2013 and is now treated as a ‘legacy measure’ by the statistical authorities. This means that the statistical authorities will carry out no further work to improve the methodology of RPI, beyond routine improvements such as updating the inflation basket and expenditure weights.⁴⁶
56. This chapter examines the recent criticism of RPI and considers whether its status as a legacy measure is justified and tenable.

Recent issues with RPI

57. As explained in the previous chapter, the CPI and RPI use different formulas to aggregate prices where expenditure weights are not available. This leads to a difference in their estimates of inflation. This difference is referred to as the ‘formula effect’. Figure 2 shows how much the Office for National Statistics has calculated that RPI has been higher than CPI since 2005 due to this formula effect.

Figure 2: Difference between 12 month changes in RPI and CPI due to the formula effect, January 2005 to November 2018 (%)⁴⁷



Source: Office for National Statistics, ‘Difference between CPI and RPI due to formula effect 2015=100’ (19 December 2018): <https://www.ons.gov.uk/economy/inflationandpriceindices/timeseries/dra9/mm23>

58. As Figure 2 shows, there was a large sudden increase in the formula effect in 2010. In December 2009, RPI was estimated to be 0.54 percentage points

⁴⁶ Along with changes made to CPI and CPIH that need also to be made to RPI due to the common elements of compilation.

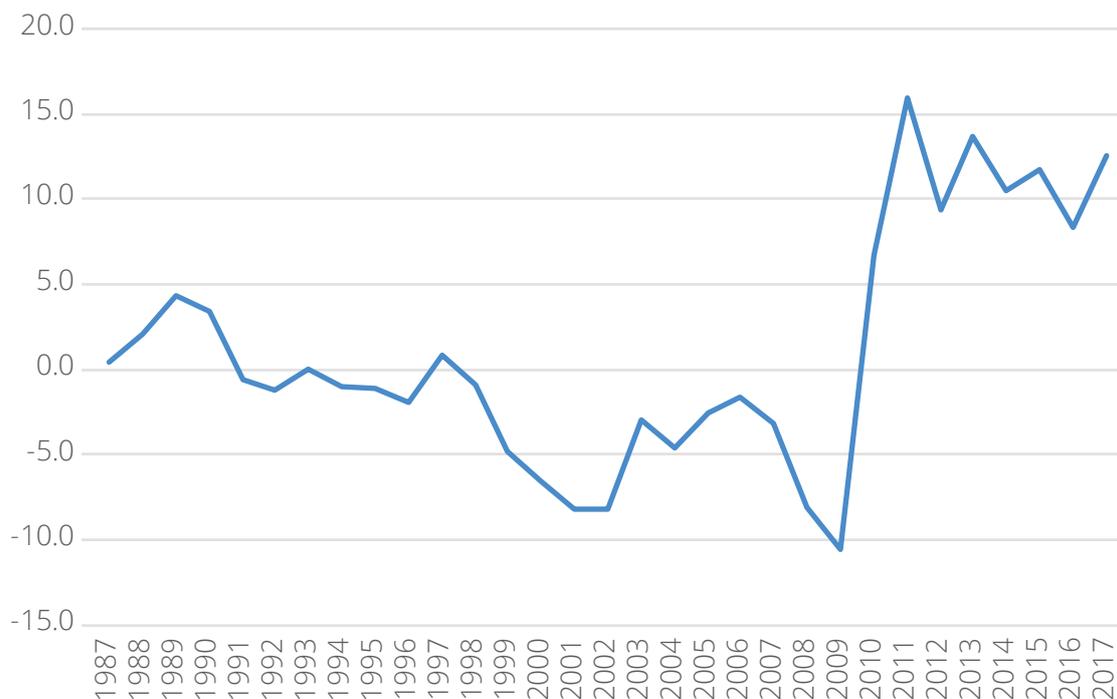
⁴⁷ January 2005 is the earliest date for which the Office for National Statistics has calculated the formula effect.

higher than CPI as a result of the formula effect; by December 2010, it was estimated to be 0.86 percentage points higher.⁴⁸ What happened in 2010?

Effect of the changes to clothing price collection

59. The Office for National Statistics said that the increase was mainly due to methodological changes to the measurement of clothing prices that were implemented from January 2010. Changes were made due to difficulties in collecting comparable prices for clothing items throughout the year.⁴⁹ These changes included an increased sample size from relaxing rules on the comparability of different clothing styles,⁵⁰ and the collection of prices from items that are on sale in January. The changes were made as measured clothing inflation prior to 2010 was considered to be too low.
60. The effect of this change can be seen when the RPI's estimates of the annual price change in 'women's outerwear' (one of the classes of goods included in the RPI basket) are compared before and after 2010, as shown in Figure 3.

Figure 3: RPI's estimate of the annual price change of women's outerwear, 1987 to 2017 (%)



Source: Office for National Statistics, 'Consumer price inflation time series' (19 December 2018): <https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/consumerpriceindices>

From 1987 to 2009, the average annual price change in women's outerwear as measured by the RPI was a 2.5 per cent decrease; from 2010 to 2017, the average annual price change was an 11.1 per cent increase. It is implausible that such a large swing is due to actual price rises since 2010.

48 Office for National Statistics, 'CPI and RPI: increased impact of the formula effect in 2010' (2011): <https://webarchive.nationalarchives.gov.uk/20160106041638/http://www.ons.gov.uk/ons/guide-method/user-guidance/prices/cpi-and-rpi/cpi-and-rpi--increased-impact-of-the-formula-effect-in-2010.pdf> [accessed 21 December 2018]

49 Robert O'Neill *et al* (2017), *Inflation: History and Measurement*, Palgrave Macmillan, p 292

50 Previously, small changes to the composition or style of a garment were treated as a quality change, and therefore the price in the current period could not be compared to the base period.

61. The CPI was also affected by the change (both indices use the same price quotes for clothing), although the effect on RPI was greater. Figure 4 compares CPI and RPI estimates of the annual price change for all clothing items.⁵¹

Figure 4: Comparison between the CPI's and RPI's estimate of the annual price change of clothing items, 2005 to 2017 (%; CPI class: 'clothing and footwear goods'; RPI class: 'clothing and footwear')



Source: Office for National Statistics, 'Consumer price inflation tables', Tables 30 and 43 (14 November 2018): <https://www.ons.gov.uk/economy/inflationandpriceindices/datasets/consumerpriceinflation>

62. The Office for National Statistics said that the change to clothing price collection in 2010 was responsible for 0.30 percentage points of the 0.32 increase in the overall formula effect between December 2009 and December 2010 that was highlighted above.⁵²
63. The clothing change had a greater effect on RPI because of its use of the Carli formula (which uses the arithmetic mean) whereas the CPI uses the Jevons formula (which uses the geometric mean) when they are used to calculate the average price change.⁵³ The inclusion of the new data led to greater variability in the 'price relatives' (the ratio of the current period price to the base period price). The Office for National Statistics said this meant that the Carli formula returned greater price changes:

“As a general mathematical result, the geometric mean of a given set of values [in this case, the price relatives] is always lower than an arithmetic mean ... except when those values are all equal (there is then

51 This was the highest level at which comparable data on clothing was available to compare CPI and RPI.

52 Office for National Statistics, 'CPI and RPI: increased impact of the formula effect in 2010' (2010): <https://webarchive.nationalarchives.gov.uk/20160106041638/http://www.ons.gov.uk/ons/guide-method/user-guidance/prices/cpi-and-rpi/cpi-and-rpi--increased-impact-of-the-formula-effect-in-2010.pdf> [accessed 21 December 2018]

53 See para 47 for a description of the difference between the arithmetic mean and geometric mean.

no difference). The scale of the difference depends on the dispersion of the price relatives (i.e. the ratio of the current period and base period prices); as the variance of the price relatives increases, so does the difference between the geometric mean and arithmetic mean results.

The reason why this is relevant for clothing is that all the improvements to the measurement of clothing have the potential to increase the dispersion of the price relatives.”⁵⁴

64. Witnesses were critical of the way in which the 2010 change to clothing price collection had been introduced. Jill Leyland, a member of the National Statistician’s advisory panel on consumer prices, said that the change to clothing price collection had been considered to be “a relatively minor technical matter, was not discussed by any advisory committee and, disastrously, was not tested before implementation.”⁵⁵ Arthur Barnett, a member of the RPI/CPI User Group, said that testing and recovery planning were “particularly important ... ONS and UKSA cannot simply assume that problems will not occur when methodology changes are made—there needs to be a plan in place before changes are made to recover in the event of problems.” He said the failure to test the new price collection methodology properly, and to have a recovery plan in place, had resulted in a “collective loss of confidence” amongst the statistical authorities.⁵⁶
65. The unexpected effect of the change to clothing price collection was the catalyst for a series of assessments of RPI by the statistical authorities, as detailed below. The result was that RPI has been left as a ‘legacy measure’ and no further methodological improvements will be made to it.

Response from the statistical authorities

66. The effect of the clothing price change prompted a programme of work from the Office for National Statistics. They commissioned a report from Professor Erwin Diewert, a leading expert in the index number theory, to provide advice. Professor Diewert’s 2012 report recommended that the Carli index should no longer be used in the RPI and should be replaced with another formula.
67. The then National Statistician, Jil Matheson, issued a public consultation on the future of the RPI following Professor Diewert’s report.⁵⁷ This put forward four options for improving RPI:
- (a) No change;
 - (b) Replace the Carli formula for clothing only;
 - (c) Replace the Carli formula for all items;

54 Office for National Statistics, ‘CPI and RPI: increased impact of the formula effect in 2010’ (2011): <https://webarchive.nationalarchives.gov.uk/20160106041638/http://www.ons.gov.uk/ons/guide-method/user-guidance/prices/cpi-and-rpi/cpi-and-rpi--increased-impact-of-the-formula-effect-in-2010.pdf> [accessed 21 December 2018]

55 Written evidence from Jill Leyland (RPI0038)

56 Written evidence from Arthur Barnett (RPI0015)

57 Office for National Statistics, ‘National Statistician’s consultation on options for improving the Retail Prices Index’ (October 2012): <https://www.ons.gov.uk/ons/about-ons/user-engagement/consultations-and-surveys/national-statistician-s-consultation-on-options-for-improving-the-retail-prices-index/options-for-improving-rpi-consultation-document.pdf> [accessed 21 December 2018]

- (d) Change RPI so its formulas align fully with the CPI.⁵⁸
68. Of the 406 respondents, 322 recommended the first option, with concerns expressed about the effect on index-linked gilts and pensions.⁵⁹
69. In the National Statistician's 2013 response to the consultation, she concluded that the Carli formula was the "primary source of the formula effect difference between the RPI and the CPI, and that this formulation does not meet current international standards."⁶⁰ She recommended however that the RPI should be maintained in its current form:
- "... there is significant value to users in maintaining the continuity of the existing RPI's long time series without major change, so that it may continue to be used for long-term indexation and for index-linked gilts and bonds in accordance with user expectations."⁶¹
70. The National Statistician also recommended the production of a new additional index—Retail Price Index Jevons (RPIJ)—which would be the RPI but with the Carli formula replaced with the Jevons formula.
71. The UK Statistics Authority accepted these recommendations. It removed National Statistic status from RPI in March 2013. In July 2013 it announced that the RPIJ would become a National Statistic.⁶² The authority also commissioned a review of consumer price statistics by Paul Johnson.

RPI as a legacy measure

72. Paul Johnson's review, published in January 2015, described the existing situation:
- "By not changing its calculation to make it a more 'correct' measure of inflation in the face of clear evidence that the current methodology is flawed, the [UK Statistics] Authority has set a clear precedent. The National Statistician recognised that by stating that the methodology of the RPI would remain unchanged. This means that improvements to the methodology of the CPI and CPIH will not be carried over to the RPI."⁶³
73. The review recommended that the RPI should be considered a 'legacy measure' only; no further changes should be made to it and it should stop being used:
- "ONS and the UK Statistics Authority should re-state its position that the RPI is a flawed statistical measure of inflation which should not be used for new purposes and whose use should be discontinued for all purposes unless there are contractual commitments at stake."

58 *Ibid.*

59 Only 20 responses supported one of the options for change, 54 did not express a preference.

60 Office for National Statistics, 'Response to the National Statistician's consultation on options for improving the Retail Prices Index' (February 2013): <https://www.ons.gov.uk/ons/about-ONS/get-involved/consultations/archived-consultations/2012/national-statistician-s-consultation-on-options-for-improving-the-retail-prices-index/national-statisticians-response.pdf> [accessed 21 December 2018]

61 *Ibid.*

62 UK Statistics Authority, *Assessment of compliance with the Code of Practice for Official Statistics*, July 2013: <https://www.statisticsauthority.gov.uk/archive/assessment/assessment/assessment-reports/assessment-report-257---statistics-on-consumer-price-inflation.pdf> [accessed 21 December 2018]

63 UK Statistics Authority, *UK Consumer Price Statistics: A Review* (January 2015): <https://www.statisticsauthority.gov.uk/archive/reports---correspondence/current-reviews/uk-consumer-price-statistics---a-review.pdf> [accessed 21 December 2018]

- “Government and regulators should work towards ending the use of the RPI as soon as practicable. Where they decide to keep using it the UK Statistics Authority should ask them to set out clearly and publicly their reasons for doing so.”
 - “The logic of the National Statistician’s recent decisions is that the RPI should be considered a legacy measure to be used only where contractually required. No further changes should be made to the RPI.”⁶⁴
74. The statistical authorities accepted these recommendations from the Johnson review. The UK Statistics Authority told the Committee that the Office for National Statistics considers RPI to be “a legacy measure” and that it publishes it only because it is required to do so by the 2007 Act.⁶⁵ Paul Johnson however told us that given the continued use of RPI, he had changed his mind since the review and believed changes should be made to it, this is discussed below.⁶⁶
75. The review also said that RPIJ should be discontinued, given it was not widely used and “seems to cause confusion, with users not clear whether they should move to RPIJ or CPIH.”⁶⁷ The Office for National Statistics announced it was discontinuing the index in November 2016.⁶⁸

Current position of the statistical authorities on RPI

76. In March 2018 the Office for National Statistics published a paper on the ‘Shortcomings of the Retail Prices Index as a measure of inflation’.⁶⁹ The paper described RPI as “a very poor measure of general inflation, at times greatly overestimating and at other times underestimating changes in prices and how these changes are experienced.” It said there were “better measures available” which were “far superior” to RPI.⁷⁰
77. The paper said that the mathematical properties of the Carli formula increase the growth rate in the RPI by around 0.7 percentage points when compared with the CPI. It also said that the problems with RPI are “many: it is not just the use of the Carli formula that is a concern.” Other than the formula effect, the problems it listed with the RPI were:
- the treatment of housing costs, which meant the RPI was influenced heavily by house prices and interest rates;⁷¹

64 *Ibid.*

65 Written evidence from UK Statistics Authority ([RPI0026](#))

66 See para 106.

67 UK Statistics Authority, *UK Consumer Price Statistics: A Review* (January 2015): <https://www.statisticsauthority.gov.uk/archive/reports---correspondence/current-reviews/uk-consumer-price-statistics---a-review.pdf>. [accessed 21 December 2018] The review also said that apart from the use of the Carli formula, the RPIJ suffered from all of the other problems of RPI, discussed below at para 96.

68 Office for National Statistics, ‘Clarification of publication arrangements for the Retail Prices Index and related indices: November 2016’ (10 November 2016): <https://www.ons.gov.uk/economy/inflationandpriceindices/articles/clarificationofpublicationarrangementsfortheretailpricesindexandrelatedindices/november2016> [accessed 21 December 2018]

69 Office for National Statistics, ‘Shortcomings of the Retail Prices Index as a measure of inflation’ (8 March 2018): <https://www.ons.gov.uk/economy/inflationandpriceindices/articles/shortcomingsoftheretailpricesindexasameasureofinflation/2018-03-08> [accessed 21 December 2018]

70 *Ibid.* See para 42 for the differences in population coverage between the CPI and RPI.

71 We note that house prices are paid only by those buying a house and interest rates do not affect most homeowners (as the majority of homeowners do not have a mortgage).

- the exclusion of the richest and poorest households: “ONS has recently investigated this further and found that “trimming” the population in this way does not make it more representative of the average household”;
- the use of the Living Costs and Food Survey to derive weights: “the sample sizes tend to be small at the fine level of detail required for a consumer price index ... a more accurate and comprehensive source for expenditure data can be obtained from national accounts estimates using the Household Final Consumption Expenditure”.⁷²

78. The current National Statistician, John Pullinger, listed these other problems when he gave evidence to us in July 2018.⁷³ The Deputy National Statistician, Jonathan Athow, told us that “there is quite a fundamental set of issues with RPI.”⁷⁴

Should RPI be a legacy measure?

79. We heard arguments for and against the position of the statistical authorities on RPI. We here consider the merits of the arguments they have given for treating RPI as a legacy measure and then look at how tenable is the position not to improve RPI.

Shortcomings of the Carli formula

80. Chris Giles, the economics editor of the *Financial Times*, told us that the Carli index had “known biases”. He said ‘price bounces’—where prices go up but revert back again—exacerbated these biases and this was evident from the effects of the clothing change.⁷⁵
81. Professor Martin Weale, a former member of the Monetary Policy Committee of the Bank of England, gave an example of the Carli formula’s “upward bias”. It is reproduced in Box 5, with slight modifications.

Box 5: Illustrating upward bias in the Carli formula

In January 2016, there are two shirts which each cost £20.

In January 2017, the price of shirt x rises to £30 whilst the price of shirt y remains at £20.

In January 2018, the price of shirt x drops back to £20 whilst the price of shirt y remains at £20.

Under the Carli formula,⁷⁶ the average price change from January 2016 to January 2017 would be 25 per cent: $(1+1.5) \div 2 = 1.25$

From January 2017 to January 2018, the average price change would be a 17 per cent reduction: $(1+0.66) \div 2 = 0.83$

When these price change ratios are multiplied together, the increase in price recorded by the Carli index from January 2016 to January 2018 is 4.1 per cent ($1.25 \times 0.83 = 4.1$), even though both shirts cost £20 in January 2016 and £20 in January 2018.

Source: Written evidence from Professor Martin Weale ([RPI0017](#))

72 *Ibid.* The Living Costs and Food Survey is the successor to the Family Expenditure Survey that was instigated when the RPI began officially in the 1950s: see para 29.

73 [Q 53](#) (John Pullinger)

74 [Q 14](#) (Jonathan Athow)

75 [Q 10](#) (Chris Giles)

76 See Box 4 for an explanation of how the Carli formula works.

82. Dr Ben Broadbent, Deputy Governor of Monetary Policy at the Bank of England, said the problem described in Box 5 was “worse the greater the dispersion of the inflation rates.” He said that what happened with the clothing change in 2010 was that “there was a great deal more dispersion in the inflation rates of the individual items. That is what suddenly pushed [the RPI] up.”⁷⁷
83. Dr Broadbent said that the failings of the Carli index “have been evident for a century”, citing a pamphlet by the American economist Irving Fisher from 1922.⁷⁸ Referring to Irving Fisher’s work in a November 2018 letter to the Royal Statistical Society, Dr Broadbent said that “almost a century later there is virtually no other statistical agency in an advanced economy that uses it.”⁷⁹
84. Robert Hill, Professor of Macroeconomics at the University of Graz, also cited Irving Fisher’s work and concluded that the use of the Carli formula was “indefensible”:
- “Irving Fisher warned against using the Carli formula in his 1922 book on index numbers. Carli fails the time reversal test, and suffers from a systematic upward bias. For example, if prices change from periods 1 to 2, but then in period 3 return to their original period 1 levels, a chained Carli index will always find that the price level is higher in period 3 than in period 1 (except in the special case where all prices change by exactly the same proportion from one period to the next).”⁸⁰
85. When reaching their conclusions, both Professor Diewert’s 2012 report and Paul Johnson’s 2015 review gave weight to the fact that the Carli formula failed this so-called ‘time reversal’ test when coming to their conclusions. Paul Johnson’s review concluded that this property of the Carli formula “is likely to be contributing to the formula effect.”⁸¹
86. This feature of the Carli formula was identified by William Stanley Jevons in 1863. Jevons gave the example of an index measuring the price change of cocoa and cloves. If the price of cocoa is doubled and the price of cloves is halved, the Carli formula will say prices have increased by 25 per cent. Jevons said this was logically inconsistent as there has been “no alteration of price whatever.” The geometric mean however will return an answer of no price change. For this reason, Jevons said the geometric rather than arithmetic mean was preferred.⁸²

77 [Q 65](#) (Dr Ben Broadbent)

78 [Q 66](#) (Dr Ben Broadbent)

79 Letter from Dr Ben Broadbent to Stephen Penneck (8 November 2018): <https://www.rss.org.uk/Images/PDF/influencing-change/2018/response-stephen-penneck-8-11-18.pdf> [accessed 21 December 2018]. Dr Broadbent quoted from Irving Fisher’s work in the letter: “Fisher was pretty clear in his criticisms of Carli in 1922: “if this book has no other effect than to lead to the total abandonment of the simple arithmetic type of index number it will have served a useful purpose.””

80 Written evidence from Professor Robert Hill ([RPI0010](#))

81 UK Statistics Authority, *UK Consumer Price Statistics: A Review* (January 2015): <https://www.statisticsauthority.gov.uk/archive/reports---correspondence/current-reviews/uk-consumer-price-statistics---a-review.pdf> [accessed 21 December 2018]

82 In year 1, the price of cocoa is 1.00 and the price of cloves is 1.00. In year 2, the price of cocoa is 2.00 and the price of cloves is 0.50. Under the Carli formula, the average price change would be $(2 + 0.5) / 2 = 1.25$, a 25 per cent increase. Under the Jevons formula, the average price change would be $(2 \times 0.5)^{1/2} = 1.00$, no price change.

Challenging criticisms of the Carli formula

87. Some witnesses felt that much of the criticism of the Carli formula was unfounded. The main argument was that the Carli formula had been problematic only when used with the new clothing price data, the implementation of which had been flawed. Otherwise the Carli formula did not lead to substantial upward bias.
88. The RPI/CPI User Group, an independent user group that operates under the auspices of the Royal Statistical Society, said that the problems with the Carli formula has been known about “for decades” and had been “greatly overstated since 2010.”⁸³ They said it was the change to the method for collecting clothing prices, combined with the use of the Carli formula, which was the problem. Arthur Barnett said that the available evidence “does not point to a systematic upward bias. This question is separate from the clothing issue which [relates to] the price collection methodology.”⁸⁴ The way the clothing change was implemented without proper testing was criticised by witnesses.⁸⁵
89. The Royal Statistical Society said it was a “fundamental misjudgement” to blame the Carli formula solely for the widening of the formula effect. They said that since 2010 the RPI had “clearly over-estimated” the rise in clothing prices and the CPI clothing index looked more plausible, “but, due to the nature of the Jevons index, it very probably under-estimates it to a certain extent.” They said none of the index formulas could cope properly with an immense variation in prices.⁸⁶
90. They also said it was “a common misconception” that the Carli index produced the upward bias as described in Box 5:
- “In fact, there are two versions of the Carli index—direct and chained. The chained version does indeed suffer from the problem mentioned [above]. However, it is the direct index, which does not behave in this way, which is used in the RPI. Although the RPI is a chain-linked index, the Carli component is not chained. Unfortunately, the Johnson Review does not make this distinction.”⁸⁷
91. ‘Chain-linking’ is the process which enables a continuous price index at the higher class level—for example, potatoes—to be produced. It takes account for the fact that expenditure weights will change from year to year, allowing comparison with previous years.⁸⁸
92. Dr Mark Courtney, former Head of Economics in the Regulatory Impact Unit, Cabinet Office, said that the process of chaining “might itself cause an upwards or downwards bias, particularly if prices around the chaining point are not smooth but ‘bouncing’”, but there was no evidence of a substantial bias in the RPI:

83 Written evidence from RPI/CPI User Group ([RPI0028](#))

84 Written evidence from Arthur Barnett ([RPI0015](#))

85 Written evidence from Dr Mark Courtney ([RPI0011](#)) and Jill Leyland ([RPI0038](#))

86 Written evidence from Royal Statistical Society ([RPI0001](#))

87 *Ibid.* They provided an example of a chained and a direct Carli index which is reproduced in Appendix 4.

88 UK Statistics Authority, *UK Consumer Price Statistics: A Review* (January 2015): <https://www.statisticsauthority.gov.uk/archive/reports---correspondence/current-reviews/uk-consumer-price-statistics---a-review.pdf> [accessed 21 December 2018]. The weights used in the calculation of RPI have been updated annually since 1962.

“This possibility—initially alleged by the ONS as being a weakness of the RPI—has been extensively studied, and where, as in the RPI, chaining takes place annually (rather than monthly) and at an aggregate level, there is no theoretical reason to expect an upward bias, and the best empirical evidence is that chain drift in the RPI is no more than 0.02 percentage points per annum.”⁸⁹

93. Arthur Barnett said that as RPI does not use a chain-linked Carli index, the transitivity test does not apply. He said that all British consumer price indices failed this test because all indices used the arithmetic mean in chain-linking.⁹⁰
94. The Royal Statistical Society produced an example of a chained and a direct Carli index which is reproduced in Appendix 4.
95. Paul Johnson’s 2015 review noted that “experts differ on the relative importance of the tests, and an index failing a test does not necessarily mean that index is unsuitable.”⁹¹

Other shortcomings of the RPI

96. Paul Johnson’s 2015 review also relied on the other shortcomings of RPI which were identified by the Office for National Statistics: “Issues with the data source of the weights, population coverage and treatment of some goods (like insurance and owner-occupiers housing costs) make the RPI less suitable as a measure of overall inflation.”⁹²
97. As the previous chapter showed, none of these considerations are new. Arthur Barnett asked how the RPIJ—a measure which also had these purported problems—could have been designated a National Statistic in 2013: “therefore five years ago there was no hint that the problem ONS and UKSA perceived with the RPI was other than the Carli formula ... This change of mind ... would appear to be very recent.”⁹³
98. Jill Leyland said that not everyone agreed that these features of RPI were unsatisfactory. There was a “fundamental difference” between these issues and the clothing issue: “These features were each adopted after long and careful consideration and consultation, as can be seen in the reports of the [Cost of Living] Advisory Committee. In other words there were, in each case, solid grounds for adopting the methodology in question.”⁹⁴
99. **We heard evidence that the Carli formula, as used in the RPI, produces an upward bias. But expert opinion on the shortcomings of the RPI differs.**
100. **There is however broad agreement that the widening of the range of clothing for which prices were collected has produced price data which, when combined with the Carli formula, have led to a substantial increase in the annual rate of growth of RPI.**

89 Written evidence from Dr Mark Courtney (RPI0011)

90 Written evidence from Arthur Barnett (RPI0015)

91 UK Statistics Authority, *UK Consumer Price Statistics: A Review* (January 2015): <https://www.statisticsauthority.gov.uk/archive/reports---correspondence/current-reviews/uk-consumer-price-statistics---a-review.pdf> [accessed 21 December 2018]

92 *Ibid.*

93 Written evidence from Arthur Barnett (RPI0040)

94 Written evidence from Jill Leyland (RPI0038)

101. **We are not in a position to reach a conclusion on the question of whether the Carli formula is problematic in areas other than clothing. Given the properties of the Carli formula that may lead to upward bias have long been evident, yet expert opinion still differs, it may be a perpetual debate.**

The decision to make no further improvements to RPI

102. There were however witnesses on both sides of the debate who questioned the resolution of the statistical authorities to make no further improvements to RPI. Many witnesses referred to the legal duties of the statistical authorities in producing official statistics. These duties are set out in Box 6.

Box 6: Summary of the legal duties of the UK Statistics Authority when producing official statistics

Under section 7(1) of the Statistics and Registration Service Act 2007 the UK Statistics Authority has the objective of “promoting and safeguarding the production and publication of official statistics that serve the public good.”

Section 7(2) provides that the reference to serving the public good includes, in particular, “informing the public about social and economic matters” and “assisting in the development and evaluation of public policy”.

Section 7(3) provides that the UK Statistics Authority is to promote and safeguard “the quality of official statistics”, “good practice in relation to official statistics” and “the comprehensiveness of official statistics”.

Section 7(4) states that references to the quality of any official statistics includes “their impartiality, accuracy and relevance” and “their coherence with other official statistics”.

Section 21(1) requires the UK Statistics Authority to “compile and maintain the Retail Prices Index” and “publish it every month”.

As discussed in the previous chapter, section 21(2) requires the UK Statistics Authority, “before making any change to the coverage or the basic calculation of the Retail Prices Index”, to “consult the Bank of England as to whether the change constitutes a fundamental change in the index which would be materially detrimental to the interests of the holders of relevant index-linked gilt-edged securities.”

Section 21(3) provides that “If the Bank of England considers that the change constitutes a fundamental change in the index which would be materially detrimental to the interests of the holders of relevant index-linked gilt-edged securities, the Board [of the UK Statistics Authority] may not make the change without the consent of the Chancellor of the Exchequer.”

Source: *Statistics and Registration Service Act 2007*

103. Chris Giles said that these legal duties meant there was “a fundamental point of principle” that the statistical authorities should produce an “as accurate as possible RPI”.⁹⁵ Leaving RPI as it is was “the worst option, because we potentially have an index that is deficient but is central to public life in this country until 2068 ... I do not think [this] is tenable in the long term.”⁹⁶ The RPI/CPI User Group said it believed the statistical authorities were

95 Q.7 (Chris Giles)

96 Q.6 (Chris Giles). An index-linked gilt was issued in 2013 that matures in 2068, see Chapter 3.

“required under its duty and obligations, to work toward the RPI regaining its [National Statistic] status.”⁹⁷

104. Simon Briscoe, a consultant on statistical matters, believed that given the legal statutory requirement to promote and safeguard the quality of official statistics, the fact the Office for National Statistics describes RPI as a “poor” measure of inflation implies it is not meeting that statutory duty.⁹⁸ Unison said that the Office for National Statistics was “failing in its duty to users of inflation measures.”⁹⁹
105. Geoff Tily, a member of the stakeholder advisory panel on consumer prices (which provides independent advice to the National Statistician), said that “the statistical authorities have been holding the line of the Johnson review ever since it was cast in stone”:

“... at the first meeting of the new advisory panel arrangement we were presented with a copy of the Johnson review almost as if it was the holy writ and we would be implementing it. You cannot get a selection of people together and expect them necessarily to comply, but there has been that kind of ‘groupthink’, if you like. The momentum behind it has been very much that we are there to implement Johnson.”¹⁰⁰

106. Paul Johnson told us that he had changed his mind since his 2015 review. He said his recommendation to make no further improvements to RPI was predicated on it being phased out: “That has not happened very much in the public or the private sector and much more slowly than one might have hoped.”¹⁰¹ He continued:

“you should consider asking [the Office for National Statistics] to correct the RPI rather than stick with its current policy of leaving it as it is ... my mind has changed over the past several years because it has become apparent that it is simply not possible for a lot of users of the RPI to move away from it.”¹⁰²

He said that while it would be “far from perfect” to reverse the clothing price change, “at least we would have something that was consistent over time.”¹⁰³

Correcting the change to clothing price collection

107. Simon Briscoe said that given that clothing comprised a very small proportion of the overall RPI, it made sense to fix the issue rather than abandon RPI:

“Since 2010, there have been many meetings where people have discussed strappy tops, because it is the most ludicrous example of where the price index has got it wrong. We have to bear in mind that strappy tops are one-thirtieth of one per cent of the RPI. I can think of no other area of life or public policy where if one three-thousandth of something was wrong, we would discard the whole lot. We would simply mend it.”¹⁰⁴

97 Written evidence from RPI/CPI User Group ([RPI0028](#))

98 [Q 23](#) (Simon Briscoe)

99 Written evidence from Unison ([RPI0004](#))

100 [Q 30](#) (Geoff Tily)

101 [Q 6](#) (Paul Johnson)

102 [Q 11](#) (Paul Johnson)

103 [Q 6](#) (Paul Johnson)

104 [Q 23](#) (Simon Briscoe)

108. Jill Leyland said the only change that needed to be made to RPI in the immediate future was to address the clothing problem. A simple solution would be to remove clothing, “or at least those clothing items which swing widely in price” from price indices: “While not an ideal solution it would make the overall index more accurate than at present ... and could be used as a temporary measure pending a more permanent solution.”¹⁰⁵

Reluctance of the statistical authorities to make the clothing change

109. Jonathan Athow, the Deputy National Statistician, told us there were two reasons why correcting the clothing change was not desirable:

“One is the question whether we could actually achieve it. Could we go back to the 2010 clothing price correction? The clothing market has moved on. Could we try to wind back to the 2010 method? I do not know whether that is possible. I am also reluctant about half-fixing it. It is like having a completely broken down car and putting new tyres on it ... I would not describe an RPI rewind to 2010 as anywhere near good ... we could end up with new problems from price collection.”¹⁰⁶

110. We asked the National Statistician, John Pullinger, why the UK Statistics Authority would not at least correct the clothing problem. He replied that “If were to make [that] change, I would want to deal with all the things that I think need to be changed.”¹⁰⁷

111. Sir David Norgrove, Chairman of the UK Statistics Authority, told us that following the procedure in section 21 of the 2007 Act, as set out in Box 6, the Chancellor would refuse to make such a change:

“I could go through the stately dance of going to the Bank of England and saying that we want to change it. It would then say, “It’s a material detriment. Go to the Chancellor”. The Chancellor would then refuse to change it. We may need to do that, but I would much rather work with the people concerned to see whether we can come up with a solution.”¹⁰⁸

112. Liz Truss MP, the Chief Secretary to the Treasury, told us that “it is difficult for the Chancellor to say yes or no to a request that has not been submitted ... I am suggesting it is the role of the ONS to put forward that proposal.”¹⁰⁹ Philip Hammond MP, the Chancellor of the Exchequer, told us that the Office for National Statistics, “should it wish to do so, would find its way to my office relatively easily and I would be very happy to hear from them if they wished to talk to me.”¹¹⁰

Detriment to holders of index-linked gilts

113. If the clothing price change were to be reversed, this would be expected to lower RPI inflation (the change in 2010 was believed to have increased RPI by around 0.3 percentage points¹¹¹). This would mean that the interest payments on index-linked gilts, which are uprated in line with RPI, would be expected to be lower. If the Bank of England deemed the clothing change to

105 Written evidence from Jill Leyland ([RPI0038](#))

106 [Q 20](#) (Jonathan Athow)

107 [Q 53](#) (John Pullinger)

108 [Q 15](#) (Sir David Norgrove)

109 [Q 33](#) (Elizabeth Truss MP)

110 Oral evidence taken on 11 September 2018 (Session 2017–19), [Q 11](#) (Philip Hammond MP)

111 See para 58.

be “fundamental” and “materially detrimental” to index-linked gilt holders, the Chancellor of the Exchequer would have to approve the change.

114. The National Statistician suggested that this provision was behind the reluctance to correct the clothing change:

“We made the change in 2010 and it has had a larger set of consequences than was anticipated then. In the light of that experience, any change is now subject to this consideration that is baked into the legislation about a fundamental change that may or may not be materially detrimental to one party ... The changes we are talking about here, it seems to me, would be fundamental, although that is a matter for the Governor to consider.”¹¹²

115. He explained how he perceived his legal duty to produce statistics that serve the public good:

“The RPI represents a series of accumulated expectations of all kinds of parties. Any change that we were to make to it would result in some getting a windfall gain and some getting a windfall loss ...

... as I interpret it, my statutory duty is to produce the statistics that serve the public good as the public good is perceived by me. I am hearing three different types of request to me, each of which I am currently seeking to fulfil ...

... We have these three different sets of [requests], the third of which is the position that has arisen since 2010, where it is very hard to move from the RPI as it currently is because of these expectations, one way or the other. I am being urged. I do not see this as political pressure. I see this simply as a user requirement. Simply because these contracts [index-linked gilts] are denominated in RPI with these characteristics, and people are in them with a set of expectations around them, it is tricky to fix it, either in part or in whole.”¹¹³

116. **Given its widespread use, it is surprising that the UK Statistics Authority is treating RPI as a ‘legacy measure’. The programme of periodic methodological improvements should be resumed.**
117. **We are unconvinced by the National Statistician’s suggestion that in publishing statistics that serve the public good, the interests of those who may be affected negatively by any change should be taken into account. It is not clear from section 7 of the Statistics and Registration Service Act 2007 that this is a relevant consideration for the statistical authorities to be taking into account when they are producing and publishing statistics.**
118. **What is clear from section 7 is that the UK Statistics Authority has to promote and safeguard the quality of official statistics, which includes their impartiality, accuracy and relevance, and coherence with other statistics. In publishing an index which it admits is flawed but refuses to fix, the Authority could be accused of failing in its statutory duties.**

112 [QQ 53–54](#) (John Pullinger)

113 [Q 50](#) (John Pullinger)

119. **We believe section 7 requires the Authority to attempt to fix the issue with clothing prices. Section 21 may require the Authority to consult the Bank of England over the change and obtain the consent of the Chancellor of the Exchequer, however this provision cannot be cited as a reason for not requesting the change in the first place.**
120. **If the Authority requests the change, the Chancellor of the Exchequer should consent to it. It is untenable for an official statistic, that is used widely, to continue to be published with flaws that are admitted openly.**

CHAPTER 3: TOWARDS A SINGLE MEASURE OF INFLATION

*“At the moment, we have RPI, which most would acknowledge has known errors. We have CPI, which is what virtually everyone recognises and is in our remit. Then there is the ONS’s favourite, if you will, the CPIH, which includes housing costs. At some point, it would be good to consolidate the focus on to one.” Governor of the Bank of England, January 2018.*¹¹⁴

121. In considering the future of the Retail Prices Index we examined the desirability of continuing to publish multiple price indices. This chapter considers the arguments for and against moving to a single official inflation measure, and sets out the steps for achieving this. It also examines the effects on the index-linked gilt market.

The need for multiple measures of inflation

122. The National Statistician, John Pullinger, told us that inflation measures try to capture “two rather different things”:

“There is an economic concept that we are trying to capture, which we have based on consumption. It is consistent with the measure used in other European countries and has been the basis of the inflation targeting ...

At the same time, there are others who say, “The key thing here is the experience of households in relation to prices”. For that, you need something different. You need something that captures things such as mortgage interest payments, that has a more sophisticated or different treatment of issues such as student loans and, perhaps most fundamentally, that treats each individual as one unit, whereas an economic measure inevitably gives greater weight to those who spend more.”¹¹⁵

123. The UK Statistics Authority said that they “believe it is unlikely that a single measure of inflation will be appropriate for all uses.”¹¹⁶
124. The Royal Statistical Society said that “no one consumer price index can meet all user needs.” It said there were two primary purposes which required different indices:
- “macroeconomic needs, such as inflation targeting and international comparison, for which the Consumer Prices Index (CPI) and similar indices were designed”;
 - “understanding how inflation affects households, which was the RPI’s original aim”.¹¹⁷
125. Dr Ben Broadbent, however, said he believed there was “a single best measure of consumer prices”. It was “not at all obvious what the difference is between a consumer price index and ‘the experience of households’ ... it is not clear to me what is meant by it.”¹¹⁸ Philip Howard, a defined benefit pensions scheme

114 Oral evidence taken on 30 January 2018 (Session 2017–19), [Q 11](#) (Dr Mark Carney)

115 [Q 53](#) (John Pullinger)

116 Written evidence from UK Statistics Authority ([RPI0026](#))

117 Written evidence from Royal Statistical Society ([RPI0001](#))

118 [Q 61](#) (Dr Ben Broadbent)

adviser, said he believed the production of two indices “causes confusion” and was “counterproductive”.¹¹⁹

Recent government practice of ‘inflation shopping’

126. The formula effect, particularly after its widening in 2010, has allowed the Government to engage in a practice referred to as ‘inflation shopping’. The RPI/CPI User Group said the Government “uses the RPI to raise its revenue: rail fares, student loans etc, and the CPI when paying out ... benefits, pensions, raising tax thresholds etc.” Table 2 below shows the areas where the Government currently uses CPI and RPI as uprating measures.

Table 2: Government use of consumer price indices for uprating

Payments made to the public		Payments made by the public	
Benefits	CPI	Air Passenger Duty	RPI
Fuel benefit charges on company vehicles (excluding vans)	RPI	Alcohol Duty	RPI
Fuel benefits charges on vans	CPI	Business rates	CPI
NS&I Index-linked Savings Certificates ¹²⁰	CPI	Regulated rail fares	RPI
Personal tax credits	CPI	Student Loan interest rate	RPI
Public sector pension schemes and state pensions	CPI	Tobacco Duty	RPI
Tax thresholds	CPI	Vehicle Excise Duty	RPI

Source: HM Treasury, Budget 2018, HC 1629, (29 October): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/752202/Budget_2018_red_web.pdf

127. When the Coalition Government announced in the June 2010 Budget that benefits, tax credits and public service pensions would rise in line with CPI rather than RPI, George Osborne, the then Chancellor of the Exchequer told the House of Commons that CPI “reflects everyday prices better”. He also said it would save over £6 billion a year by the end of the Parliament.¹²¹
128. In October 2018 National Savings and Investments announced that holders of index-linked savings certificates would be linked to CPI rather than RPI from May 2019. This change is forecast to reduce interest payments by £610 million over the next five years. John Glen MP, Economic Secretary to the Treasury, said that “we know that savers who hold these products really value the inflation protection they give. The transition to CPI for new investments over the next five years retains this, while balancing the needs of the taxpayer.”¹²² This appears to us to be a further example of a switch motivated by its favourability to the Government, rather than a principled approach to uprating.

119 Written evidence from Philip Howard (RPI0023)

120 Will switch to CPI from RPI in May 2019.

121 HC Deb, 22 June 2010, col 172

122 National Savings and Investments, ‘NS&I confirm Index-linked Savings Certificates to move from RPI to CPI, (26 October 2018): <https://nsandi-corporate.com/news-research/news/nsi-confirm-index-linked-savings-certificates-move-rpi-cpi> [accessed 21 December 2018]

129. Paul Johnson thought the Government was “correctly” seen to be “rather cynical about where they choose to use the RPI.”¹²³ The Royal Statistical Society said that the uses of the CPI and RPI by the Government were “illogical and arbitrary. In particular, the use of the RPI in the setting of (for example) railway fares and student loan repayments appears unprincipled in view of the Government’s general preference for CPI.”¹²⁴
130. Simon Briscoe said that this practice had done “a lot to damage the reputation and the use of statistics in public policy generally.”¹²⁵ The RPI/CPI User Group said that the Government had “engaged in arbitrage damaging public trust in its own statistics.”¹²⁶

Government response

131. The Chancellor of the Exchequer said that he took issue with the view that the Government were ‘index shopping’:
- “We have moved business rates to CPI and in fact have accelerated that change to provide some additional support to business-rate payers. In the rail industry, where regulated rail fares are linked to RPI, the Secretary of State for Transport ... has been explicit that he would like to move away from RPI.”¹²⁷
132. Chris Grayling MP, Secretary of State for Transport, wrote to four rail unions in August 2018, proposing that rail fares could be linked to CPI rather than RPI, if costs, including pay deals, were also uprated by CPI.¹²⁸
133. The Chancellor of the Exchequer said that once the Government’s fiscal consolidation was completed, “we will review the use of RPI for indirect taxes. We recognise the weaknesses of RPI, but of course there is a significant fiscal impact of moving indirect tax indexation to another index.”
134. **While we accept the arguments that consumer price indices have different purposes, we do not believe this warrants the production of multiple indices for government use. Two different measures of inflation allow a government to engage in ‘inflation shopping’.**
135. **The Government should address the imbalance in its use of consumer price indices. It risks undermining public confidence in economic statistics. It is encouraging to see that the present Government is taking some steps to address the imbalance, for example with the change to uprating business rates by CPI and recent discussions around rail fares.**
136. **In future there should be one measure of general inflation that is used by the Government for all purposes. This would be simpler and easier**

123 Q 9 (Paul Johnson)

124 Written evidence from Royal Statistical Society (RPI0001)

125 Written evidence from Q 25 (Simon Briscoe)

126 Written evidence from RPI/CPI User Group (RPI0028)

127 Oral evidence taken on 11 September 2018 (Session 2017–19), Q 11 (Philip Hammond MP)

128 Letter from Secretary of State for Transport to Mick Whelan, General Secretary of ASLEF, Mick Cash, General Secretary of RMT, Len McCluskey, General Secretary of Unite and Manuel Cortes, General Secretary of TSSA (14 August 2018): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/733923/transport-secretary-letter-to-rail-union-general-secretaries.pdf

for the public to understand. But the UK Statistics Authority should also continue to develop the Household Cost Indices, discussed below.

Which is the best index for a single official measure?

137. This section will consider the available candidates for a single general measure: CPI, CPIH and RPI. It will also consider briefly the development of the Household Cost Indices.

RPI

138. The statistical authorities have left no doubt about their opinion of RPI. Sir David Norgrove, chairman of the UK Statistics Authority, told us it “is not a good measure of inflation, does not have the potential to become one, and we strongly discourage its use.”¹²⁹
139. **We disagree with the UK Statistics Authority that RPI does not have the potential to become a good measure of inflation. With the improvements to RPI that we set out in the previous chapter, and a better method of capturing owner-occupier housing costs as discussed below, we believe RPI would be a viable candidate for the single general measure of inflation.**

CPI, CPIH and the treatment of owner-occupier housing costs

140. The Deputy National Statistician, Jonathan Athow, said that the lack of a measure of owner-occupier housing costs in CPI was its “major weakness”.¹³⁰ Shaun Richards, an independent adviser to pension and investment funds, said that “if there is something untenable in my opinion it is a measure of inflation which completely ignores a very important sector which is owner-occupied housing.”¹³¹
141. CPIH is therefore the preferred longer-term measure of the Government, Bank of England and UK Statistics Authority. The 2018 Budget said:
- “The Government’s objective is that CPIH will become its headline measure over time and that it will reduce the use of RPI when and where practicable. CPIH is conceptually the best measure of inflation, but is relatively new and work is ongoing to understand its properties compared to CPI and RPI.”¹³²
142. The Governor of the Bank of England suggested that over time, the CPIH could become the preferred measure: “at some point, it would be good to consolidate the [consumer price indices] focus on to one. Lest anyone thinks I am advocating changing the inflation target to CPIH, I am not at this stage, because it does not have the track record in place.”¹³³ The Chancellor of the Exchequer told us that given CPIH only became a National Statistic again in 2017: “the Government believe we should allow time for it to bed in and become accepted by the public and other users.”¹³⁴

129 Written evidence from UK Statistics Authority ([RPI0026](#))

130 [Q 16](#) (Johnathan Athow)

131 Written evidence from Shaun Richards ([RPI0024](#))

132 HM Treasury, *Budget 2018*, HC 1629, (October 2018): https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/752202/Budget_2018_red_web.pdf [accessed 21 December 2018]

133 Oral evidence taken on 30 January 2018 (Session 2017–19), [Q 11](#) (Dr Mark Carney)

134 Oral evidence taken on 11 September 2018 (Session 2017–19), [Q 11](#) (Philip Hammond MP)

143. The UK Statistics Authority said that they believe CPIH to be “the most comprehensive measure of price change across the economy as a whole and it has been our headline measure of inflation since March 2017.”¹³⁵

Treatment of owner-occupier housing costs

144. Not all witnesses however were happy with the way that CPIH estimates owner occupiers’ housing costs.
145. The three main indices treat owner-occupier housing costs in the following ways:
- CPI: no account of owner-occupier housing costs except for minor repairs
 - CPIH: rental equivalence and council tax
 - RPI: mortgage interest costs, depreciation, buildings insurance, ground rent and house purchase costs such as estate agents and conveyancing fees
146. Some witnesses argued that the RPI’s method was preferable to the rental equivalence used in CPIH. Andrew Baldwin, an independent consultant, said that the rental equivalence approach in CPIH was “not credible to the man/woman in the street.” He said the statistical authorities should reform RPI so that depreciation is measured using new dwelling prices and renovation prices rather than existing housing prices.¹³⁶ Shaun Richards said similarly that changing the depreciation measure to put “up-to-date house prices in it as a replacement ... would mean that the RPI would have a great future in front of it.”¹³⁷ We note that the private rental market is subject to its own distortions and may not provide a good proxy for owner-occupier housing costs.
147. Professor Robert Hill said however that the rental equivalence method was “the only sensible way” of measuring this expenditure. Under this method the rent paid for an equivalent house in the private sector is taken as a proxy for the costs faced by an owner-occupier. Professor Hill believed the rental market in the UK was “large and representative enough to make rental equivalence feasible.”¹³⁸
148. He said that the RPI was a “confusing” mix of two methods: the ‘user-cost approach’, which focuses on the costs incurred by owner-occupiers over a period (for example, depreciation), and the ‘payments approach’, which measures payments made by owner-occupiers such as mortgage interest payments. He said the RPI’s use of a nominal, rather than real, interest rate was problematic as the share of owner-occupier housing in the RPI rises and falls depending on the rate of inflation.¹³⁹
149. Dr Ben Broadbent said that the CPIH’s method was “definitely superior” to that of the RPI. It was “not clear” that the cost of a mortgage was the best way to measure the cost of housing; given the relatively small proportion of owner-occupiers with mortgages, rental equivalence made more sense:

135 Written evidence from UK Statistics Authority ([RPI0026](#))

136 Written evidence from Andrew Baldwin ([RPI0003](#))

137 Written evidence from Shaun Richards ([RPI0024](#))

138 Written evidence from Professor Robert Hill ([RPI0010](#))

139 *Ibid.*

“There are 27 million households in the UK; there are fewer than 10 million owner-occupier mortgages. Is the cost of a house to someone who happens already to have paid off his or her mortgage really zero? I do not think it is because, in some kind of opportunity-cost sense, they could move out of the house and let it. What they are really doing, in an economic sense, is acting as both landlord and tenant of the same property. That is the basis on which the CPIH measures housing costs. I think it is the right one.”¹⁴⁰

150. The European Commission assessed recently whether owner-occupier housing costs could be introduced into the Harmonised Index of Consumer Prices. It said that “from a conceptual point of view ... the inclusion of the cost of dwellings in the HICP remains controversial.” It concluded that it was not suitable currently to include owner-occupier housing costs but said it would pursue “the methodological work required”.¹⁴¹

Household cost indices

151. The Office for National Statistics is currently developing household cost indices which aim to reflect changing prices and costs as experienced by different types of household. Preliminary estimates were published in December 2017.¹⁴²
152. The Royal Statistical Society believed that these indices could fulfil the role of a consumer price index which shows how inflation affects households: “like the RPI, they are intended to provide a measure of costs as experienced by households.” In these indices each household is given equal weight, while the CPI weights household expenditure by the size of their consumption. In contrast, CPI, and by extension, CPIH were developed for macroeconomic purposes.”¹⁴³ Jill Leyland said that the household cost indices could replace RPI.¹⁴⁴
153. **We are not convinced by the use of rental equivalence in CPIH to impute owner-occupier housing costs. The UK Statistics Authority, together with its stakeholder and technical advisory panels and a consultation of a wide range of interested parties, should agree on the best method for capturing owner-occupier housing costs in a consumer price index.**
154. **Once a method of capturing owner-occupier housing costs has been agreed, the UK Statistics Authority, after consulting the stakeholder and technical panels, should decide which index to recommend as the Government’s single general measure of inflation. The Government should have adopted the preferred candidate as its single general measure of inflation within five years.**
155. **Our recommendations will not however solve the issue of index or inflation shopping immediately. The Government will need to take action in the interim to address this.**

140 Q 62 (Dr Ben Broadbent)

141 European Commission, ‘Report from the Commission to the European Parliament and the Council’ 29 November 2018: <http://data.consilium.europa.eu/doc/document/ST-15112-2018-INIT/en/pdf> [accessed 21 December 2018]

142 Written evidence from UK Statistics Authority (RPI0026)

143 Written evidence from Royal Statistical Society (RPI0001)

144 Written evidence from Jill Leyland (RPI0038)

156. **While the single general measure is being determined, the Government should switch to CPI for uprating purposes in all areas where it is not bound by contract to use RPI (except for the interest rate on student loans which, as we recommended in our *Treating Students Fairly* report, should be set at the ten year gilt rate thus reflecting the Government’s cost of borrowing).**
157. We now consider the implications of our recommendations for index-linked gilts and private sector contracts that are linked to RPI.

Index-linked gilts

158. A gilt is a Government bond which is issued by HM Treasury.¹⁴⁵ They can be purchased directly from the Debt Management Office at gilt auctions or through the secondary market. The nominal value of outstanding gilts in the market is around £1.6 trillion.¹⁴⁶ There are two types of gilt:
- Conventional gilts: a liability of the Government which guarantees to pay the holder of the gilt a fixed cash payment (coupon) every six months until the maturity date, at which point the holder receives the final coupon payment and the return of the principal. The coupon rate usually reflects the market interest rate at the time the gilt is issued. Around 75 per cent of the gilt portfolio is made up of conventional gilts.¹⁴⁷
 - Index-linked gilts: an index-linked gilt means that the coupon and principal payments are adjusted for inflation, currently measured by the RPI. This means there is a much smaller variation in real yields over time (whereas with conventional gilts, the holder is left with the market rate at the time the gilt was issued). Index-linked gilts form around 25 per cent of the portfolio and were first issued in 1981.¹⁴⁸
159. Gilts have a specific maturity date. Gilts have typically been concentrated around 5, 10 and 30-year maturities, although recently longer maturities have been issued: a conventional gilt with a 60-year maturity was issued in May 2018. The longest outstanding index-linked gilt is a 55-year gilt that matures in 2068.

New issuances of CPI-linked gilts

160. If the Government is to use a single measure of inflation, it should be used as the inflation index for index-linked gilts. For now, following our earlier recommendation, new issuances of index-linked gilts should be linked to the CPI.
161. David Lloyd, Head of International Portfolio Management at M&G Investments, told us that new CPI-linked gilts could “absolutely” be issued:

145 The name ‘gilt’ derives from the term ‘gilt-edged security’, a reference to their primary characteristic as an investment: security. The Debt Management Office’s website says that the name reflects the fact that the British Government has never failed to make interest or principal payments on gilts as they fall due.

146 On 14 November 2018 the total amount outstanding (including inflation uplift for index-linked gilts) was £1,600.20 billion nominal. United Kingdom Debt Management Office, ‘Gilt Market: Gilts in Issue on 14 November 2018’: <https://www.dmo.gov.uk/data/pdfdatareport?reportCode=D1A> [accessed 21 December 2018]

147 United Kingdom Debt Management Office, ‘About Gilts’: <https://www.dmo.gov.uk/responsibilities/gilt-market/about-gilts/> [accessed 21 December 2018]

148 *Ibid.*

“there is a very strong feeling that such a development—producing a CPI linker market—is the foundation stone for a more general move from RPI to CPI.”¹⁴⁹ United Utilities Water said that the Government should develop a CPI or CPIH-linked gilt market “with a gradual transition away from RPI-linked issuance.”¹⁵⁰

Fragmentation of the market

162. The Chief Secretary to the Treasury was however concerned about new issuance being linked to CPI at this stage:

“If at the moment we were to offer RPI index linked gilts alongside CPI index linked gilts, it would cost more to the public purse, because you would have a fragmented offer. We always have to consider what the overall impact would be on the public finances and the private sector economy before we make that full move.”¹⁵¹

163. The Debt Management Office held a consultation in 2011 on issuing CPI-linked gilts. Sir Robert Stheeman, chief executive of the Debt Management Office, explained that there was a concern about market fragmentation:

“... one of the issues clearly raised by the market, which is not necessarily a killer argument, was a concern that, if we had two types of index linked gilts out there, we would have a fragmented market, and with that comes cost. I am not saying that cost is insurmountable. There may well be a time in the future when we have to live with that cost, because we want to transition to something for which there is superior demand.”¹⁵²

164. He said it was “very likely that we would achieve a poorer price for CPI linked issuance than we would for RPI linked issuance” as demand for RPI protection was much greater at the moment.¹⁵³ There would need to be “a greater amount of pension liabilities to CPI ... than there are currently issued to RPI. You need to have a core demand to build a market up and to make it sustainable over the long term.”¹⁵⁴

165. Some of the main investors in index-linked gilts are pension funds. They have liabilities linked to inflation given the payments they make to pension holders are uprated. In the private sector, most pension schemes are linked to RPI. The Chief Secretary to the Treasury said it was a case of “matching the assets people have with the liabilities they have, which is why people want to invest in index-linked gilts that are linked to RPI.”¹⁵⁵

166. KPMG have estimated that of the £2 trillion private-sector defined-benefit pension liabilities, there are £1.1 trillion linked to RPI, £300 billion linked to CPI and £600 billion not inflation linked. Public-sector defined-benefit pensions are linked to CPI, where there are liabilities worth £200 billion.¹⁵⁶

149 [Q 25](#) (David Lloyd). A ‘CPI linker market’ refers to a market for CPI-linked gilts.

150 Written evidence from United Utilities Water ([RPI0007](#))

151 [Q 35](#) (Elizabeth Truss MP)

152 [Q 36](#) (Sir Robert Stheeman)

153 *Ibid.*

154 *Ibid.*

155 [Q 37](#) (Elizabeth Truss MP)

156 Written evidence from Nomura ([RPI0032](#)). Public sector pensions were linked to RPI until 2011, see para 127.

Nomura said that “the potential demand for CPI-linked assets is growing at a markedly faster pace than that for RPI-linked assets.”¹⁵⁷

167. Dr Ben Broadbent did not think market fragmentation would occur as a matter of principle. He said there were likely similar concerns when RPI-linked gilts were first issued at the same time as conventional gilts. Although it may take time, “I do not think it would be a permanent and costly fragmentation”:
- “ ... there are private sector CPI-linked contracts. There is a swaps market in CPI and a couple of private sector institutions have issued CPI-linked debt of their own. There has been a demand for that, and I think that there would be a demand for this too.”¹⁵⁸
168. He said that pension providers have switched the pension liabilities of many employees still working in the private sector to CPI: “there is a CPI exposure within many private sector firms and pension funds.”¹⁵⁹
169. Sir Robert Stheeman said the Debt Management Office may “want to consult again on this issue when the market is giving us a clear signal that demand is now really sufficient to get this market seriously going.”¹⁶⁰
170. **The Government should begin to issue CPI-linked gilts and stop issuing RPI-linked gilts. We heard evidence to suggest there was sufficient demand to make a viable market.**
171. **Once the long-term single official measure of inflation has been agreed, gilts should begin to be issued that are linked to that index. The prospectuses for new issuances of index-linked gilts should be clear that the inflation index will change to the Government’s single general measure of inflation once it has been agreed.**

Existing RPI-linked gilts

172. We have examined how existing RPI-linked gilts would be affected by improvements to RPI and a switch to a different index. At present, the last RPI-linked gilt matures in 2068. We here consider the legal position and how any changes could be introduced.

Legal position

173. There are 30 outstanding issuances of RPI-linked gilts. For 27 of them, the prospectuses say that the gilt would be linked to an index that the Chancellor of the Exchequer considers “continues the function of being an officially recognised index measuring changes in the level of UK retail prices”.¹⁶¹
174. For the remaining three outstanding index-linked gilt issuances, which mature in 2020, 2024 and 2030, the prospectuses specify they are to be linked to RPI.¹⁶² If they are switched to another index, the Chancellor of the Exchequer has to inform gilt-holders and offer to redeem their stock at par. At present values, it is unlikely many holders would take up this offer.

157 Written evidence from Nomura ([RPI0032](#))

158 [Q 67](#) (Dr Ben Broadbent)

159 *Ibid.*

160 [Q 44](#) (Sir Robert Stheeman)

161 [Q 9](#) (Chris Giles)

162 *Ibid.*

175. If RPI were to be retained but modified by the statistical authorities, the Statistics and Registration Service Act 2007 requires the approval of the Chancellor of the Exchequer, if the Bank of England considered it to be a “fundamental change” with a “materially detrimental” effect on index-linked gilt holders.¹⁶³ This clause applies only as long as the index-linked gilts that mature in 2020, 2024 and 2030 are outstanding.¹⁶⁴

Improvements to RPI

176. A sudden shift from RPI to another index would be inappropriate. However, it is hard to see why improvements to RPI—such as changes to clothing price collection—should not be made because of the negative effect on index-linked gilt holders.
177. The clothing change in 2010—which caused a 0.3 percentage point rise in RPI inflation—created a one-off windfall for index-linked gilt holders. Chris Giles calculated that the Government had to make an extra £1 billion a year in interest payments to index-linked gilt holders as a result.¹⁶⁵ We do not see why a windfall is acceptable but a loss is not. This asymmetry is embedded in the 2007 Act, which requires the approval of the Chancellor of the Exchequer only if a change creates “material detriment” to index-linked gilt holders, not material benefit. We also note that if the clothing change had been tested properly by the statistical authorities, the change should have not been unexpected.¹⁶⁶
178. Nomura considered that “gradual improvements in the methodology of the RPI would have little impact on market liquidity”. An example of a gradual improvement it gave was a change to clothing price collection. It said problematic changes would be “adopting the Jevons statistical formula or re-indexing to CPI/CPIH [which] would create substantial capital losses, disruptive to the functioning of the market and generating financial instability.”¹⁶⁷
179. Insight Investment said that any changes to RPI “should only be undertaken after considerable consultation and planning, with any redistributive effect minimised. It is also important that comments surrounding any changes to RPI do not undermine confidence that investors will be treated fairly.”¹⁶⁸

Aligning RPI into the preferred inflation measure

180. Dr Ben Broadbent said the most “dramatic” improvement to RPI would be to turn it into CPIH:

“[The UK Statistics Authority] could have said, “Yes, we are going to carry on producing it but we are simply going to reform so that it is identical to the CPIH, which we think is the best measure of consumer prices”. I suppose it could propose that, but it would still land at the door of the Chancellor, who would have this big decision, with lots of

163 Statistics and Registration Service Act 2007, [section 21](#)

164 Section 21(4) of the Act states that relevant index-linked gilt securities for the purposes of the section “are those issued before the commencement of this section subject to a prospectus containing provision to early redemption in the event of a change to the retail prices index.”

165 [Q 6](#) (Chris Giles)

166 Witnesses were critical of the lack of testing carried out prior to the clothing change, see para 64.

167 Written evidence from Nomura ([RPI0032](#))

168 Written evidence from Insight Investment ([RPI0030](#))

consequences for account holders. In the end it will be a government process, co-ordinated with the ONS.”¹⁶⁹

181. The National Statistician told us that if he were to make improvements to the RPI, he would like to turn it into either the CPI or the household costs index which is under development.¹⁷⁰
182. Chris Giles said that it was “entirely plausible” for the statistical authorities to replace the RPI with CPIH.¹⁷¹ Paul Johnson said if such a change was made overnight, you would have a lot of extremely unhappy people who have just lost an enormous amount of money in the long run and will, not completely unreasonably, think that you have broken a contract ... I think we are probably in the wrong place on that trade-off at the moment.”¹⁷²

Response from market participants

183. Representatives from investment firms and pension funds argued against a change from RPI to CPI for existing gilts. Insight Investment said investors have invested in the “reasonable expectation that RPI will continue over the life of the bonds they have purchased.” They said that any changes to the calculation or use of RPI could cause “significant market disruption” and “damage perceptions of UK creditworthiness.”¹⁷³
184. Legal & General Investment Management said that “fundamentally, our clients and other investors have bought index-linked gilts on the basis that RPI is the index.”¹⁷⁴ They said they were “not against incremental changes to RPI so that it adequately responds to statistical developments. However, the governance around this process would be crucial as all credibility would be lost if this governance process were used to turn RPI into CPI via the back door.”¹⁷⁵

Private sector bonds and pension schemes

185. Witnesses also highlighted the effect the abolition of RPI, or a sudden reclassification of RPI as CPI or CPIH, would have on private sector bonds and defined benefit pension schemes.
186. The UK Statistics Authority said that responses to their consultation on the future of RPI “suggested that material downwards revisions [to RPI] could trigger redemption [on corporate bonds], in part since more recent contracts provide for the ‘wedge’ between RPI and CPI.” They said that contractual and legal issues could be “complex and time-consuming to resolve.”¹⁷⁶
187. United Utilities Water said that around half of their total net debt was linked to RPI (£3.5 billion), with the latest maturity date in 2057. They said the abolition of RPI could lead to “widespread financial disruption, contract uncertainty and an arbitrary transfer of economic value.”¹⁷⁷

169 [Q 65](#) (Dr Ben Broadbent)

170 [Q 53](#) (John Pullinger)

171 [Q 11](#) (Chris Giles)

172 [Q 13](#) (Paul Johnson)

173 Written evidence from Insight Investment ([RPI0030](#))

174 Written evidence from Legal & General Investment Management ([RPI0033](#))

175 *Ibid.*

176 Written evidence from UK Statistics Authority ([RPI0026](#))

177 Written evidence from United Utilities Water ([RPI0007](#))

188. Many private sector defined benefit pension schemes are indexed to RPI, with scheme rules specifying RPI as the measure of inflation. Ruffer LLP said that “many schemes have the RPI contractually embedded in their trust deeds. Changing these deeds is not simple.”¹⁷⁸
189. The Government consulted recently on whether schemes should be permitted to switch from RPI to CPI on the grounds of rationality and fairness. The results of the consultation were published in a White Paper in March 2018:
- “It was argued by some respondents that those employers whose schemes cannot switch to paying lower increases suffer a competitive disadvantage. However, other responses were far less supportive. Individual members and those representing them were clear that savings for employers would be at the expense of the members in the form of lower pension increases. Many respondents argued that the Government should not interfere with the pensions promise made by a scheme, as this would set a damaging precedent for further erosion of member rights.”¹⁷⁹
190. The Government concluded that employers and trustees should not be able to override the rules of pensions schemes, “given the lack of consensus on what constitutes fairness in this circumstance.”¹⁸⁰
191. Dr Jeff Ralph, a visiting scholar at the University of Southampton and former statistician at the Office for National Statistics, said that a “sudden replacement” of RPI with CPI for private pensions would be considered “highly unfair”. He said it was “encouraging” that fairness had been considered in the Government’s consultation.¹⁸¹
192. Paul Johnson said that in case of private sector pensions, the uncorrected clothing issue means there has been a “big redistribution from working-age people that is unintended.”¹⁸² He described the “trade-off” involved:
- “If you were to move overnight from redefining CPIH as RPI, in 50 years’ time we would be in a better place because we would have a measure that we can all agree is a much better measure of inflation, that is robust and that measures what we are trying to achieve. But tomorrow you would have a lot of extremely unhappy people who have just lost an enormous amount of money in the long run and will, not completely unreasonably, think that you have broken a contract.”¹⁸³
193. He concluded that “we are probably in the wrong place on that trade-off at the moment. You cannot move away from what is happening for so long. I feel more strongly about the impact it is having on private sector occupational pensions, which simply cannot move away from this RPI measure.”¹⁸⁴
194. **Once the single general measure of inflation has been introduced, the UK Statistics Authority and the Government should decide whether**

178 Written evidence from Ruffer LLP ([RPI0019](#)). Public sector schemes and state pensions switched to the CPI in 2011, see para 127.

179 Department for Work & Pensions, *Protecting Defined Benefit Pension Schemes*, Cm 9591, March 2018: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693655/protecting-defined-benefit-pension-schemes.pdf [accessed 21 December 2018]

180 *Ibid.*

181 Written evidence from Dr Jeff Ralph ([RPI0029](#))

182 [Q 6](#) (Paul Johnson)

183 [Q 13](#) (Paul Johnson)

184 *Ibid.*

RPI should continue to be published in its existing form for the purposes of existing RPI-linked contracts, or whether a programme of adjustments should be made to the RPI so that it converges on the single general measure.

195. **To avoid disruption, we envisage any programme of convergence would take place gradually, over a sufficiently long time, and that the plan for that should be published at the outset.**
196. **We note that the consent of the Chancellor of the Exchequer to changes to RPI that cause material detriment to index-linked gilts holders is no longer required after the last issuance to which that clause relates to expires in 2030.**

APPENDIX 1: LIST OF MEMBERS AND DECLARATIONS OF INTEREST

Members

Baroness Bowles of Berkhamsted
 Lord Burns
 Lord Darling of Roulanish
 Lord Forsyth of Drumlean (Chairman)
 Baroness Harding of Winscombe
 Lord Kerr of Kinlochard
 Baroness Kingsmill
 Lord Lamont of Lerwick
 Lord Layard
 Lord Livermore
 Lord Sharkey
 Lord Tugendhat
 Lord Turnbull

Declarations of interest

Baroness Bowles of Berkhamsted
No relevant interests

Lord Burns
No relevant interests

Lord Darling of Roulanish
*Director of Morgan Stanley and a Director
 Trustee of the Standard Life Foundation*

Lord Forsyth of Drumlean (Chairman)
Chairman and non-executive Director, Secure Trust Bank plc

Baroness Harding of Winscombe
Non-executive director of the Bank of England

Lord Kerr of Kinlochard
No relevant interests

Baroness Kingsmill
No relevant interests

Lord Lamont of Lerwick
*In receipt of pensions linked to the RPI.
 Holds index linked National Savings and index linked gilts.
 Member, Investments Advisory Board, Halkin
 Investments Adviser, Mutual Finance
 Consultant, Stanhope Capital LLP*

Lord Layard
No relevant interests

Lord Livermore
No relevant interests

Lord Sharkey
No relevant interests

Lord Tugendhat
*In receipt of pensions linked to the RPI. Holds index linked National
 Savings and index linked gilts.*

Lord Turnbull

No relevant interests

A full list of Members' interests can be found in the Register of Lords' Interests:
<http://www.parliament.uk/mps-lords-and-offices/standards-and-interests/register-of-lords-interests/>

APPENDIX 2: LIST OF WITNESSES

Evidence is published online at: <https://www.parliament.uk/the-use-of-rpi> and available for inspection at the Parliamentary Archives (020 7219 3074).

Evidence received by the Committee is listed below in chronological order of oral evidence session and in alphabetical order. Those witnesses marked with ** gave both oral and written evidence. Those marked with * gave oral evidence and did not submit any written evidence. All other witnesses submitted written evidence only.

Oral evidence in chronological order

*	Chris Giles, Economics Editor, The Financial Times	QQ 1–13
*	Paul Johnson, Director, Institute for Fiscal Studies	QQ 1–13
*	Jonathon Athow, Deputy National Statistician and Director General for Economic Statistics, Office for National Statistics	QQ 14–22
*	Sir David Norgrove, Chair, UK Statistics Authority	QQ 14–22
*	Simon Briscoe, Consultant on Statistical Matters	QQ 23–31
*	David Lloyd, Head of Institutional Portfolio Management, M&G Investments	QQ 23–31
*	Dr Geoff Tily, Senior Economist, Trades Union Congress	QQ 23–31
*	Rt Hon. Elizabeth Truss MP, Chief Secretary to HM Treasury	QQ 32–49
*	Steve Farrington, Deputy Director, HM Treasury	QQ 32–49
*	Sir Robert Stheeman, Chief Executive, United Kingdom Debt Management Office	QQ 32–49
*	John Pullinger CB, UK National Statistician, Head of the Government Statistical Service and Chief Executive of the UK Statistics Authority.	QQ 50–60
*	Dr Ben Broadbent, Deputy Governor of the Bank of England	QQ 61–68

Alphabetical list of all witnesses

	AEA Technology Pensions Campaign	RPI0009
	Association of Accounting Technicians	RPI0002
	Jonathon Athow Deputy National Statistician and Director General for Economic Statistics, Office for National Statistics (QQ 14–22)	
	Andrew Baldwin	RPI0003
	Arthur Barnett	RPI0015 RPI0040
**	Simon Briscoe (QQ 23–31)	RPI0008

	British Beer & Pub Association (BBPA)	RPI0018
*	Dr Ben Broadbent, Deputy Governor of the Bank of England (QQ 61–68)	
	Keith Cameron	RPI0005
	Professor Jagjit Chadha	RPI0021
	Steve Farrington, Deputy Director, HM Treasury (QQ 32–49)	
*	Chris Giles, Economics Editor, The Financial Times (QQ 1–13)	
	Matthew Hill	RPI0035
	Professor Robert Hill	RPI0010
	Phillip Howard	RPI0023
	Incomes Data Research (IDR)	RPI0012
	Independent Television Commission Retirement Association (ITCRA)	RPI0013
	Insight Investment	RPI0030
	Institute and Faculty of Actuaries (IFoA)	RPI0027
**	Paul Johnson, Director, Institute for Fiscal Studies (QQ 1–13)	RPI0039
	Legal & General Investment Management	RPI0033
	Jill Leyland	RPI0038
	David Lloyd, Head of Institutional Portfolio Management, M&G Investments (QQ 23–31)	
	Nomura International PLC	RPI0032
*	Sir David Norgrove, Chair, UK Statistics Authority (QQ 14–22)	
	Office for National Statistics	RPI0041
*	John Pullinger CB, UK National Statistician, Head of the Government Statistical Service and Chief Executive of the UK Statistics Authority (QQ 50–60)	
	Dr Jeff Ralph	RPI0029
	Resolution	RPI0016
	Shaun Richards	RPI0024
	Royal Statistical Society (RSS)	RPI0001 RPI0025
*	Sir Robert Stheeman, Chief Executive, United Kingdom Debt Management Office (QQ 32–49)	
	Ruffer LLP	RPI0019
	Thames Valley Pensioners Convention	RPI0036
	The Public Service Pensioners' Council (PSPC)	RPI0031

	The RPI/CPI User Group	<u>RPI0028</u>
*	Dr Geoff Tily, Senior Economist, Trades Union Congress (<u>QQ 23-31</u>)	
	Trades Union Congress (TUC)	<u>RPI0006</u>
	Transport Focus	<u>RPI0037</u>
**	Rt Hon Elizabeth Truss MP, Chief Secretary to HM Treasury (<u>QQ 32-49</u>)	<u>RPI0034</u>
	UK Statistics Authority	<u>RPI0026</u>
	Union of Shop, Distributive & Allied workers (USDAW)	<u>RPI0014</u>
	UNISON	<u>RPI0004</u>
	United Utilities Water Limited	<u>RPI0007</u>
	Professor Martin Weale	<u>RPI0017</u>
	Bill Wells	<u>RPI0020</u>
	Jenny Yiu	<u>RPI0022</u>

APPENDIX 3: CALL FOR EVIDENCE

The House of Lords Economic Affairs Committee, chaired by Lord Forsyth of Drumlean, is investigating whether the retail price index (RPI) is an appropriate measure of inflation in the UK, and considering its use by the Government.

Evidence sought

The Committee is seeking evidence to address the following questions:

- The current situation regarding the retail price index is untenable. Do you agree? If so, what would you recommend is done to improve this situation?
- Should the retail price index be abolished? If so, how should that be achieved?
- If not, how should the retail price index be changed? If so, how should that be achieved?
- What would the implications be of changing or abolishing the retail price index?

This is a public call for written evidence to be submitted to the Committee. The deadline is 25 July 2018.

We are looking to hear from as diverse a range of views as possible—if you think someone you know would have an interest in contributing to the inquiry, please do pass this on to them.

APPENDIX 4: CHAINED AND DIRECT CARLI INDICES

The Royal Statistical Society, in support of their argument that the chained version of the Carli index suffers from ‘price bouncing’ but the direct index does not, submitted the calculations below.

Table 3: Hypothetical example given by the Office for National Statistics¹⁸⁵

	Period 1	Period 2	Period 3
Product A	10.00	12.50	10.00
Product B	20.00	10.00	20.00

Table 4: Direct Carli calculation

Price relatives	Period 2 / Period 1	Period 3 / Period 1
Product A	1.25	1.00
Product B	0.50	1.00
Index overall	0.88	1.00

Table 5: Chained Carli calculation

Price relatives	Period 2 / Period 1	Period 3 / Period 2
Product A	1.25	0.80
Product B	0.50	2.00
Arithmetic mean of relatives	0.88	1.40
Index overall	0.88	1.23

Table 6: Jevons index

	Period 1	Period 2	Period 3
Geometric mean of prices	14.14	11.18	14.14
Month to month movement		0.79	1.26
Index		0.79	1.00

Source: Written evidence from Royal Statistical Society (*RPI0025*)

¹⁸⁵ Office for National Statistics, ‘Shortcomings of the Retail Prices Index as a measure of inflation’ 8 March 2018: <https://www.ons.gov.uk/economy/inflationandpriceindices/articles/shortcomingssoftheretailpricesindexasameasureofinflation/2018-03-08> [accessed 21 December 2018]