

DRAFT - MEASURING INFLATION AS HOUSEHOLDS SEE IT: NEXT STEPS FOR THE HOUSEHOLD COSTS INDICES

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This is a draft document circulated for discussion, both at the Royal Statistical Society meeting on June 28th, and elsewhere. Some minor points remain to be checked. Comments are welcome and should be emailed to both authors¹. (An outline and contents list follows the foreword.)

FOREWORD

In 2015, at the request of the Royal Statistical Society (RSS), we published a paper “Towards a Household Inflation Index”. The proposed index was intended as a measure of inflation “as perceived and experienced by households in their role as consumers” - a phrase taken from the Preface to the 2004 International Manual on Consumer Prices². In part, our paper was also a response to the Review of Consumer Prices³ carried out in 2013-15 by Paul Johnson which saw a possible role, but more limited, for household indices.

In 2017, the Office for National Statistics (ONS) took the decision to make preparation for the publication of just such an index. A “landscape” of Consumer Prices was decided, setting out three use cases: CPI and CPIH as measures of inflation based on economic principles; indices looking at how different households experience changing prices; and the RPI as a legacy index. Our 2015 paper was used as a starting point for the second of these. At the end of 2017, the ONS made the first, experimental, publication of the HII under the new name of “Household Costs Index” (HCI) – or, more precisely, the Household Costs Indices since, in addition to an overall index, indices were produced for a number of different household groups. They were also published alongside indices of incomes for the different groups.

Since then, there has been further development of the HCIs with additional publications in 2019 and 2020 and, more recently after a gap due to the COVID pandemic, in May 2022. ONS is now looking towards these being produced regularly and more frequently and applying for them to be assigned the official “kitemark” as a National Statistic.

Of course, our paper and our ideas were not simply taken as proposed but subject to extensive discussion and challenge in various fora, as was entirely right. Practicalities were also a factor since the indices had to be capable of being produced by the ONS and within budgetary limitations. ONS staff developed innovative methods to overcome some tricky hurdles, for example in the measurement of student loan repayments or producing the indices on “democratic” principles. We have learnt, and our views have at times been modified, both from the discussions and challenges and from seeing the practical development of the indices. In particular we had underestimated the relative potential importance to users of the different household groupings.

In the meantime, there have been a number of other important developments in the UK environment of consumer price indices. These may be briefly described as follows.

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² ILO et al: [Consumer Price Index manual: theory and practice](#) 2004.

³ Johnson, P. (2015): [UK Consumer Price Statistics: A Review](#) (UK Statistics Authority)

1. In 2017, after adding Council Tax to it, the ONS made CPIH its lead measure of inflation. (CPIH otherwise differs from CPI by including a measure of owner occupied housing based on “rental equivalence” - see Chapter 9.) At the same time the ONS stopped publishing a number of RPI derivatives including RPIJ. RPIX and the RPI subcomponents continue to be published.
2. In early 2021, the UK Statistics Authority announced that from 2030, the date from which legal constraints on RPI changes cease and the consent of the Chancellor of the Exchequer is no longer required⁴, RPI methodology will be changed to align it with CPIH⁵. Effectively, when the transformation is completed, the RPI will have the same growth rates as CPIH although the date used as a reference period would be different. This means that the RPI, which was originally at least partly – many would say largely – a “household” index, will become an index based on economic principles.
3. Meanwhile, for technical reasons, the RPI is officially no longer regarded as fit for purpose: the Office for Statistics Regulation and the Office for National Statistics have in recent years consistently warned against its use, and it no longer carries the “National Statistic” kitemark. The UK thus currently has no valid measure of the true cost of inflation as experienced by households. This is particularly unfortunate at the present time when prices are rising at a historically high rate. This clearly adds to the need for a Household Costs Index.
4. In 2020 the UK left the European Union (EU) and in so doing lost the legal requirement to compile and publish the UK Harmonised Index of Consumer Prices (HICP) which is known in the UK as the CPI. Of course, the ONS still produces the HICP (CPI) and it appears has no current intention to cease it. However, the UK no longer has any influence in the international committees which decide on rules for the construction of the HICP.

It is also important to mention that in 2016, New Zealand started to publish Household Living-Costs Price Indexes (HLPs)⁶. The aim, like the HCIs, is to monitor inflation as experienced by households and, in particular, to examine the experience of different household groups. The methodology that was developed in New Zealand is very similar to ours in most respects. The HLPs are published quarterly, the same frequency as New Zealand’s Consumer Price Index. They are published for 13 household groups and there is also an overall index. (Apart from New Zealand we believe the only country that has so far developed explicit household indices is Australia. The Australian indices are published for a number of household groups but there is no overall index.)

Currently the published ONS plan is to add one more element (see below, Section A) to the HCIs, then to seek National Statistic status for them, hopefully achieving this by 2025. They would then be

⁴ Index linked Gilts issued prior to July 2002 contain clauses that any change to RPI methodology deemed by the Bank of England to be both fundamental and materially detrimental to the interests of their holders, enables the holders to demand immediate repayment at uplifted par. The Statistics and Registration Service Act 2007 mandates that while such Gilts are extant, such changes to the RPI can only be made with the consent of the Chancellor of the Exchequer. The last Gilt subject to this clause matures in 2030.

⁵ At the time of writing, the decision is subject to Judicial Review.

⁶ Latest data are at [Household living-costs price indexes: March 2022 quarter | Stats NZ](#). See also HLPs [information](#)

published quarterly. In addition a derivative – “HCI-C” – would be developed to include mortgage capital payments and potentially other capital items.

The current paper has been written (also with the support of the RSS) to update the 2015 paper, in the light of developments, experience and what we have learnt in the last seven years. It also looks for and discusses the “next steps” in HCI development, outstanding issues and what the indices might be used for.

As we are approaching the end of the “first phase” of HCI development we believe the time is right to take stock of where we are and to consider, or re-consider, future plans. It is also a good time to start thinking more seriously about the indices’ future use. The current “cost of living” crisis increases the rationale for a review.

We believe that every country needs two main consumer price indices. One should be a “macroeconomic” index for inflation targeting, overall economic management, international comparisons, national accounts deflation. It should be compiled according to economic principles including, broadly, national accounts definitions. The EU’s HICPs, which include the UK CPI, along with CPIH fall into this category as will the RPI after 2030 assuming current plans for it come to fruition.

The second should be a “household” index aimed at measuring inflation as households experience it, and used for policy, research and uprating. This was the primary aim of most consumer price indices in the past including the Retail Prices Index and its predecessors. Economic needs gradually assumed more importance particularly when inflation targeting became a popular method of economic management, so many indices assumed more of a hybrid character. Household indices are not designed necessarily to follow economic theory or national accounting definitions.

This vision is consistent with the ONS’s Landscape of Consumer Price Indices mentioned above.

We hope that this paper, like its 2015 predecessor, will stimulate discussion and debate and thus help to ensure that the HCIs are developed further in the most useful and informative way possible.

OUTLINE OF THIS PAPER

Section A (chapters 1 to 8) looks first at general principles and then at individual items where coverage of the HCIs differs from CPI/CPIH. These are all issues which have been broadly agreed and those familiar with HCIs will not find a lot that is new here. Section B (chapters 9 to 11) discusses other coverage issues. This includes the difficult subject of Owner Occupied Housing (OOH), much of which has been agreed but where we urge another look at the issue of capital payments. Section C (chapters 12 to 16) covers a range of other topics while Section D discusses briefly potential Uses of the indices. Four appendices cover: a summary of topics already included in the indices; the User Group note of 2014; charts of the most recently published data with a comparison of the overall index to CPI, CPIH and RPI; and two charts presented at a recent meeting organised by Better Statistics CIC which we believe help to illustrate why HCIs are needed.

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SECTION A

CHAPTER 1: INTRODUCTION

“The Household Costs Indices (HCIs) are a set of experimental measures, currently in development, that aim to reflect UK households’ experience of changing prices and costs. More specifically, they will aim to measure how much the nominal disposable income of different household groups would need to change, in response to changing prices and costs, to enable households to purchase the same quantities of goods and services at a fixed quality. Put simply, the broad approach of the HCIs is to measure changes in the cost of outgoings of households”.

(ONS definition of Household Costs Indices)

Consumer price indices are not only among the most important economic statistics. They have a unique, or almost unique, status in that when used to uprate incomes, prices, benefits or tax thresholds, they directly affect incomes and/or expenditures for practically all households. It follows that public confidence in them is crucial. It is not easy to achieve, since everyone has their own perception of inflation. A serious effort is therefore needed if an index, whether used for uprating purposes or as an indicator of inflation as experienced by households, is to command sufficient public support.

Our core view is that a consumer price index that is used for uprating purposes, or to measure real incomes, must, in addition to being statistically defensible, be recognisable, understandable and acceptable by the person in the street. It must therefore be seen to reflect, as far as possible, the actual experience of households and the pressures on their budgets. In the past this was the aim of consumer price indices; the Retail Prices Index (RPI) was originally conceived in this light. However, the needs of macroeconomic purposes and hence economic theory have come to dominate debate over how indices should be constructed. And, sadly, semantics - for example the various meanings of the words “consumer” and “consumption” – have further confused matters. The box at the end of this chapter gives some amplification of this.

In our 2015 paper, we proposed a Household Inflation Index (HII) that would, in our view, meet the above needs as much as is practically possible. Much of its coverage would be identical or very similar to both the RPI and the UK’s Consumer Price Index (CPI) but there would be some important differences. That in many ways we were going back to the original aims of consumer price indices did not mean that we were attempting to revive what they were. Life has moved on considerably since the RPI was launched in the late 40s/early 50s. The HCI is an index which is appropriate to the third decade of the 21st century and which can evolve to suit future decades.

The intention behind the HII (or HCI) was to create an index, together with sub-indices for different population groups, which should become the normal index used to assess inflation as experienced by households. This in turn enables it, and its sub-indices, to be used to measure the growth of real incomes in the UK. We also believe the HCI, or a sub-group of it, should be used for uprating purposes where the aim of uprating is to maintain real incomes or track households’ experience of inflation. We discuss this point later in the paper. It should be a headline index, enjoying equal publicity with the CPI/CPIH or whichever index is used for interest rate setting by the Bank of England.

Why should the HCI be superior to the CPI or CPIH as a general measure of inflation as perceived by households? What are the main differences and why are they important?

We would respond to these questions in the following way. Why should the typical household accept an inflation index that: -

- fails to take account of, or does not track directly, one of their main expenditure items: mortgage payments and other costs of house purchase and renovation
- gives more weight to the expenditure patterns of wealthier households than of other households
- fails to take account of interest on loans for a wide variety of purposes, ranging from mortgages to credit card debt to loans for car purchase or other goods
- does not include student loan interest and repayments
- includes only a small part of premiums paid for the insurance of cars, travel, health etc
- fails to include Council Tax (which is included in CPIH but not CPI)
- includes the expenditure of foreign tourists in the UK but not UK residents' expenditure outside the UK.

All of the above inadequacies reflect the designs of the CPI and CPIH as macroeconomic indices, for which they are well suited. Using them, or continuing to use them, for uprating purposes, and indeed as a general measure of inflation as it affects households, seems certain to give rise to a lack of public credibility and acceptability.

The CPI is the EU Harmonised Index of Consumer Prices (HICP) for the UK⁷. The HICP was designed for a specific macroeconomic purpose. This was to provide a common method of measuring inflation in EU countries that could be used in particular to judge if a country met the inflation criterion set out in the Maastricht Treaty which countries have to meet, among other criteria, in order to qualify for entry into the euro area. Subsequently it is also used by the European Central Bank as the target indicator for setting interest rates. Apart from the known and accepted disadvantage that it does not include any measure of owner-occupied housing costs – a disadvantage that is being addressed – it is generally agreed that it is suitable for its purpose. However, even within the Euro area most countries retain their own national consumer prices index as their main inflation indicator, generally using that for uprating purposes.

Until 2010 this was the case in the UK. Since 2003 the CPI has been used for interest rate setting but the long-established RPI was used for uprating and associated matters. This changed in 2010 when the government decided to switch from the RPI to the CPI for uprating public pensions, certain benefits (when not otherwise constrained) and, subsequently, certain other items. Currently a mix of CPI and RPI, and occasionally CPIH, is used for uprating purposes in both government and private sectors.

⁷ See Astin, J. (2021) *Measuring EU Inflation: the Foundations of the HICP*, Palgrave Macmillan, for a description of the development of the HICP. E-book also available at [Measuring EU Inflation | SpringerLink](#)

Concerns about the UK's inflation indices had existed prior to 2010 but the government's decision turned something that had been largely the concern of a small group of cognoscenti into a much wider issue⁸. The previously little known "formula effect"⁹ became a hot topic. As a result there was an upsurge of discussion and debate and much investigation. The RPI/CPI User Group was formed in late 2011. Its forum on the Statistics User Network has sparked very lively debate - it has had among the most posts of any User Group on the Network.

The subsequent downgrading and loss of "National Statistic" status of the RPI in 2013, following investigation of the formula effect and the conclusion by ONS that the RPI's use of the "Carli" formula led it to overestimate inflation, increased anxiety among users, many of whom, rightly or wrongly, felt it to be a more realistic index than the CPI. It became clear that with the RPI discredited and unable to be substantially changed (following the outcome of the 2012 consultation on it) another option was needed.

This issue started to engage both authors of this paper. Originally they were not aware of each other's thoughts and wrote separate papers on it (see Leyland, 2014 and Astin, 2014)¹⁰. They were both surprised and pleased to find that their thoughts were very similar and hence collaborated on the 2015 paper. Meanwhile in 2014 the RPI/CPI User Group had formally endorsed the view that an index designed specifically for uprating purposes was needed and prepared a statement on the topic (see Appendix 2). The Johnson review (2015) indicated some support for household indices but very much as secondary indices to be published only occasionally. Further, Johnson's definition of a household index, as well as being different from that which we propose, did not accord fully with the form of index the User Group wanted.

NOTE ON TERMINOLOGY

Cost of living

This term is used in a number of different ways. We identify three.

First, it is used in a general and somewhat vague sense. Currently there is much talk about the "cost of living crisis" reflecting the impact on the public of current high inflation. This usage is fine as a general concept (apart from its confusion with other meanings) but lacks precision.

Second, it is used to mean the cost of acquiring the essentials for living. The UK's first official price index, which started in 1914, was the "Cost of Living Index" and was aimed at "meeting [the] basic welfare needs of the working classes". The problem is defining what is and is not essential and its subjectivity to moral and political forces. The fact that the Cost of Living Index excluded beer, for

⁸ The change sparked a legal challenge and an e-petition which exceeded the 100,000 signatures necessary for a House of Commons debate.

⁹ The formula effect is the estimated difference between the inflation rates shown by the two indices that is due to the different formulae used at the first stage of aggregation. It is not the only reason for the difference but it is often the largest element and it is consistently in one direction – i.e. it makes RPI inflation higher than CPI inflation.

¹⁰ Links to these papers no longer work but they are available on request from the authors.

example, almost certainly at least partly reflected the WW1 drive against alcoholism and drunkenness epitomised in Lloyd-George's statement "We are fighting Germany, Austria and drink; and as far as I can see, the greatest of these deadly foes is drink".

Third, is its use in an economics concept known as a "Cost of Living Index" or COLI. In economics the phrase has a special meaning, namely an index which aims to measure the change in outgoings which a household would have to make in order to hold constant some specified standard of utility or well-being. While the meaning is fairly precise its interpretation can be wide. Many papers have been written about the meaning and the compilation of COLIs¹¹. The approach can even reach the extent of quantifying the value of changes in external factors such as climate change or the quality of public services. UK consumer price indices do not aim to be COLIs – they are Cost of Goods Indices (COGI) measuring the price evolution of a basket of goods and services.

Consumer and Consumption

The use of "Household" in the title of the HCI avoids two words which have led to endless argument among statisticians over the years. In economics the word "consumer" has very specific meanings; it serves as a means of differentiation between current and capital expenditure, referring either to the types of product ("consumer goods") or the type of purchaser ("consumer"). This distinction between consumer and capital is crucial for the national accounts, but much less so for price statistics. A house is treated as a capital good in the national accounts, but it clearly serves as an item of current expenditure to the typical householder, as well as (hopefully) being a store of value. Financial investments such as stocks and shares are of course excluded from the index.

What is a "price"

The HCIs include interest payments. Many would argue, quite reasonably, that there is no "price" associated with, for example, mortgage interest. But we believe that householders regard mortgage interest as an important outgoing, which affects their standard of living: an increase in the interest rate is simply a "price", or quasi-price, increase. But "costs" is used in the title of HCIs to avoid the issue of whether an interest rate is, or is not, a price.

Acquisition

Another word which creates problems is often used in consumer price index terminology: "acquisition". In the UK CPI this refers, in the case of goods, to the moment when the purchaser incurs a liability to the seller. In the case of services, it refers to the time when the event occurs, not when the ticket is purchased. "Acquisition" is not a word in very common use. We tend to say "buy" or just "get". And in any case, it cannot apply to the purchase of services: a service is ephemeral: one takes a ride in a bus, but there is no "acquisition" involved. Similarly with a haircut or a football match attendance.

¹¹ See, for example, US National Research Council, "At What Price? Conceptualizing and Measuring Cost-of-Living and Price Indexes". National Academy Press, 2002.

CHAPTER 2: PRINCIPLES AND GENERAL POINTS

General: Although the HCI and its sub-indices are essentially “a measure of price inflation as experienced and perceived by households in their role as consumers”¹², no consumer price index can be built on the experiences of individual households. Every household has its own pattern of expenditure, and its own “personal” inflation rate¹³. All a consumer price index can do is to measure the average rate of inflation faced by households generally. This can easily be seen in a simple example. The price of motor cars has a relatively high weight in the CPI. That means that if car prices rise at a higher than average rate, the CPI will rise accordingly. Should a particular non-motoring household complain about this? Not at all; every household should accept that a consumer price index is an average measure, concealing a wide range of individual household inflation rates. (This is, unfortunately, a fact which is not understood by everyone.)

The HCI and its sub-indices are constructed according to the following principles:

Basic concepts: Like the CPI and the RPI, the HCI is a “cost of goods” index (COGI) rather than a “cost of living” index. This means that it reflects changes in the prices of goods and services rather than be an attempt to measure changes in the amount consumers need to spend to maintain a level of constant utility.

Unlike a Cost-of-Living Index (COLI) the HCI does not attempt to take account of substitution of products by households, on the grounds that they should not be assumed to compensate for the impact of relative price changes by theoretical assumptions concerning changes in their own reactive behaviour.

The HCI is base-period weighted rather than current-period weighted, thereby placing it in the category (like most consumer price indices) of a Laspeyres-type (Lowe) index. Thus the HCI can be understood by householders as a measure of the expenditure necessary to buy the same (or mainly the same) basket of goods and services that average households chose to buy twelve months earlier. It is a so-called “fixed basket” index.

Coverage: All items (goods and services) bought by households that they need or want for everyday living are in scope. Items bought purely as an investment (such as stocks and shares) are not in scope. However items, such as owner-occupied housing (OOH), which are primarily bought for non-investment purposes but can potentially increase or reduce household wealth, are in scope, although there can be debate over their treatment. Owner-occupied housing is far too important an item in the budget of many households to be ignored. For more details and further discussion see Chapter 9.

Time horizon: When price indices are used for macroeconomic purposes, the main focus is on the rate of change, i.e. the inflation rate, and in particular the inflation rate over the previous twelve months since that is normally the rate used in the UK as the target for interest rate setting. But any index which is used for uprating purposes has to be capable of showing a broadly accurate evolution of prices over the long-term. Young workers joining a “career-average” pension scheme will find their

¹² ILO et al: [Consumer Price Index manual: theory and practice](#), 2004

¹³ The ONS has recently relaunched its [personal inflation calculator](#) .

pensions affected by the inflation index used up to 50, 60 or even more years ahead depending on how long they ultimately live. Index-linked gilts currently have terms going into the 2060s. This means that short-term biases or erratic movements which even themselves out over the longer term are less important than for macroeconomic indices. In contrast, persistent biases are important since even if small the cumulative effect over the longer term can be substantial. Because of the long time horizon it will be particularly crucial to deal efficiently with changes in expenditure patterns, the introduction of new products and quality change. The UK is well positioned as regards the first two of these, due to its practice of annual re-weighting.

Classification system: It is important to use an international classification system. Otherwise it is not possible to make meaningful comparisons between the inflation rates of different countries. The HCI uses a slightly modified form of the EU system, ECOICOP¹⁴ as does CPI and CPIH. The RPI uses a UK classification which generally does not correspond to the CPI.

Taxation: All taxes related to expenditure which are regular and recurring elements of the household budget, other than direct taxes or quasi-taxes are in scope. The index therefore includes council tax and stamp duty land tax. Currently it excludes income tax and national insurance contributions; whether these should or should not be included is discussed in chapter 10.

The following chapters discuss differences between HCIs and CPI/CPIH in more detail.

CHAPTER 3: ACQUISITION/PAYMENTS/USE

In theory, the cost of an item to the consumer can be measured at different points in time: when the item is acquired (i.e. transferred to the consumer's possession), when it is paid for or when it is used. In practice, none of these measures is entirely achievable. In particular, price collectors have no idea when a good is used, so this principle is only used in practice in a limited number of cases, the treatment of rents and rental equivalence in CPI and CPIH being one of the best known. Nor does it make sense in a general price index to differentiate between payments made in cash or on a credit card. And again, the price collector does not follow individual purchases so has no means of knowing the type of payment. So the usual principle followed, and that followed in CPI, is "acquisition". Strictly speaking "acquisition" cannot be applied to a service, but the principle still applies – see Box at the end of Chapter 1. In practice "acquisition" of a service in the HICP/CPI is defined as the first month in which the service may be used. Thus for, say, a rail season ticket, purchased in December with a start date in January but not used until February, January is the relevant date for the CPI.

It should be noted that acquisition prices are recorded net of any subsequent partial or full reimbursements, such as returnable deposits.

The intention of the HCI, however, is to track household budget costs. Thus in principle it uses a payments basis. Often, however, there is little or no difference in timing between acquisition and payment and this enables the data collected for the CPI/CPIH to be used. But when timing is such that there is a substantial difference between the dates of "acquisition" and actual payment, such as owner-occupier housing costs where a mortgage is involved (see Chapter 4), it is the payment date which would be relevant for the HCI. Another example is university fees. While some students pay

¹⁴ EU version of UN Classification of Individual Consumption according to Purpose, COICOP.

these up front, many take a student loan which is (at the time of writing) repayable only after the student is earning above a certain amount. The cost is thus deferred and spread over many years. And in some cases it is never repaid (see Chapter 6 on student loans).

Current position in HCIs : *Mortgage interest, interest payments and student loans all represent items collected on a payments basis. It should also be possible to use a payments basis for services items such as holidays and theatre tickets which are often paid for in advance.*

CHAPTER 4: HOUSEHOLD-WEIGHTED VS. EXPENDITURE-WEIGHTED AGGREGATION ("DEMOCRATIC/PLUTOCRATIC" WEIGHTS)

Definitions and nomenclature

To construct any type of consumer price index for a population requires some method of aggregation in order to be able to calculate the average effect of price changes on all households in the population or the household grouping under consideration. This aggregate index may be computed with weights which reflect either:

- (a) average (mean) expenditures of all reference households, or
- (b) the expenditure of the average (median) household.

Method (a) is the classic method used in consumer price indices including CPI and CPIH (as well as, largely, RPI). Weights reflect total spending in the economy on each item. This means that each household is effectively allocated a weight which is proportional to its expenditure. Implicitly this gives more weight to higher spending households (which will also tend to be those with higher incomes). The more a household spends, the larger the share of total spending that household will represent. Thus the inflation experience of higher-spending households makes a larger contribution to the resulting index than that of lower-spending households. Such weighting has been named "plutocratic", because of its connotation with the rich.

Method (b) gives equal importance to all households by averaging consumption value proportions over the whole reference population instead of summing the actual consumption values. In other words, each household has the same weight and makes an equal contribution to the index. This type of weighting has been named "democratic", for obvious reasons. Method (b), unlike method (a), aims to measure the inflation rate experienced by households at approximately the median point of the expenditure distribution.

The two methods produce different weights and thus different measures of overall price change.

Although the terms "democratic" and "plutocratic" have been in use for some considerable time in the context of consumer price indices, we feel that, although widely used in the technical literature, they do not meet the scientific aims of neutrality and objectivity. This paper will therefore refer to them respectively as "household-weighted" and "expenditure-weighted" indices.

Purposes of household- and expenditure-weighted price indices

The two types of index serve different purposes. Expenditure-weighted aggregation is generally considered more appropriate for consumer price indices which are designed for use as a general macroeconomic indicator. On the other hand, as pointed out in the international Consumer Price Index Manual, Chapter 18 (ILO, 2004), household-weighted indices are generally considered more appropriate for consumer price indices which are designed for use in uprating or indexation.

The reasons are not difficult to understand. Macroeconomic uses, such as estimating the overall national inflation rate – and making international comparisons of inflation – clearly require data based on total consumption. So also does the use of price indices in deflating current-value estimates in the national accounts. As the international Manual says, the expenditure-based index treats expenditure shares as if they were those of a single aggregate “super-household”.

Household-weighted index need for HCI

It would appear to be almost axiomatic that an index measuring household inflation should, at least in principle, use the household-based method of weighting. The HCI is based on the inflation experiences and perceptions of typical households – that is, typical with respect to household expenditure.

The expenditure-weighted approach is unlikely to reflect the expenditure levels and consumption patterns of the typical household. In fact, a pioneering ONS paper by Flower and Wales (2014)¹⁵ concluded that the CPI is broadly representative of the price experience of households around two-thirds of the way up the expenditure distribution.

Current practice

The UK CPI (and also CPIH) uses – as indeed it should, bearing in mind its purpose as a macroeconomic index – the expenditure-based method of aggregation. The HICP’s current main function is to act as the unified measure of inflation for the conduct of euro area monetary policy by the European Central Bank. The RPI is somewhat different. It does use the expenditure-based method, but it comes some way towards a household-based index by removing from the weights the expenditure of the extreme ends of the population distribution¹⁶ (a variation of a general method known as “trimming”). Trimming removes the influence of extreme values from the mean value, rendering the latter more representative of the distribution¹⁷. There is a reason for this practice for the RPI. When introduced in 1956, its aim was to measure *“average price changes for households which would include*

¹⁵ Flower, T. and Wales, P. [“Variation in the Inflation Experience of UK Households: 2003-2014”](#) Office for National Statistics, December 2014.

¹⁶ To be precise, the expenditures of the highest-income 4% of households and also that of pensioner households which derive at least three-quarters of their total income from state pensions and benefits.

¹⁷ However an ONS paper [“Investigating the impact of different weighting methods on CPIH”](#), November 2017, found that trimming made little difference.

practically all wage earners and small and medium salary earners".¹⁸ Excluding these groups, which had very different expenditure patterns to the majority of households, therefore made sense.

Current position on HCIs: *HCIs - both the overall index and the sub-indices - are produced as closely as practical with household based weighting and have been since the first publication in 2017.*

CHAPTER 5: TREATMENT OF INTEREST PAYMENTS

Current status in UK consumer price indices

As macroeconomic indices, CPI and CPIH do not include any form of interest payment.

Mortgage interest payments (MIPs), but no other interest payments, have been covered in the RPI since 1975, following a recommendation by the RPI Advisory Committee. From 1987 a version of RPI excluding MIPs, known as RPIX, was introduced. This was later used as the target when inflation targeting was introduced as a means of economic management in 1992. RPIX is still published.

The remainder of this section looks at MIPs in detail and then at other interest payments. MIPs are also considered in Chapter 9 on OOH.

Economic arguments for and against inclusion of MIPs

In national accounts methodology interest payments were traditionally considered as “transfer payments” rather than “expenditure” - something that does not have a counterpart in economic activity but is a purely financial transaction. In recent years this has been modified by including the “service” element (essentially the difference, known as FISIM or “financial intermediation services indirectly measured”, between interest charged by a financial institution on loans it makes and interest it pays on deposits since this is partly how a financial institution makes its money and is therefore an implicit payment for its services).

These are concepts that make sense in the context of national accounting but are not very meaningful from the point of view of households’ perception and experience.

It has often been argued that since interest cannot be described as a good or a service, it has no place in a consumer price index. It can, though, be argued that interest paid on a loan should be included as part of consumption since it satisfies the consumer’s “needs or wants” (para. 1.3, ILO, 2004) to enjoy a good or service now rather than later. On a more practical level, the HCI aims to reflect the monetary outgoings (other of savings) of households; there can be no doubt that payments of mortgage interest are a “monetary outgoing”.

It is a fact that for owner-occupier households with a mortgage, the payment of the mortgage (both interest and capital) is usually a major item of household expenditure. Moreover, if the interest rate is variable, the level of expenditure is beyond their control. This places MIPs in a different category

¹⁸ [Interim Report of the Cost of Living Advisory Committee](#), 1951. HMSO, Cmnd. 8328.

of expenditure from most other products, where the impact of price rises (including those caused by tax increases) can be reduced by substituting to other products. Mortgagors are, in contrast, often “trapped” in their repayment levels. It is therefore entirely justifiable to include MIPs in a household-based consumer price index such as the HCI.

The international “Practical Guide to Producing Consumer Price Indices¹⁹” (United Nations et al., 2009) has this to say:

“It is sometimes argued that this [payments] option is more consistent with the traditional approach to CPI construction, which is a carry-over from a time when the CPI was mostly used as a compensation tool. It also has much to commend it from the point of view of public acceptability. It measures costs directly, thereby avoiding imputation. In addition, “mortgage interest” is more likely to be understood than “rental equivalence” and, unlike the latter, the index will reflect changes in house prices and interest rates.”

HCIs are, as already noted, based on the fundamental purpose of a consumer price index, described in the international Manual as “essentially a measure of price inflation as experienced and perceived by households in their role as consumers” (ILO et al., 2004).

Other types of interest

Mortgage interest may be the largest category of household interest payments, but it is by no means the only one. People incur loans for a wide variety of purposes: the purchase of cars and other household durables such as televisions and washing machines; for the financing of expensive holidays, and – not least – for educational purposes, notably so-called “student loans”.

Very large amounts of interest (at rates sometimes above 20% per annum) are charged on credit card debt. This has been a growing phenomenon in recent years. In recent years another type of general purpose loan has achieved importance, if not notoriety, namely the so-called “payday loans” – which are often relatively small but often carrying high rates of interest.

Measurement of monthly “price” changes of interest payments

The word “price” is not usually used in references to changing interest payments. A person seeking a loan, for whatever purpose, will wish to know what the rate of interest is, whether or not it is variable over time, and how it is to be repaid. This is not referred to as its “price”, though it has much in common with the normal understanding of that word. In fact people talk about “shopping around” for a mortgage. But the fact is that a loan carries a price in the form of the level of the interest rate and the rules surrounding its management. These rules may be set by law, as is the case with student loans. More commonly they are set by the lender, and may alter over time.

Current position on HCIs: In addition to mortgage interest payments, HCIs currently include interest payments on credit card debt, overdrafts and personal loans and loans associated with mail-order

¹⁹ [Microsoft Word - FullDraft230709.doc \(unece.org\)](#)

purchases. To date no method of including pay-day loans or similar has been found but such interest should in principle be included.

CHAPTER 6: STUDENT LOANS

The actual fees paid for university and other higher education courses are of course within scope of the HCI. While some students cover the cost “up front”, many do not, and take out a “student loan” for this purpose. The aim of a student loan is to allow the fees to be spread over a long period of time. The loan may also extend to cover students’ subsistence costs. So the repayment, with interest, of student loans is an expense which many ex-students have to bear for many years. It may be noted that the rate of interest is indexed to the Retail Prices Index (RPI) plus, currently, a margin of up to 3 percent²⁰. The government has very recently, in the context of high inflation rates, set an upper limit of 7.3% for the coming academic year. It is no part of our role to question this, but it is perhaps relevant to note that the RPI (which no longer carries the “National Statistic” kitemark) normally has an inflation rate about 1 percentage point above the CPI, and at the time of writing is standing at over 11% per annum.

The repayment of the loan, together with the interest element, is a part of former students’ regular household expenditure. It is normally deducted from monthly payslips if the person is in employment, and is often regarded as a form of taxation – though it is not. And, rather like mortgage payments, it is unavoidable once the initial transaction (the agreement to take a course of study, like the decision to buy a house) has taken place.

Current position: *in the HCI, the cost of the repayment of student loans is included (both “capital” – the actual cost of the fees - and interest). Thus university fees are included only with a weight appropriate to the share of them that were paid up front. For the remainder, there are separate items in the index corresponding to interest on and repayments of student loans.*

CHAPTER 7: INSURANCE

Introduction

The purpose of insurance is to protect a household against relatively rare events which, if they occur, may be very costly. In any given year, the proportion of households making, say, a claim on their domestic policy is rather small. Putting this the other way around, most households with a domestic insurance policy may pay premiums for many years without making a claim. The premiums they pay

²⁰ The Government is proposing changes to the system.

may well be a significant item of household expenditure, and thus should be taken into account in a household-based inflation index.

A distinction has to be made between “insurance” and “assurance”. In the case of insurance, claims are only paid if the event insured against occurs. Life **Assurance**, however, is a form of saving for an event which is relatively probable or even certain – e.g. reaching a certain age or death upon which the policy pays out. As a form of saving this is a financial transaction and thus not included in consumer price indices; we consider its possible place in Household Costs Indices alongside discussion of pension contributions. However there is a definite case for including Life **Insurance**. These are policies which pay out in the event of death or injury during a specified period only. For example parents might take out a life insurance policy to benefit their children should they die before their children reach adulthood. If death does not occur during the specified period nothing is payable.

The greater part of all insurance premiums paid by households is effectively recycled to those households making claims. The net effect of these outgoings and receipts to a large extent cancel each other out within the household sector. Only that part which is retained by the insurance companies represents a net outflow from the household sector. This is the economic cost of insurance to policyholders.

Current premium income from policyholders is not the sole source of insurance companies’ income. A secondary source is known as “premium supplements”. This comprises income received from investments made by insurance companies which act partly as a cushion against future exceptional claims. An adjustment also has to be made for changes in “actuarial provisions”. These are the allocations made by insurance companies to technical provisions against outstanding risks.

The “service charge” which can be reasonably accepted as the value of the services supplied by insurance companies to policyholders is thus taken as the gross premium income plus premium supplements, minus the value of claims and any changes in actuarial provisions. This is an approach frequently used in consumer price indices, including the UK CPI, but not the RPI, and is probably the most appropriate approach for an index designed for macroeconomic purposes.

Treatment of non-life insurance in the HCIs

All drivers are required by law (under the Road Traffic Act of 1930) to have in force an insurance policy to cover their liability for bodily injury to or damage to third party property which arises from the use of a motor vehicle.

The cover does not have to be anything other than Third Party only although many policies are now arranged on a Third Party Fire and Theft and Fully Comprehensive basis.

Turning next to the treatment of non-life insurance in the HCIs – we begin with the purpose of paying for insurance, taking motor insurance as an example. The aim is to give householders the opportunity to smooth out over the years the often high costs of repairing or replacing vehicles after losses resulting from accidents or thefts. If not for insurance, motorists would in most years benefit

financially because of not having to pay premiums, but when an accident happens they may have to spend very large sums in repairs or replacements – sums which they may not have at their disposal. The pooling process offered by insurance companies thus provides – at a price – the guarantee that a policyholder will be able to pay for the potentially high costs after an accident without disturbing their normal pattern of expenditure. The price is, in principle, the cost of the service provided by the insurance company.

The HCI is designed to be an index which measures inflation as “experienced and perceived by households”. Expenditure on insurance premiums is seen as an often significant part of the household budget, and it is unlikely that the typical householder will take the long-term view and assume that one day in the future they will need to make a claim which will relieve them of the need to pay a possibly large sum in repairs. Indeed, when claims are paid out, the householder does not directly benefit; the claim merely relieves the policyholder from all or part of the burden of paying for repairs etc. They may continue to pay the premiums even after a claim has been settled – and indeed the premiums may rise as a result of making the claim.

This “household-based” view leads inevitably to the conclusion that the HCIs must, unlike a macroeconomic index such as CPI or CPIH, include the full cost of insurance premiums, without making a deduction for the possibility of future claims. This approach accords with the perception of householders, as required by a household-based inflation index and is the approach that has been adopted.

Continuing with the motor insurance example, an insurance company will typically pay for all or part of the cost of the repair or replacement of a damaged vehicle, with possible other additional costs such as the cost of towing to a garage and transport home for the passengers, as well as liabilities to third parties. In past years, the claim proceeds were often paid to the claimant, who would then disburse them to the repairers etc. Nowadays it is often the case that the insurance company settles the debts direct with the repairers etc. In such cases, the payments from the insurance company are treated as if they were paid on behalf of the claimant, and are recorded in the relevant heading in the household budget survey (LCF) e.g. payments to a repair garage or to a new car dealer. These payments are classified to the appropriate sector in the ECOICOP classification, such as “maintenance and repairs of motor vehicles”. The “service charge” part of the premiums is classified to the insurance sector.

Weights and prices for insurance

So far this discussion has concerned only the weights for insurance. In the case of those price indices such as the CPI which in principle need to measure the prices of service charges, it is in practice virtually impossible in the monthly time frame of a consumer price index to do so. As a proxy, therefore, the trends in gross (i.e. total) premiums are used in the CPI instead of the trends in service costs. It is unsatisfactory, but it is widely accepted as a second-best measure. For the HCI, however, the situation can be simpler and more correct, since the price of gross insurance premiums is exactly what is required in order to match the relevant weights. We may call this the “gross/gross” approach, as compared with the “gross/net” approach of the CPI.

The example of motor insurance used in this paper can be extended to other types of non-life insurance, such as (a) dwellings insurance (structure and/or contents) which may include all-risks cover for items lost, stolen or damaged when outside the dwelling; (b) travel insurance, covering forms of transport not included in standard motor policies; and (c) medical insurance policies. The same principles as those discussed in relation to motor insurance apply *mutatis mutandis*.

Current position re HCIs: *HCIs include insurance premiums at full weight.*

CHAPTER 8: NATIONAL OR DOMESTIC EXPENDITURE

A macroeconomic index, such as CPI or CPIH, is concerned with inflation experienced on the territory of the country concerned. Thus it should exclude expenditure overseas by residents – for example spending while abroad during holidays – and include spending by foreign residents visiting the UK. CPI and CPIH follow this principle.

In contrast, an HCI should be based on what is called a “national” basis – that is, it would cover all items bought by UK residents whether at home or abroad and would exclude spending by foreign residents in the UK. RPI partly follows this principle in that it excludes spending by foreign residents while in the UK. However, in large part for practical reasons, it has not attempted to track overseas spending by UK residents.

Current position: *At the time of writing the HCIs remain on the same basis as CPI and CPIH. The ONS, however, is looking to change this to a national basis, or as close to that as practically possible, within the next year or two.*

SECTION B – OOH AND OTHER COVERAGE ISSUES

Chapter 9: OTHER OWNER-OCCUPIED HOUSING COSTS

The items discussed in previous chapters looked at items which are either in the HCIs or whose inclusion is timetabled. We now look in some detail at the difficult issue of Owner Occupier Housing Costs. It has been agreed that the payments approach will be used consistent with the general approach for HCIs. Currently the following items are included in the HCIs:

- Mortgage interest payments
- Repairs and maintenance
- Dwelling insurance
- Stamp duty land tax
- Conveyancing charges
- Estate agent fees
- Homebuyers' survey
- Council tax/rates
- Ground rent
- Other house purchasing costs

However, neither down payments nor mortgage capital payments are included at the moment. Under ONS current published plans, these items will be included in a subsidiary version of the HCI called HCI-C where the second C stands for capital. As far as we are aware this proposal was never debated in any detail and we urge that it be reviewed.

Background

Chapter 5 on interest payments set out the arguments for including mortgage interest payments in the HCIs, just as they are currently included in RPI and RPIJ. This chapter will therefore look at other costs associated with owner-occupied housing (OOH).

OOH has always been one of the most controversial elements of a consumer price index. Indeed the reason it has not yet been included in the HICP (the EU Harmonised Index of Consumer Prices) is due to the different views about it held by EU countries and also practical difficulties. Various ways have been used in the past by different countries, the most popular ones traditionally being either to exclude it or to use rental equivalence. The latter implicitly assumes that owner-occupiers rent their dwellings to themselves. From the point of view of national accounting and economic theory this is a reasonable approach.

In the real world, however, few would consider this to be a reasonable proxy for owner-occupier costs. Rental and house purchase markets can move in different directions for quite long periods of time. The current period is a clear example of this. Between January 2015 and December 2021, average UK house prices grew by 43% while the experimental index of private rents suggest rents

grew by just 12%. And in any case, we must challenge the idea that it is a reasonable step to include “imaginary” payments in a household costs index which takes account of actual outgoings.

Treatment of Owner Occupied Housing in UK price indices

It is worth having a brief look at how owner occupation has been treated in the past in the UK. Initially the RPI used rental equivalence – in the 1950s owner occupation was much less common than now. Following the rapid growth in owner occupation during the 1950s and 1960s, the Retail Prices Index Advisory Committee (RPIAC) decided in 1975 to switch from rental equivalence to mortgage interest payments, their report²¹ stating:

“Owner-occupiers' other costs are at present treated by taking them as the "equivalent rent" which the house would fetch if let in a free market, and assuming, in effect, that these "equivalent rents" move in parallel with the observed rents of local authority houses and privately rented houses. We recommend that, instead of using an "equivalent rent", owner-occupiers' costs (other than repairs and maintenance, etc.) should be represented in the index by the cost of mortgage interest payments.”

Later, in 1992-94, the RPIAC decided²² to include an additional component representing housing depreciation in the RPI. This used an index of house prices as its indicator.

This was a difficult decision on which the Committee was not unanimous. It is clear, though, from reading the Committee's report, that the different purposes the RPI was then used for – and in particular its use as both a way of uprating incomes and prices and as a macroeconomic indicator – bedevilled the discussion. The outcome – to use mortgage interest plus an estimate of depreciation – was a compromise from which four members dissented.

One of the first jobs of the Consumer Prices Advisory Committee (CPAC), established in 2009 to replace the RPIAC (which had not met since 1994), was to consider adding owner-occupier costs to the CPI, thus forming what became known as CPIH. It rejected the inclusion of mortgage interest payments due to the possible future use of the series in interest rate setting, and narrowed its deliberations to two options: rental equivalence and the net acquisitions approach, then being pioneered by Eurostat (see below).

CPAC decided to recommend the rental equivalence method. This was a controversial decision and the subsequent consultation showed opinion was split between that and “net acquisitions”. Given that the CPI was a macroeconomic index and that CPAC, by rejecting mortgage interest payments (MIPs), had made it clear that macroeconomic and national accounting needs should have priority, either method were considered to have been broadly theoretically acceptable.

Owner Occupier Costs in the HICP

Discussions on how to cover OOH costs in the HICP were held on many occasions in Eurostat in the late 1990s. At an early stage the method of imputation of rental values was dismissed, although

²¹ [RPIAC 1975](#), Cmnd 5905

²² [RPIAC 1994](#), Cm 2717

several member states used this method in their national CPI. It was however vetoed by the European Monetary Institute (the forerunner of the European Central Bank). A decision was finally made to include the “net acquisition” of dwellings. The term “net” covered the purchase of dwellings new to the household sector, e.g. purchased from companies or local government. Plus, of course, newly built dwellings sold directly to households. Dwellings sold from one household to another would not be included. In brief, the coverage would be “properties new to the household sector”.

This method of course reflects the “macroeconomic” nature of the HICP: “household sector” rather than “households”.

For a number of reasons the adoption of this method has still not been made, though it is covered in regulation 2020/1148 Art 25, in regard to the OOH price index, compiled separately from the HICP:

“The OOH price index shall be based on the ‘net acquisitions’ approach, which measures changes in prices paid by consumers for the acquisition of dwellings that are new to households and changes in other costs related to the ownership, and transfer of ownership, of dwellings.

New Zealand’s HLPs

We should also mention here the approach used in New Zealand’s HLPs. The change in mortgage interest rates is multiplied by the change in house prices. This has the merit of simplicity and is easy to calculate but we feel a closer attempt to what households pay could be made.

Other Methods

Internationally, various other methods have been suggested at various times²³. It is worth mentioning Statistics Canada’s Owned Accommodation (OA) approach used in their Consumer Price Index. It includes:

- Replacement cost or depreciation cost (the amount of owned accommodation that is assumed to be used up)
- Mortgage interest cost
- Property taxes
- The cost of homeowners’ insurance
- The cost of homeowners’ maintenance and repair

A recent paper²⁴ presented to the Ottawa Group suggested that this approach gives very similar results to a payments approach.

²³ The website for the Ottawa Group (www.ottawagroup.org), the International Working Group on Price Indices, lists a number of papers on the topic of Housing.

²⁴ P. Sabourin and F. Tarkhani: [The Cost of a House versus the Cost of Housing](#): evaluating different approaches to measuring owned accommodation in the Canadian CPI, Paper presented to 2022 Ottawa Group conference.

OOH proposals in the HCIs

Unlike the 1994 RPIAC and 2009 CPAC, we do not have to struggle with a dual purpose index. We are concerned with an HCI which has a practical application and is designed to measure the impact of inflation on households and not for macroeconomic needs. The needs of ensuring public acceptability and credibility and reflecting the importance of housing expenditure in household budgets are therefore crucial.

Rental equivalence is too far removed from reality to be acceptable. Net acquisitions is a better approach. However, two factors caused us to reject it for the HCI. The first is the exclusion of land and the second is that the weight given to house purchase reflects expenditure only on dwellings that are new to the household sector rather than all dwellings.

We therefore proposed that all elements of actual owner-occupier expenditures – deposits and outright payments, mortgage payments (both interest and capital), mortgage protection premiums, spending on renovations and extensions, repairs and maintenance, stamp duty land tax, legal, surveyor and estate agents' fees, insurance of dwellings – should potentially be considered in scope. While one or two of these items (for example minor repairs and maintenance) are normally included in a consumer price index, many of the others are not.

We say “potentially considered in scope”. We accept that including some of these, notably capital payments, including extensions, may appear to be a radical departure. There may also be practical difficulties in tracking the actual cost to households of the purchase of a second and any subsequent dwellings since this will normally be partly – indeed often largely – financed by the sum received for the sale of the previous dwelling. We will return to this in a moment.

Dealing with the other elements first, we do not think that any of these are too controversial and, indeed, they are already in the HCIs.

Capital costs

Let us now look in detail at the case for including capital costs: down payments, mortgage capital repayments, and extensions or “enhancements” to a home. This was always one of the most controversial elements of our proposal. We accept that there will be challenges in putting some of what we propose into practice but, again, the aim will be to get as close to the ideal as practical.

The main argument for including these items is quite simply that such housing costs are a major item in many households' budgets. We are constructing an index that is acceptable to the person in the street, an index that they can see bears a good relationship to their actual outgoings. And shelter, however it is acquired, is an essential. Excluding these items would seriously damage the credibility of the index.

Some of the arguments against including capital costs are easy to dispose of. They are those which are purely due to semantics and to the dominance of national accounting principles in many economists' thinking. The problem as regards semantics is the word “consumer”. Does the “consumer” in “consumer price index” refer to “consumers” as people or to “consumer goods”? Along with the international manual on consumer price indices (para. 3.3) (ILO et al, 2004) we assume

that the word refers to consumers as people and that the point of a consumer price index is to follow the costs of goods and services that consumers buy.

But suppose the “consumer” in consumer price indices means “consumer goods”? Here again it must logically mean all things that consumers buy when we are talking about a price index compiled for the purposes outlined. But in national accounts terminology consumption by consumers, or consumer expenditure, excludes housing, which is considered to be investment or capital spending. For national accounts purposes this makes sense, since investment adds to the wealth of the nation and the cost to the household is offset by an increase in the household’s assets. But we are not considering national accounts or economic theory here. What we are trying to achieve is the practical exercise of tracking how much consumers need to spend to “satisfy their own needs and wants” to quote again the previous international manual on consumer prices (para. 1.3) (ILO et al, 2004).

A more serious objection is that there is an investment element to the purchase of a dwelling and that investments should not be in scope of a consumer price index. That there is an investment element is obviously true. (And it may be noted that, as with most other types of investment, prices of dwellings can and do fall as well as rise.) But we are talking about owner-occupiers here, not people buying to let, or those who aim to purchase a property, improve it and sell on (we accept that a very small number in the latter category may live in the property while renovating it but even here the dwelling is still providing them with shelter). For many owner-occupiers investment is normally a minor part of the decision to buy which is dominated by factors such as what they can afford, what sort of a dwelling they want, where it has to be and so forth. The “investment” element is usually primarily the wish that the dwelling’s value “keeps up” with housing market trends generally so that the household is not disadvantaged if they wish or have to move or that the house is not subject to risks such as flooding which would cause a fall in relative price. Since when a dwelling is sold another is normally purchased, the actual investment may only be realised on death or towards the end of life. We do not see this as any reason to avoid including the capital element.

This brings us to the final objection. This is linked to the potential purpose of the index as an uprating tool. The issue raised is that if house prices rise then, if the owner-occupier has an income linked to or influenced by the HCI, they are being rewarded for something that is also making them better off through increasing their wealth. Of course if the owner-occupier has expenditure linked to the index then this will increase too. But more importantly the link is very tenuous; housing is not a liquid asset so the increase in wealth is not always easily realisable and house prices can go down as well as up. And finally the prime purpose of the index is to measure the impact of inflation on households.

The last two objections are not without some merit. But against that we see the imperative of constructing an index which people will see as properly representing typical expenditure.

Having dealt with the issue in principle, we now make some comments on three separate elements: mortgage capital payments; down payments; and extensions.

Mortgage capital payments are a major part of the household budget for most home owners for many years. We urge that these be included in the main headline HCI. Without these we do not think the HCI will be complete. Practically including them will not be a problem since they emerge from a new method ONS has for calculating mortgage interest payments.

One small qualification has been mentioned to us. As mentioned in the section on mortgage interest payments, home owners may sometimes borrow against their homes to fund other purchases since mortgage interest rates are often lower than other forms of interest. While, as explained, this makes no difference to measuring interest rates, since one interest rate simply replaces another, it does mean that there might be a small amount of double counting since both the item purchased is included directly and its cost would be included in the mortgage capital payment. We do not know how important the practice is but once known an appropriate reduction in weight could be used to address it.

The down payment on the purchase of a dwelling is usually significant. Here though there is a problem. For the first time buyer this is a pure cost – and indeed it is the first time buyer who faces the full burden of house price inflation while – normally – saving for the deposit. There are strong arguments for including this therefore and since a separate house price index is calculated for first time buyers this would seem feasible. However, for second and subsequent buyers the down payment usually comes in part or, indeed, entirely, from the value of the house they sell in order to purchase the second. While a relatively small amount may come from savings, the extent of the amount that does not come from savings in many cases leads us to suggest that this should be excluded. In this instance, therefore, we suggest a difference in treatment between first time buyers and others. And this is reasonable, since a first time buyer may have spent many months or even years saving for a deposit on a property which meanwhile is often rising in price.

Extensions and enhancements. These cover either an extension to the dwelling or some other improvement the owner desires, from garden sheds to home offices to swimming pools and hot tubs. Some can be financed by an extension to a mortgage whereas others would have to be financed from savings or a fresh loan. Sometimes they are somewhat analogous to the purchase of a property in that they add to living space which the home owner either “needs or wants” whereas others may be purely for enjoyment. Potentially they can all add to the value of the property although the additional value may be small (garden shed) or uncertain (swimming pool, hot tub). Thus they can be considered as a capital item but, again, they meet the criterion of satisfying the owner’s “needs or wants” so should be potentially in scope.

CHAPTER 10 DIRECT TAXES AND NATIONAL INSURANCE

Direct taxes – those imposed directly on a person such as income tax and national insurance – are not normally within the scope of a consumer price index, as under national accounting rules they are considered to be transfer payments. Council tax is included in the RPI (as were its predecessors, the community charge and rates) and in CPIH as well as the HCIs. The inclusion of council tax and its predecessors has not been without debate²⁵ but its inclusion has, on balance, been justified through being considered as an indirect tax on ownership or occupation of housing. A secondary argument has been that it is a payment for the services provided by local authorities. As far as we are aware practice as regards local taxes varies in other countries – not least as fiscal arrangements

²⁵ See, for example, Paul Johnson, [UK Consumer Price Statistics: A Review](#) (Recommendation22) and the [January 1993 report of the Retail Prices Index Advisory Committee](#)

differ – but we understand that the UK is not alone in including our particular form of local taxation in CPIH, RPI and the HCIs.

Looking at other forms of tax, Vehicle Excise Duty and the TV licence fee were initially excluded from the CPI but added in later on Eurostat advice since they are associated with the purchase or use of a good or service; they are already in the HCIs.

As discussed, we are not constrained by national accounts conventions in considering household costs indices. Therefore there is no objection in principle to including direct taxes such as income tax and national insurance. Each of these can be considered as payment for services provided by government – including, of course, the National Health Service. And, in principle, national insurance, as the name suggests, is a form of insurance against such misfortunes as long-term illness or job loss as well as providing funding for the state pension. For a number of years there was a “Tax and Prices” index which included them.

Nevertheless they are different types of tax than Council Tax. They are levied primarily according to income, are deducted at source and are not influenced, as Council Tax is, albeit indirectly, by the expenditure choices made by the household. An important practical consideration is also that Household Costs Indices need to be compared with an income measure. Currently this is disposable income, measured after such taxes have been deducted.

We would welcome views on whether these should be in either the main version of the Household Costs Indices (which we personally would not recommend) or a supplementary one or completely excluded.

CHAPTER 11: PENSION FUND CONTRIBUTIONS

Saving for retirement is something every person of working age has to consider. The state pension in the UK is not large and thus for most people a private pension, or some alternative funding, is needed. Indeed this was recognised explicitly a few years ago through the government making it compulsory for employers to offer a workplace pension scheme, with certain minimum contributions from both employer and employee, to any employee below pensionable age earning above a certain threshold (currently £6,240 p.a. or the equivalent monthly or weekly pay). Employers are obliged to enrol automatically all employees earning above a second threshold (currently £10,000 per year or equivalent) although the employee can subsequently withdraw if they wish. In most schemes both employers and employees contribute although some companies will cover all or part of the employee’s share.

Should employee contributions be included in the HCIs? One argument against this is that this is a financial transaction aimed at financing future consumption and HCIs should be concerned with current expenditure. Against this, it can be argued that pension contributions are an essential expenditure. It must also be recognised that there are analogies with National Insurance payments contributing to which is essential to be able to draw the state pension.

We would welcome views on whether employee contributions should be included in the main Household Costs Indices (which we personally would not recommend), in a supplementary index, or not at all.

SECTION C- OTHER ISSUES

CHAPTER 12: FREQUENCY OF PUBLICATION OF HCIS

The experimental HCIs have been published on an annual basis (excluding a COVID year). Most CPIs (not only in the UK) are published monthly. This is essentially because they are regarded as such important current economic indicators as to be necessarily available each month, and can thus be compared not only with the previous month but also the same month a year earlier. CPI, CPIH and RPI are all published monthly, and we would expect the HCI to be similar once it is fully, or nearly fully, developed.

The question would then remain as to the frequency of the subgroups of HCI – the various household groups such as pensioners. Many of these would also need to be published monthly – any used for uprating, for example, or those for low vs high income households. Quarterly publication might suffice for some.

Pending full development, and particularly in the light of current circumstances, we would urge ONS to consider quarterly publication (we understand ONS is currently reviewing its plans).

We note that the President of the Royal Statistical Society wrote earlier this year to the National Statistician urging more frequent publication²⁶.

CHAPTER 13: ELEMENTARY AGGREGATE FORMULAE

Currently the mathematical formulae used in the HCI are identical to those used in the CPI and the CPIH. (When scanner and webscraped data are introduced in the next few years different formulae will be used for those but the current formulae will still be needed for data collected with more traditional methods.) That is to say a Lowe (Laspeyres type – i.e. base weighted) index is used when weights are available. When weights are not available – which is the case for around two thirds (in CPI) of items at the initial aggregation stage at which price quotes are combined into basic-level or elementary indices – a different formula has to be used. The choice of this formula was at the root of the issues with the RPI that led to its national statistics status being removed. The whole issue of “elementary aggregate” formulae has been and remains highly contentious worldwide.

Three “elementary” formulae are used in the UK currently. The RPI uses the two arithmetic ones: the Dutot, or “ratio of averages” where the sum of prices collected for the current period is divided by the sum of prices for the base period, and the Carli, or “average of relatives”. In the latter case the current period price for every item is divided by its base period price to give the “price relative” and then the price relatives are averaged²⁷. The third index, the Jevons, uses geometric means in

²⁶ https://rss.org.uk/RSS/media/File-library/Policy/2022/220412_Sylvia_Richardson_to_Sir_Ian_Diamond.pdf?ext=.pdf and https://rss.org.uk/RSS/media/File-library/Policy/2022/Letter_from_Prof-Sir_Ian_Diamond_to_Prof-Sylvia_Richardson_050522.pdf?ext=.pdf for the National Statistician’s response.

²⁷ Note that this is the version of the Carli index used in the UK. There is another version, the “chained” Carli, in which price relatives are calculated as the price in the current period divided by the immediately preceding period so that the “base” period moves as the index develops. This form has the serious disadvantage that if the price of an item were to

which n items are multiplied together and the n th root of the result is taken. It makes no difference whether this is calculated as the average of the price relatives, or as a “ratio of averages”; mathematically the result is identical.

It can be shown that the Carli will always give a higher (equal at the extreme) rate of inflation than Jevons. The Dutot will sometimes give a higher rate and sometimes lower depending on circumstances.

CPI and CPIH use the Jevons index almost exclusively when weights are not available. Dutot is used in a very small number of cases. Both Dutot and Jevons are permitted formulae for the HICP while Carli is only permitted under certain specific circumstances. The use of Carli in consumer price indices has generally fallen out of favour in statistical institutes worldwide for a number of reasons, although arguments have also been made in its favour.

The decision to use the same formulae as CPI and CPIH initially was to facilitate comparisons with those indices while the HCIs were being developed. It makes the impact of the various differences in coverage clear and thus aids development. But should that be the final choice of indices?

We do not intend in this paper to discuss the pros and cons of the different formulae at length. We rule out Carli partly due to its general lack of acceptability internationally; more important, empirical experience shows that under certain circumstances, particularly when prices in the base period are very variable, it can badly overestimate²⁸ (as has been the case with UK clothing since 2010). We would though argue for more use of Dutot.

There is one set of circumstances where Dutot is not advisable. That is when the price levels of different items in a group are very different since the resulting index would be overly influenced by those with higher prices. Otherwise it seems to us to have two clear advantages. First it is simple and straightforward – to many it will seem the intuitive way to calculate an index. There is always a good argument for simplicity when possible. The second reason – and linked to this – is public credibility. It is easy to explain.

As mentioned earlier, we do consider public credibility crucial. Public credibility is not often cited as an argument in this area recently but, if public confidence is considered to be of any importance, it should be. And indeed it used to be. Several Retail Prices Index Advisory Committee (RPIAC) reports mentioned it, for example this paragraph from the 1986 report²⁹:

“Underlying much of our reasoning in this report is the firmly-held view that it is important to sustain and promote public confidence in the RPI. For the index to be of value it must be generally regarded as relevant to people’s concerns and a fair reflection of their experience. This is partly a question of presentation - ensuring that results are readily accessible and understood – but it also concerns the methods of compilation. For the index to carry conviction these should be understandable and seem reasonable to “the man in the street”

increase from period 0 to period 1 and then revert to its original price in period 2, the index for period 2 would be greater than that for period 0. Sadly many people confuse the two versions and assume that the version used in the UK has this fault.

²⁸ A seminal paper on the [empirical experience of different indices](#) was given by Bohdan Schultz (or Szulc) of Statistics Canada back in 1994.

²⁹ [RPIAC report, 1986](#), Cmnd 9848

as well as to professional analysts or academic experts. Therefore, while we have consciously sought to clarify the concepts and principles underlying the index in a way which is intellectually rigorous, we attach equal importance to the simple test of public acceptability.”

Jevons cannot be used when a price can change to or from zero (car parking is an example) but is otherwise favoured by many statisticians and economists for its mathematical properties. Originally, it was little used due to the lack of necessary computing power to compute geometric means. We see two arguments against its use. First, as a geometric mean it is slightly more complex and more difficult to explain to the general public. Second, Jevons has the property that it implicitly assumes a certain amount of substitution by consumers towards items which rise less in price (or fall more). Politicians and others in the past cited this as an argument in its favour, not just in the UK but in other countries, notably in the US “Boskin” Report³⁰. While at times consumers will act in this way, overall consumer behaviour is too complex to be represented by a simplistic model. Implicitly also the use of Jevons implies substitution not only when consumers could easily change to those items with a lower price rise – such as when internet shopping or when differently priced products are in the same supermarket – but also when items are in different supermarkets or even in different areas so switching is less, or often not, possible. In the UK an ONS paper³¹ was among the research finally putting paid to this argument as an advantage for Jevons.

We are not saying that Jevons should never be used. No formula is perfect for all situations and different formulae will suit the price behaviour of different products better. We are arguing that at some point in the future the choice of formula should be revisited and greater use made of Dutot. Our original paper suggested using the same formulae as in the now discontinued RPIJ, a mix of Dutot and Jevons, as a starting point.

CHAPTER 14: WHAT SHOULD THE INDEX BE CALLED?

The original 2015 paper proposed “Household Inflation Index” (HII) as the name of the proposed new index. When the ONS began to prepare for its new index based on the ideas in the 2015 paper, it felt that an “inflation index” was not appropriate since inflation is the change in the level of prices and the index is an index of price levels. It chose to use “Household Costs Index” as the name

While we consider the use of “Household” to be an essential feature of the name, because it clearly demonstrates its difference from a “macroeconomic” index such as the CPI, we have never been happy with the word “Costs”. This is for three basic reasons.

- (1) The general public, and the press, consistently use the word “inflation” to describe the process of rising prices. Unfortunately the very word “inflation” has never been satisfactorily defined, but most users recognise its general meaning. (NB When talking to non-technical friends, they always understand “inflation” but not “price index”!) In contrast when talking about “Household Costs Indices”, the phrase always needs to be explained.

³⁰ Boskin, M.J.et al. [“Towards a more accurate measure of the cost of living”](#) (1996) *Prt104-72.pdf* (*senate.gov*)

³¹ Reference to follow.

- (2) Secondly, we have a problem with the word “costs”. A “cost” says nothing about a “price”. If I fill my car fuel tank there are two financial aspects to consider. First, the price (per litre) of the fuel. This is the item which may suffer from inflation. Then there is the size of the fuel tank, which, if filled, determines the maximum quantity of fuel purchased. This is the price per litre multiplied by the quantity of fuel purchased. This is in fact the “cost” of the fuel: it has no direct link with the “price” of the fuel.
- (3) A third issue is that keeping “cost” in the title could lead to misunderstandings among experts who might consider that it should be based on methods appropriate to a COLI (see box at end of Chapter 1).

Although the experimental HCIs have now been published over a 4-year period, they are indeed experimental and not yet used by the public or indeed the government or ONS. It should not therefore be a problem, in our view, either to return to our original name of Household Inflation Index at this stage of development or to seek another name. Any suggestions?

CHAPTER 15: SOME CHANGES FOR THE LONGER TERM

There are two developments we would like to see eventually but where current data are not sufficient to provide estimates of adequate statistical quality. The first is a breakdown by geographical area notably by region. This is generally accepted as a need for CPI and CPIH (and indeed RPI) as well. The advent of scanner data should eventually make this possible.

Second, at the moment it is possible to alter weights to reflect the different household groups but not, in general the actual prices. Thus it is implicitly assumed, that, for example, low income and high income households will purchase the same brands of different foodstuffs. Web scraped and scanner data may open the possibility of doing more in the future. Indeed, ONS currently has a project³², in response to current concerns over the impact of the cost of living crisis on low-income households, to look at how “least prices” on a small basket of products have moved compared to other brands.

CHAPTER 16: QUALITY CHANGES

We begin with a definition of “quality change”. It is perhaps an unhelpful word to use since the notion of quality is essentially personal: one consumer’s quality increase is another’s quality decline. In practice the issue is one of changes in specification. That is a more scientific term, capable of clear definition. But we are not proposing a change for now.

An issue for a price statistician is what to do when a product in the sample list changes or is replaced. If the new product is deemed to be an identical (or almost identical) replacement of the

³² [Tracking the price of the lowest-cost grocery items](#), ONS, May 2022.

old there is no problem; it can simply replace it in the price collection system. It becomes more difficult if the new product is deemed different in some way. A linking method³³ is then used to eliminate the impact of the difference. This effectively eliminates (or partially eliminates if the linking is only in part) any price difference.

Frequently this situation occurs when it is deemed that the change in price is due to a change in quality. For a macroeconomic index it is logical that price rises due purely to a change in quality should be adjusted so that the index reflects, as far as practical, an index of “constant quality” price change. Quality changes in practice may also be negative. There are, however, a number of issues. Often such a price change is a mixture of an actual price rise and quality change – deciding how much is due to each factor is a matter of judgement. The report by Paul Johnson³⁴ considered this and recommended (although it was not one of his numbered recommendations) further research. The example shown in his report, of vacuum cleaners, led many to wonder if quality adjustments had been overdone.

The definition of what constitutes a quality improvement or specification change is not always easy either, especially when it involves services rather than goods. For example, a change in the material used in an item of clothing may be regarded by some as an improvement, and by others as a reduction in quality. It is certainly a change in specification and shouldn’t be ignored in compiling the price index. A much more straightforward example would be the reduction in size of a packet, be it soap powder or chocolate. Here the solution is simple: measure the price in terms of the weight. As regards services there is often no specific measurement available, be it a change in a bus timetable or the time taken for a repair to be completed. Is the switch to more self-service for items such as holiday bookings an improvement, as the customer can do it all online from their own home at a time of their choice, or a deterioration in that they have to do all the research themselves?

Overall, however, difficult as it may be, it is logical that a macroeconomic index should attempt to measure price change at constant quality. But it is not always evident that the same holds true for HCIs. Consider the case where it is no longer possible, or easy, to buy an “unimproved” version of a product. One example is cars. Rightly, one can no longer buy a car with the safety standards of 20 or 30 years ago. Cars today are much safer than in earlier times (the decline in serious road accidents being partly a consequence of this). But the incorporation of such standards will, in many cases, have resulted in a price rise, either explicit or hidden, or the prevention of a price fall. The switch from analogue to digital television a few years ago is another example. In these cases there could be a case for not removing the quality improvement from HCIs since the household has to pay the extra amount whether or not it wants the improvement.

This issue is, of course, tangled up with the changes in the basket over time. And with the fact that technology can introduce new products so that the way we do things can change substantially over

³³ See, for example, Chapter 9 in Astin, *Measuring EU Inflation: the Foundations of the HICP*, Palgrave Macmillan, 2021. E-book also available at [Measuring EU Inflation | SpringerLink](#)

³⁴ Johnson, P. “[UK Consumer Price Statistics: A Review](#)” (UK Statistics Authority)

time. Astin (1998)³⁵, for example, looked at how the way we listen to music at home has changed substantially over decades.

All of these are complex questions. When we wrote our 2015 paper it was not long after the Johnson review had indicated the need for more research. We therefore suggested that this issue should be reviewed again after the research had been done. To the best of our knowledge this has not happened so we can only repeat the need for further consideration of the issue.

³⁵ [Quality Adjustment in CPIs: A Personal View](#) Ottawa Group, 1998, Washington DC, www.ottawagroup.org

SECTION D

CHAPTER 17: POTENTIAL USE OF HCIs

Consumer price indices are used for a variety of purposes. The 2015 Review of Consumer Prices by Paul Johnson listed five:

- i) For the setting of interest rates through inflation targeting.
- ii) As a compensation index, for increasing payments to compensate the recipient for increasing costs.
- iii) As a deflator to express other financial data (such as earnings or economic output) in real terms.
- iv) To make comparisons between inflation in the UK and in other countries. –
- v) To inform the public as to the changes in costs they face.

Comparing with earlier lists, for example that in the 1986 RPIAC report, Johnson's list has one clear omission so we could add:

- vi) To enable government and researchers to assess changes in the standard of living of consumers, including the purchasing power of household incomes.

A macroeconomic index such as CPI or CPIH is clearly the one to use for i). Since the CPI is the EU HICP for the UK it is clearly the index to use for iv). In contrast v) and vi) fit clearly into the purpose of the HCI.

Which is the better index for ii) and iii) depends on what is being deflated and which compensation payment is being uprated. Looking first at deflation, a macroeconomic series is clearly better at deflating national accounts. In contrast there would often be a case for using a household index to deflate earnings.

This leaves the use of the HCI, or HCIs, as a compensation or uprating index. Both CPI and RPI, and occasionally CPIH, are used to uprate an extensive range of items ranging from pensions to rail fares to student loan repayments to index-linked bonds. Sometimes the index is not used directly but to inform debate or discussion – for example when negotiating wages or salaries. We now discuss this use in some detail.

The potential use of HCIs in uprating

As mentioned earlier, when we originally wrote our paper in 2015 we envisaged an index that could be used primarily as an uprating index. It has become clear since that the main aim of the indices should be to reflect the inflation pressures on households whether this is households as a whole or groups of households. But does this prevent its potential use as an uprating index once it has been fully developed? By no means – indeed for many purposes an HCI, either the overall index or a sub-index, would be ideal.

The choice of an uprating index logically depends on the purpose. A whole range of different indices can be and are used in contracts. For example, indices of construction costs can be used in real estate. For certain other purposes CPI or CPIH would serve. Sometimes, however, there is an express need to uprate in line with inflation as it affects households, or to use such a measure as a base line. Examples are pensions, benefits, wage negotiations and tax brackets (when these are not frozen).

HCIs - either the headline index or that for a specific household group - would be the natural choice of a reference index in such cases whether the need is either to directly link to them or to use them as a reference. Wage negotiations is an area where they could be used as a reference or starting point. Wages rise somewhat faster than prices over the long term as productivity improvements enable a general slowly rising standard of living; conversely in some years financial or business problems might limit employers' ability to increase wages sufficiently to offset fully the increase in prices inflation. In either case, however, the Household Cost Indices would provide a starting point for negotiation.

Pensions are often linked to a specific index and here HCIs could play a role. Pensioners have different spending patterns to those of working age and spending characteristics also change with age. A recent briefing note by the Pensions Policy Institute³⁶ examined spending patterns and the impact of recent inflation on pensioners and suggested that pensioner specific indices, possibly from HCIs, might provide a better way of uprating pensions.

Benefits could be uprated with reference to either a specially constructed HCI or possibly that for the lowest income decile. There is a precedent for having a special index for uprating benefits in that the Rossi Index, a version of the RPI excluding housing costs, was used for this purpose between 1983 and 2011. It was discontinued in 2017.

In many years tax brackets are changed (or frozen) for policy reasons. In other years they are uprated in line with inflation. Since the aim of this is to keep the tax burden neutral with respect to the impact of inflation on households, an HCI would seem the appropriate index.

Overall, however, we would argue that there are clear potential uses for HCIs and a number of purposes they would serve better than macroeconomic indices. This leads to our conclusion that they should not be seen as just an "add-on" or an interesting sideshow. They have a clear purpose, or purposes, and, we argue, need to take their place alongside other key economic and social indicators.

³⁶ [How do Cost-of-living increases affect pensioners?](#) PPI Briefing Note Number 129, March 2022

Appendix 1 - SUMMARY OF TOPICS ALREADY INCLUDED IN HCI EXPERIMENTAL INDICES

1 INTEREST PAYMENTS - 1st HCI Dec 2017 and 3rd HCI Jul 2020

In addition to mortgage interest payments, HCIs include interest payments on credit card debt, overdrafts and personal loans and loans associated with mail-order purchases.

Credit card interest was included in the 1st HCI. Interest on secured and unsecured personal loans, overdrafts, and mail-order purchases were included from the 3rd HCI.

2 STUDENT LOANS AND FEES - 2nd HCI Apr 2019 and 3rd HCI Jul 2020

The cost of the repayment of student loans is included (both “capital” – the actual cost of the fees - and interest). Thus university fees are included only with a weight appropriate to the share of them that were paid up front. For the remainder, there are separate items in the index corresponding to interest on and repayments of student loans.

The 3rd HCI (Jul 2020) also included upfront payment of tuition fees.

3 HOUSEHOLD-BASED WEIGHTS - 1st HCIs Dec 2017

Both the overall index and the sub-indices are produced as closely as practical with household based weighting.

4 INSURANCE PREMIUMS - 1st HCIs Dec 2017

HCIs include insurance premiums at full weight (“gross/gross”).

5 OWNER-OCCUPIED HOUSING - 1st HCIs Dec 2017

HCIs include mortgage interest payments, dwelling insurance, ground rent, Stamp Duty Land Tax, repairs and maintenance, conveyancing, estate agents’ fees, homebuyers’ surveys, other house purchasing costs and ground rent.

6 PAYMENTS BASIS

Mortgage interest, interest payments and student loans all represent items collected on a payments basis. It should also be possible to use a payments basis for services items such as holidays and theatre tickets which are often paid for in advance.

Links to ONS HCI publications can be seen at

<https://www.ons.gov.uk/search?q=Household%20Costs%20indices&page=1>

Appendix 2 - RPI/CPI USER GROUP STATEMENT (2014) ON AN UPDATING OR HOUSEHOLD BUDGET INDEX

There is a clear need for a price index designed specifically to measure the increase in the costs of a household budget for the UK as a whole. The index would seek to measure, over both the long term and short term, how the cost of the appropriately weighted basket of goods and services, public and private, bought or paid for by the typical household had changed allowing for evolution in the contents of the basket due to product change and shifts in typical purchasing patterns. It would be based primarily on actual household expenditure at the time of payment. All items on which a household normally spends money should be in scope, weighted according to their share of the household budget, unless there are good and clear reasons to exclude them or to reduce their weight.

Among other criteria it should meet the requirement in the Social Security Administration Act 1992 of measuring the “increase in the general level of prices” or any subsequent replacement legislation. While the key need is for an index covering all UK households, the index should be capable of being calculated for different population groups where needs exist and resources permit.

The index would be designed with the following purposes in mind:

- The uprating of pensions, benefits and other items, where there is a legal or contractual requirement aimed at preserving the purchasing power of the individual or household;
- As an indicator in wage and other negotiations where the need to preserve the purchasing power of the employee is typically a factor taken into account;
- As a guide to uprating prices, elements of business contracts or other sums where it is logical, desirable or legally required to link these to household budget costs;
- In calculating the evolution of real incomes for households or individuals.

Appendix 3 - CHARTS OF HCIs

The following pages show charts of, first, the overall HCI vs CPI, CPIH and RPI and, second, HCIs broken down by the various household groupings ONS provides. With one exception we are showing the indices from 2005, the date from which HCIs are generally available, and annual growth rates from 2006. The one exception is the analysis of households with and without a disabled person which is only available from 2015. All charts show monthly data.

We are deliberately refraining from any comment except for the odd factual point.

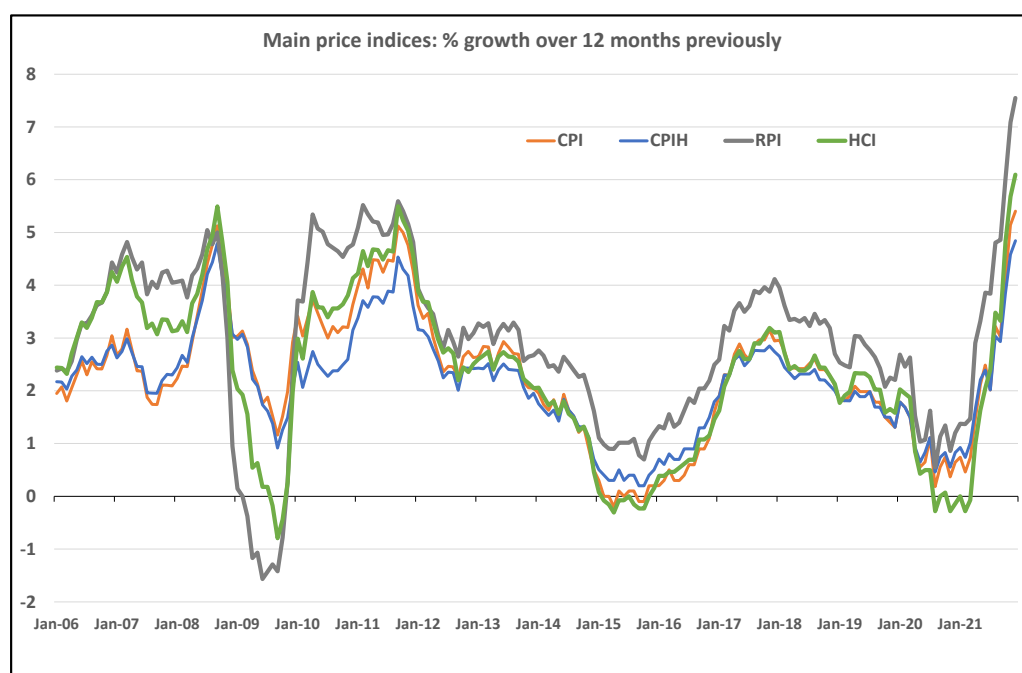
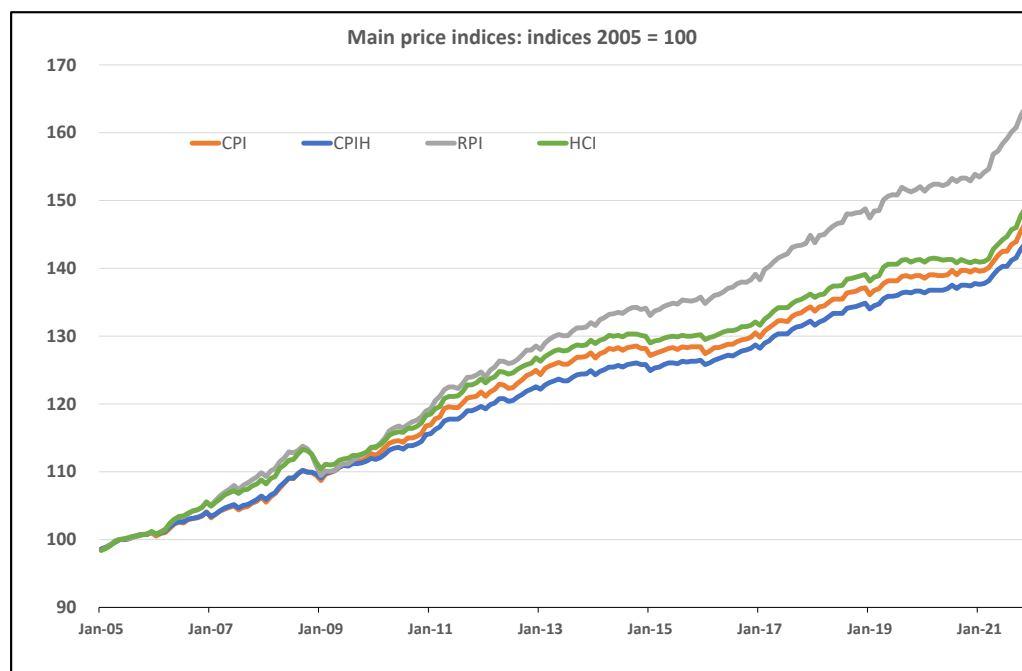
The differences between the various HCI series are due to the varying proportions of expenditure each group allocates, on average, to different categories of expenditure. The differences between the four total series are partly due to differences in coverage (mainly commented on in the text of this paper) and partly to other factors.

With one exception all these differences have (as far as we are aware) sometimes worked in one direction and sometimes in the opposite one as regards the inflation rate shown, although, importantly, there have been prolonged periods in which one factor has worked consistently or predominantly in one direction. The exception is the difference between the formulae used at the first stage of aggregation when weights are not available. In the RPI this is Dutot or Carli, in the other series it is predominantly Jevons (see chapter 13). The use of Carli works consistently to raise the RPI inflation rate compared to the other series. Before 2010 this made a difference of around half a percentage point annually. There were differences of opinion as to which formula was more appropriate.

Prior to 2010 there were problems with the measurement of clothing prices resulting in an underestimation of inflation, particularly in CPI. To correct this, changes were made to the collection of clothing prices in 2010. However, the interaction of these changes with the Carli formula caused the formula effect difference to widen to around one percentage point on average. Most people now accept that this has caused the RPI to overestimate inflation since 2010. Legal constraints have prevented this being corrected.

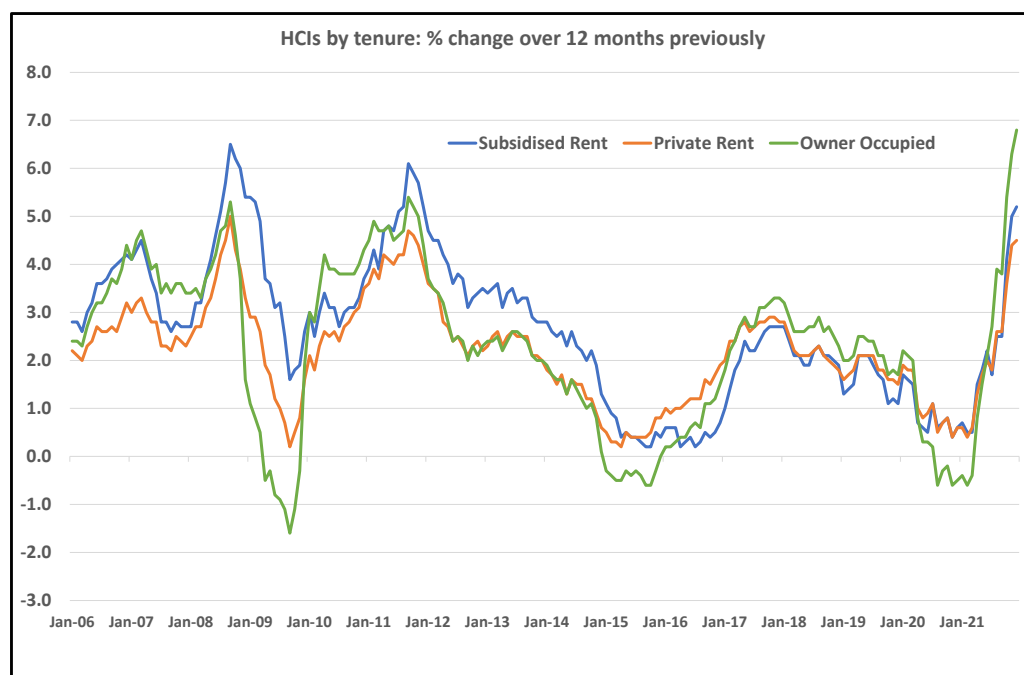
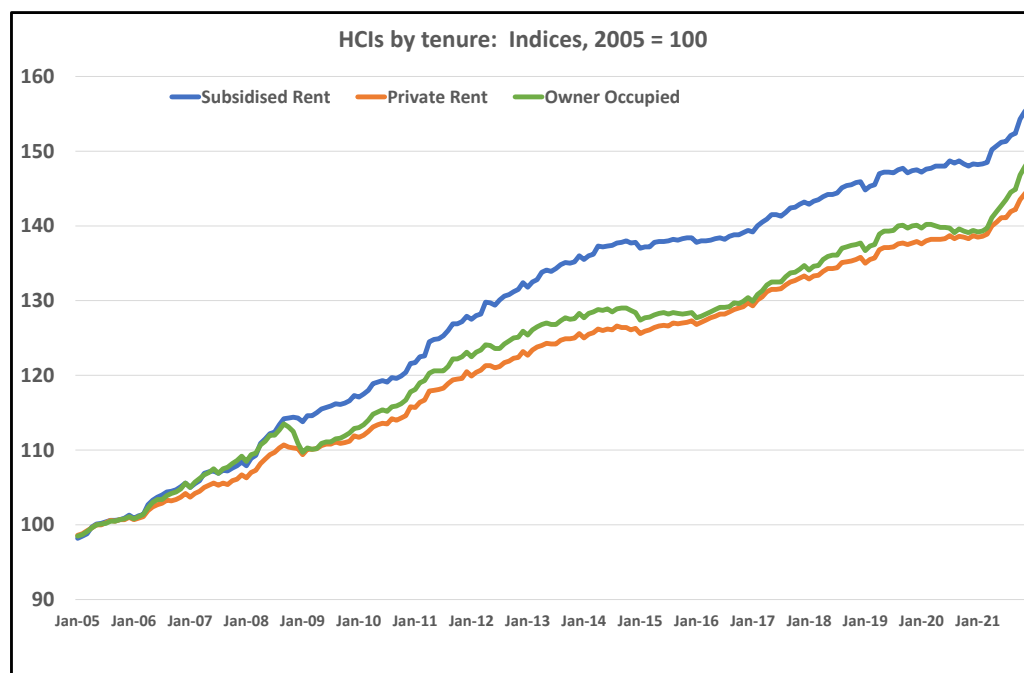
The ONS database from which the HCI series are taken is available at [Household Costs Indices preliminary estimates, 12-month growth rates, expenditure shares and contributions for UK household groups and all-households - Office for National Statistics](#). This also shows information on the expenditure shares of different categories of expenditure and their contribution to inflation enabling the reasons for the differences between the data for the different household groups to be explored further.

Charts 1 and 1a: CPI, CPIH, RPI and overall HCI



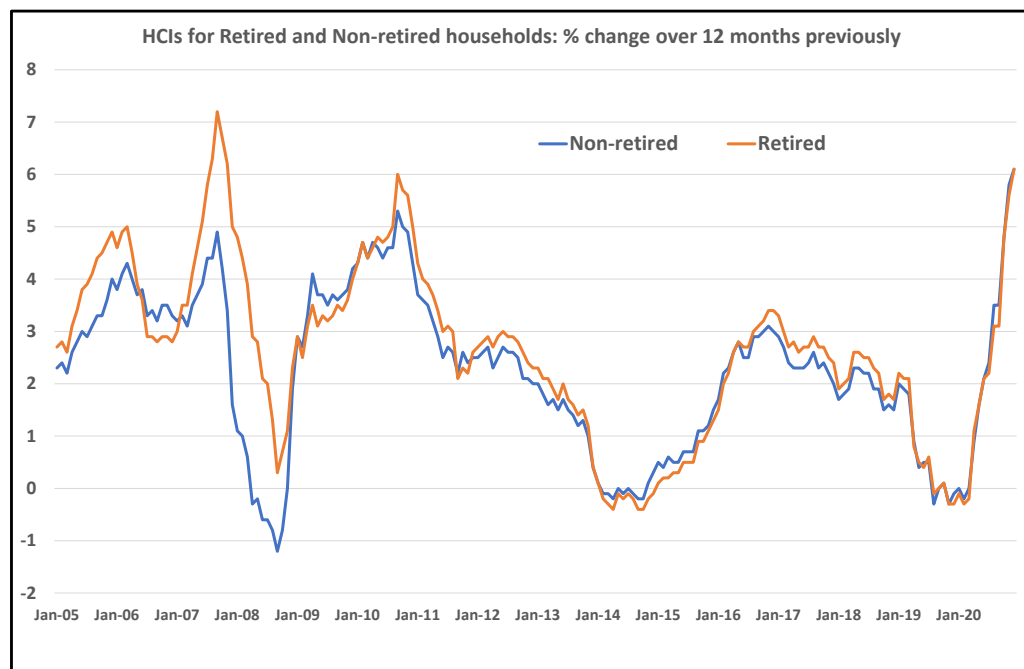
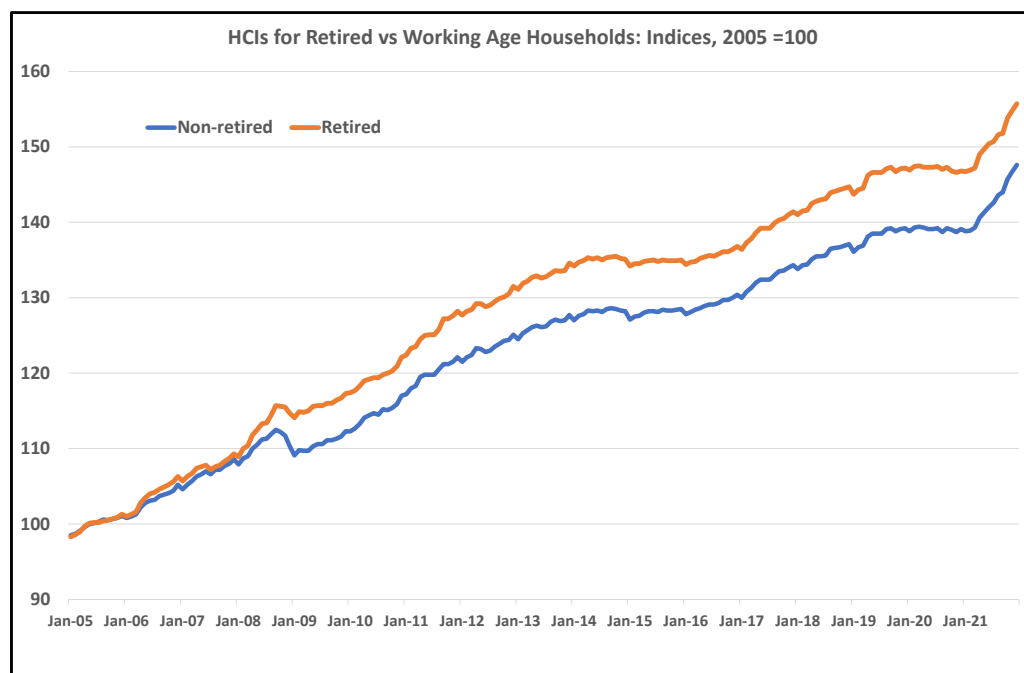
Source: ONS. Indices converted to 2005=100 by authors.

Charts 2 and 2a: HCIs by Housing Tenure



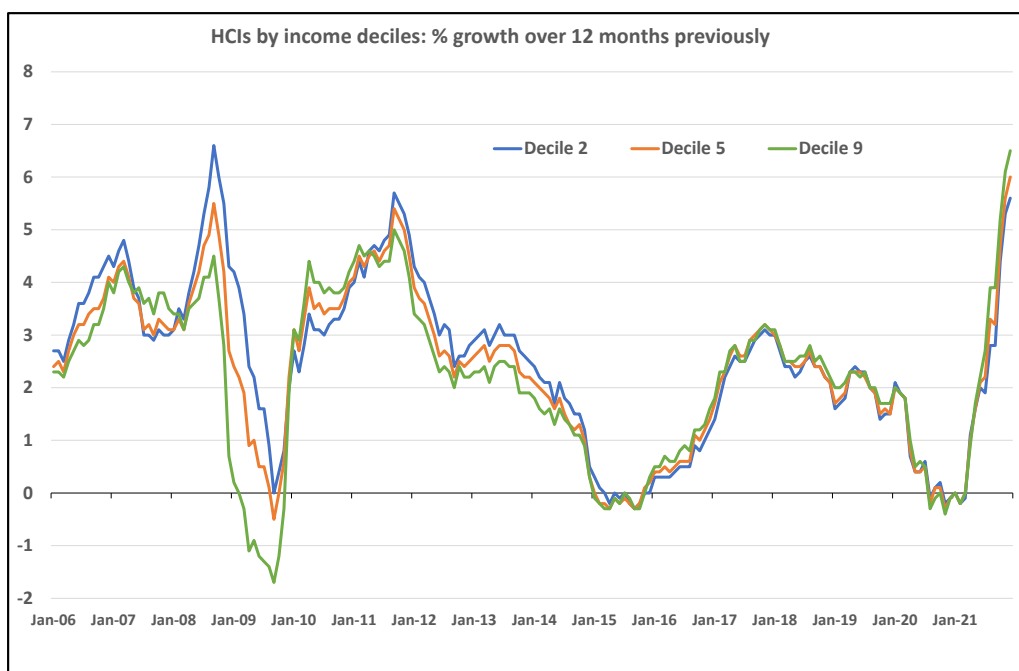
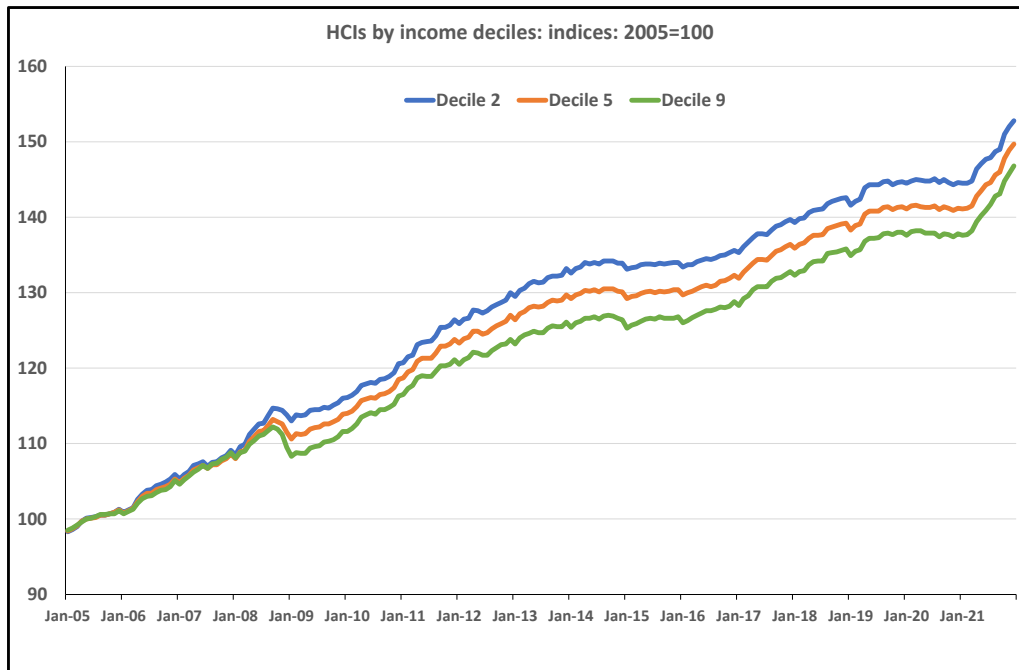
Source: ONS

Charts 3 and 3a: HCIs for Retired and Non-retired Households



Source: ONS

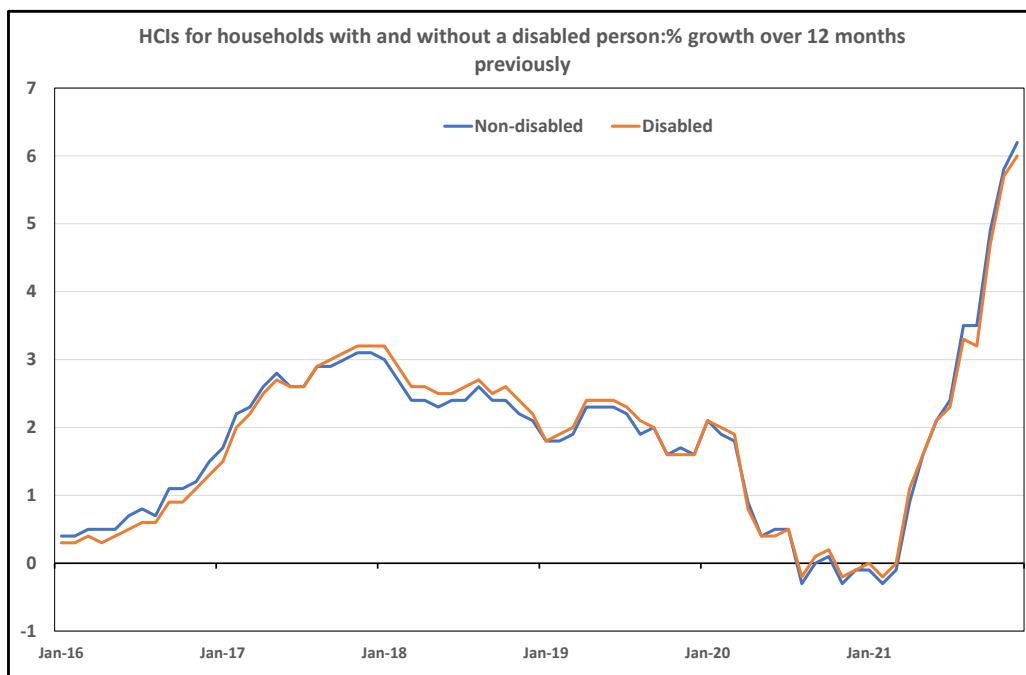
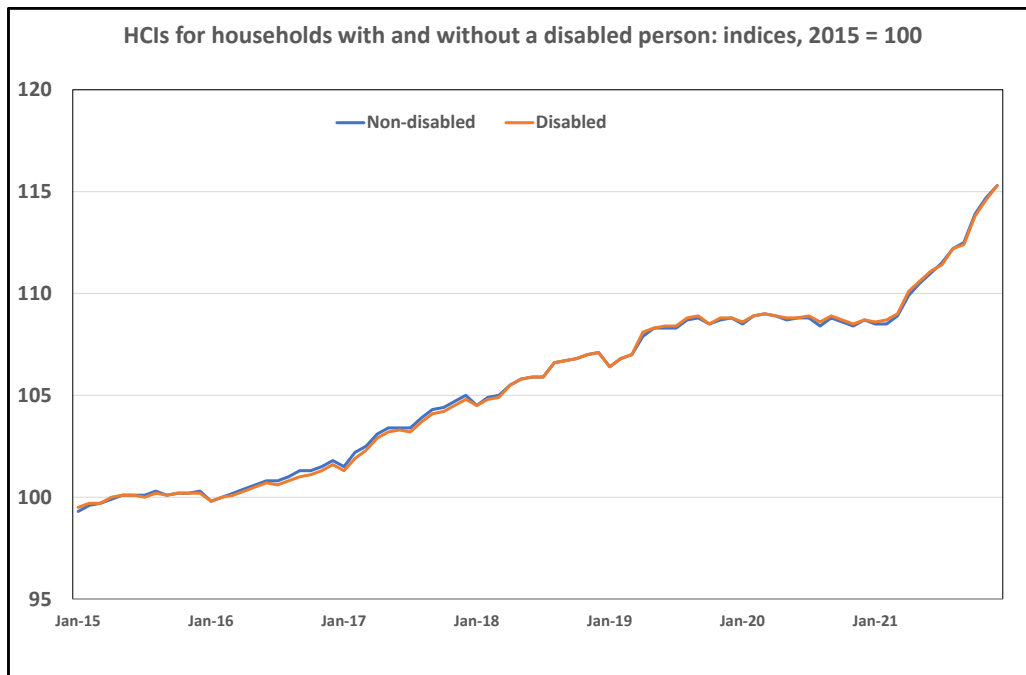
Charts 4 and 4a: HCIs by Income Deciles (2nd, 5th and 9th deciles)



Source: ONS

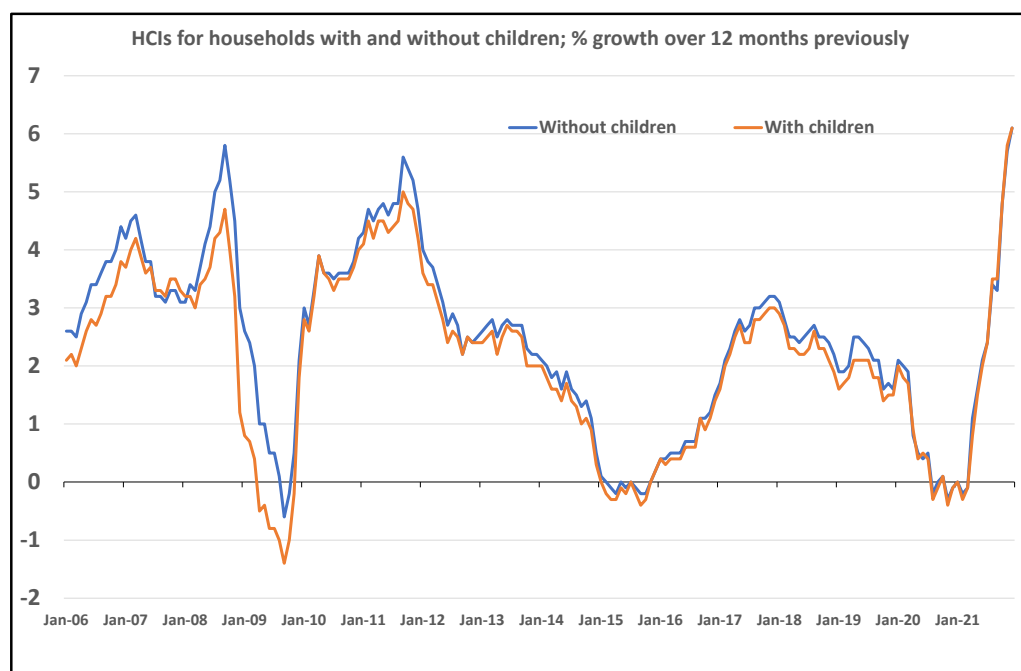
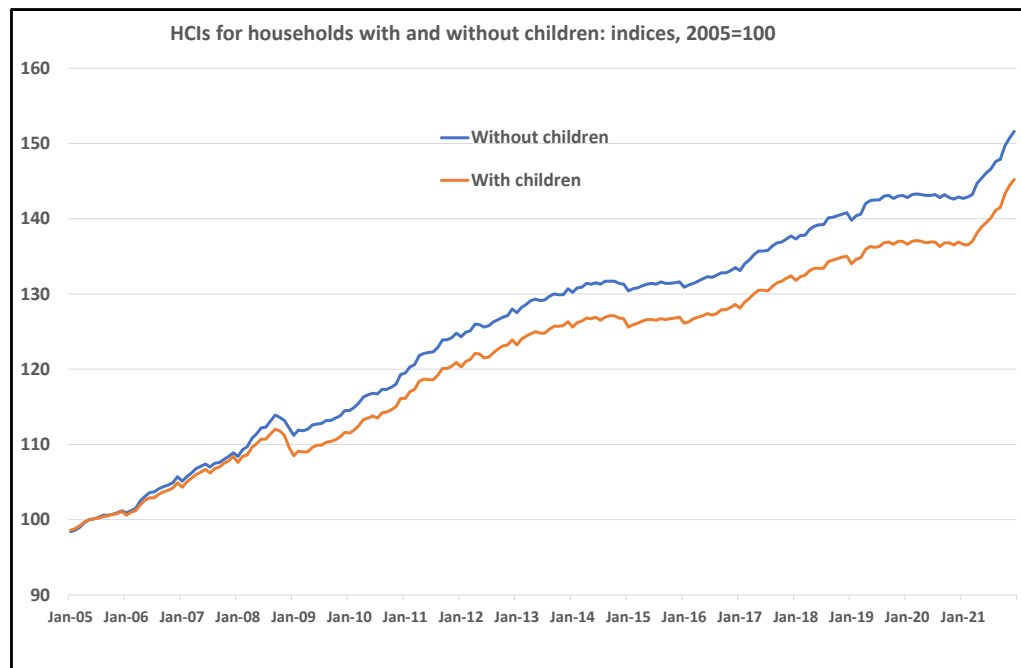
Charts 5 and 5a: HCIs by households with and without a Disabled Person

(These series are available from 2015 only)



Source: ONS

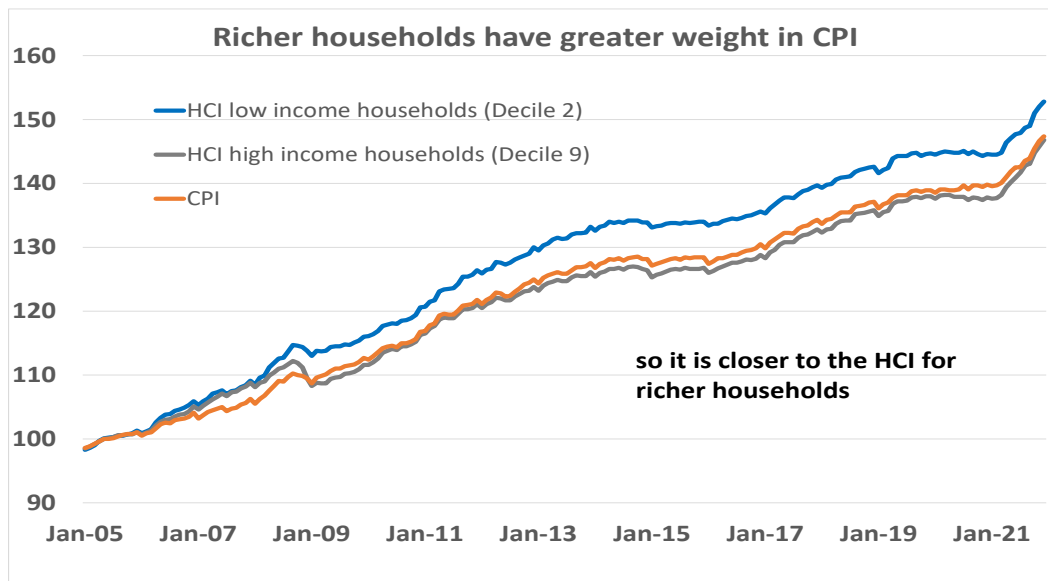
Charts 6 and 6a: HCIs by Households with and without Children



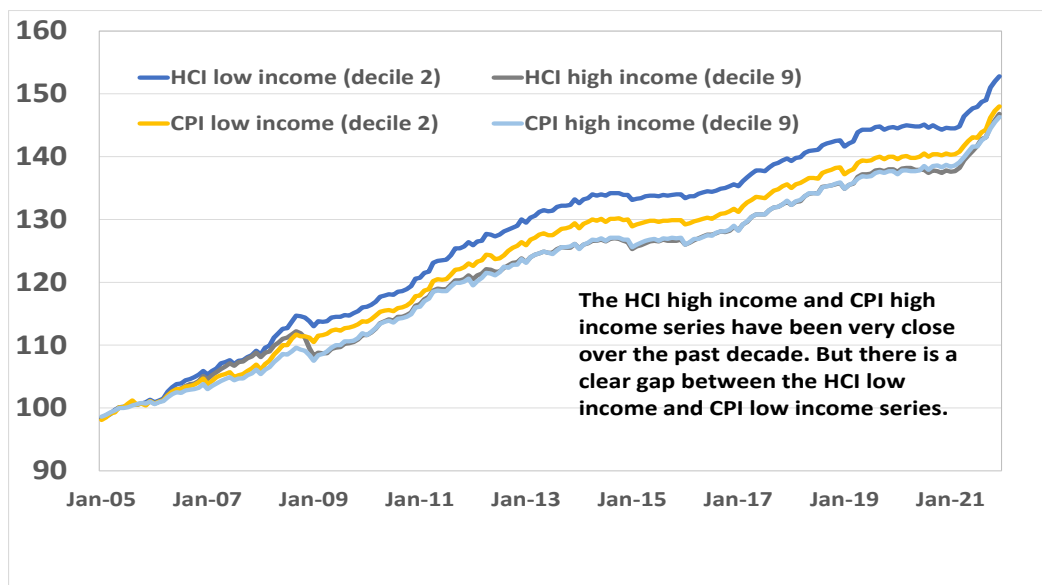
Source: ONS

Appendix 4 – Two charts presented at the “Better Statistics” meeting in May; (One reason we believe we need HCIs)

The following two charts were presented to a meeting organised by “Better Statistics CIC” in May 2022. We feel they demonstrate one reason why HCIs are needed. The CPI has been close to the HCI for higher income households (here represented by decile 9) but, over the period shown, has underestimated inflation for lower-income households (represented by decile 2).



Earlier this year, ONS also published a breakdown of CPI by income deciles. Like the HCIs these series are still experimental so only limited weight should be placed on them. But we find it striking that while the series for higher income households are so close as to be almost indistinguishable, there is a clear gap between the two series for lower income households. Obviously these are very provisional results so the usual caveats must apply.



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