ADVISORY PANEL ON CONSUMER PRICES – STAKEHOLDER

A theoretical framework for the Household Costs Indices

Status: final
Expected publication: alongside minutes

Purpose

1. Following advice from the APCP-S in May, this paper offers two proposals for a theoretical framework for the Household Costs Indices.

Actions

2. Members of the Panel are invited to:
   a) comment on the strengths and weaknesses of the proposals
   b) advise on a theoretical framework that would be appropriate as a starting principle when considering future development of the HCIs

Background

1. In May 2017 the Stakeholder Advisory Panel on Consumer Prices (APCP-S) discussed the concepts and purpose of the Household Costs Indices (HCIs) and felt that it was not clear what the indices were attempting to measure. Members of the panel felt that the principles on which the indices should be based were not sufficiently well defined to enable satisfactory decisions to be made about what should or should not be included in the indices and how the items should be treated. This has previously been raised a concern by members of both the Technical and Stakeholder Advisory Panels and by other commentators, therefore the APCP-S recommended that the principles be clearly defined before they consider development of the indices further.

2. Jill Leyland (APCP-S) and John Astin (APCP-T) have been working together with the ONS to define a set of principles that can work as a guide to the construction of the HCIs. A number of aspects have been taken into consideration, including; the reasons behind the original HCI proposals ('Towards a household inflation index' Astin & Leyland, 2015); previous advice from the panels and other commentators; and similarities with other countries measures (namely Australia and New Zealand).

3. While the authors agree on a number of aspects, and currently the approaches lead to broadly similar results, there are a few differences in the way the indices are defined that could lead to particular items being treated differently. Therefore we seek the advice of APCP-S in establishing a theoretical framework for the HCIs, to help guide future decision making with regards to the scope and coverage of the indices and the treatment of different items.

4. Annex A and Annex B each contain a paper that sets out the reasoning behind each set of proposals presented in this paper and a discussion around the implications that these could have on the construction of the indices. Annex C compares the HCIs as they are proposed to be published at the end of 2017 with the CPIH, and notes plans for future development of the indices.

Proposal 1 - ONS

5. We propose that:

> "The Household Costs Indices (HCIs) measure how much the nominal disposable income of different household groups would have to change to enable households to maintain a constant standard of living."

Where:

a) a cost is defined as "an amount that has to be paid or spent to buy or obtain something" (Oxford Dictionary definition), and is synonymous with price except in the case of interest payments where an actual price cannot be observed, only derived.
b) household income is defined using the micro conceptual definition of household income as defined in the Canberra Group Handbook on Household Income Statistics (UNECE, 2011), and consists of "all receipts whether monetary or in kind (goods and services) that are received by the household or by individual members of the household at annual or more frequent intervals, but excludes windfall gains and other such irregular and typically one-time receipts." (ILO, 2004)
c) standard of living is referred to in terms of the number of goods and services a household can purchase at a fixed quality. If the real income of a household (i.e. income after taking into account changes in the cost of purchases) were to fall, a household would be able to purchase less of the same quality items, and therefore their standard of living would fall.

6. When adhering to this as a theoretical framework, the HCIs would reflect changes in costs as and when they are experienced by households. The scope of the index would include anything that, if its cost to a household were to change, would decrease (or increase) the value of the income being received by that household. If the real value of household disposable income changes, then they cannot maintain the same standard of living based on the goods and services that they are purchasing.

Proposal 2 – John Astin and Jill Leyland

7. We propose that:

> "The Household Costs Indices (HCIs) are price[1] indices measuring the inflation experience of all or groups of households. They measure how much the price of a basket of goods and services for all or groups of households have changed.
>
> More specifically, they can measure how much the nominal disposable income of different household groups would have to change in response to

[1] It can be argued that the word price is not strictly applicable to some of the items to be included such as interest rates or loan repayments. In this case the word "price" should be taken to include such "quasi-prices". We are not using the word "cost" since while it is sometimes used in a way synonymous with "price" it also refers more precisely to "price x quantity".

changes in the prices of expenditures to enable households to continue to purchase a fixed or comparable basket of goods and services without incurring further debt or reducing their savings."

8. This general principle still leaves room for some debate. So we can specify some sub-principles:
    a. HCIs will monitor the changes in prices of goods, services and other expenditures that households incur to meet their needs, wants and obligations at the present time.
    b. HCIs will reflect the prices and costs of actual expenditures, in general at the time those expenditures are incurred.
    c. HCIs will be household ("democratically") weighted – see Annex B, paragraph 10

Helen Sands (ONS), John Astin (APCP-T), Jill Leyland (APCP-S)
September, 2017

List of Annexes

Annex A	A theoretical framework for the Household Costs Indices, proposal 1, ONS
Annex B	A theoretical framework for the Household Costs Indices, proposal 2, John Astin and Jill Leyland
Annex C	Differences between the proposed HCIs and CPIH

Annex A – A theoretical framework for the Household Costs Indices, proposal 1, ONS

1. Similar indices to the proposed Household Costs Indices (HCIs) are produced by both Australia (Selected Living Cost Indices, SLCIs) and New Zealand (Household Living-Cost Price Indices, HLPIs), further details as to how these measures are produced are provided in Annex A1. When discussing what the sets of indices are aiming to measure,

   - Australia state that the SLCIs:

     "…reflect changes over time in the purchasing power of the after-tax incomes of households. It measures the impact of changes in prices on the out-of-pocket expenses incurred by households to gain access to a fixed basket of consumer goods and services."

   - New Zealand state that the HLPIs:

     "…are a new set of price indexes that measure the inflation experience of groups of households…The committee recommended we provide extra indexes to reflect changes in the purchasing power of incomes for different demographic groups."

2. While both countries consider their indices as measuring changes in the purchasing power of household income, it is important to note that purchasing power is typically of a fixed monetary value (for example, 1GBP in the UK) and income is not a fixed monetary value.

3. Therefore, we recommend that:

   "The Household Costs Indices (HCIs) measure how much the nominal disposable income of different household groups would have to change to enable households to maintain a constant standard of living."

   Where:

   a) a cost is defined as "an amount that has to be paid or spent to buy or obtain something" (Oxford Dictionary definition), and is synonymous with price except in the case of interest payments where an actual price cannot be observed, only derived.
   b) household income is defined using the micro conceptual definition of household income as defined in the Canberra Group Handbook on Household Income Statistics (UNECE, 2011), and consists of "all receipts whether monetary or in kind (goods and services) that are received by the household or by individual members of the household at annual or more frequent intervals, but excludes windfall gains and other such irregular and typically one-time receipts." (ILO, 2004)
   c) standard of living is referred to in terms of the number of goods and services a household can purchase at a fixed quality. If the real income of a household (i.e. income after taking into account changes in the cost of purchases) were to fall, a household would be able to purchase less of the same quality items, and therefore their standard of living would fall.

4. When adhering to this as a theoretical framework, the HCIs would reflect changes in costs as and when they are experienced by households. The scope of the index would include anything that, if its cost to a household were to change, would decrease (or increase) the value of the income being received by that household. If the value of a households income changes then they cannot maintain the same standard of living based on the goods and services that they purchase.

5. To use a simple example, if the cost of petrol increases while the amount of income a household receives remains the same, the household will be able to buy less goods and services than they were able to previously (given their consumption of petrol remains the same). Therefore they would need a higher level of nominal disposable income to maintain the same standard of living.

6. This gets more complicated when considering specific items that affect both household costs and household income. For example, a rise in interest rates would mean that a household paying interest on a loan and not receiving interest on savings could buy less with their income. Therefore, the household would need an increase in their nominal disposable income to maintain the same standard of living. Conversely, for a household considered to be a 'net saver' (receive more interest on their savings than on any outstanding debt) the cost of any interest paid will increase, but the income they will receive on their savings will be greater. In this case, a household with no savings would need a larger rise in their nominal disposable income than a 'net saver' household to maintain the same standard of living. A stylised example of this is provided in Annex A2. The overall effect of this on the HCIs will then be dependent on the proportions of households falling in each category of saver.

7. As discussed in the ONS publication 'Measurement of real household income in the UK: options for a coherent approach' (pending publication), the HCIs would conceptually be more appropriate in explaining changes in income as defined under the micro tradition of income measurement, while the implied price deflator (IPD) continues to be more appropriate in explaining changes in income as defined under the macro tradition of income measurement (in line with the System of National Accounts).

8. Following this framework:

    - the inclusion and treatment of specific items within the HCIs will be based on their coherence with the definition of income under the micro tradition of income measurement (for example, as income as defined under the micro tradition is inclusive of interest received on savings, the HCIs will be inclusive of interest paid on debt)
    - in principle, changes in the price or cost of an item should be captured as they are experienced (i.e. using a payments approach to measurement), as this is when they will impact a households income[2].

[2] Although in many cases the point of payment and acquisition are the same, there are some items with high expenditure, such as housing and education, where the items are paid for over a long period of time. There are also other items with moderate expenditure, such as airfares, new cars and package holidays, where the payment often differs from the acquisition or use of the good or service.

- as the amount of nominal disposable income needed to maintain a standard of living will vary between different household groups, analysis will compare the experience of different household groups, and reference an all-households measure.
- unless it is necessary to change methodology to meet the conceptual aim of the indices, the HCIs will be constructed following international best practice. As such, features such as the formulae, aggregation structure, fixed-basket approach, and quality adjustment methods will remain the same as in CPIH. The differences between the HCIs as proposed to be published at the end of 2017 and the CPIH and CPI are detailed in Annex C.

Implications of this framework for aspects of the HCIs

9. **Weighting:** when measuring how much nominal disposable income (as defined using the micro concept) would have to change for a household to maintain the same standard of living, a democratically weighted index, which has been proposed for the HCIs, may be more appropriate.

10. **Coverage:** The HCIs should measure changes in prices and costs for UK residents. This would mean excluding foreign visitors spending within the UK and including residents spending abroad. This is because changes to household costs, whether within the UK or abroad, will change the amount of nominal disposable income needed to maintain the same standard of living.

11. **Treatment of specific items:**
    a. Interest payments – it is appropriate to include a measure of the cost of interest paid on all consumer debt within the HCIs, because income as defined under the micro concept is inclusive of income received from interest on savings. If a rise in the cost of interest to a household is observed, an equal rise in income received from interest would be needed for the household to maintain the same standard of living.
    b. Second hand goods – it would be inappropriate to include changes in the cost of a number of second hand goods within the HCIs, as they are transfers between households. Within a household group, any sale of a second-hand good would likely be balanced by the purchase of a second hand good; therefore (with all else equal) the group would not need any changes to their nominal disposable income to maintain the same standard of living. When looking at individual households it may be appropriate to include these purchases, but as the HCIs will look at household groups, or an aggregate of all households, household-household purchases would be out of scope. There may however be a case for including second-hand goods as purchased from charity shops and second-hand dealers. These are already included with regards to second-hand cars, and it should be considered whether the scope of second-hand goods is expanded further for the HCIs.
    c. Insurance premia – the HCIs *arguably* should be net of any insurance payouts claimed, as the micro definition of income excludes irregular and typically one-time receipts. However, when thinking about the households standard of living, an insurance payout is made when a household has faced considerable damage to a good or service (for example, a car or a house) and therefore temporarily has a

decrease in their standard of living, without the insurance payout they would need an increase in their nominal disposable income to maintain the same standard of living as they were previously. The insurance payout therefore returns their standard of living back to its original level, however any increases to the gross cost of insurance premia following this would mean a household would need a rise in nominal disposable income to maintain the same standard of living as they were previously. Thus, it may be argued that under this framework, it would be appropriate to include the gross cost of insurance premia within the HCIs. Although this approach may remain true for 'acts of God', this may not be appropriate for acts of theft. When looking at a group of households, the theft may reduce one household's standard of living (e.g. because their TV has been stolen), but give rise to another household's standard of living (because they have a new TV). This needs further consideration.

d. Tuition fees – tuition fees should be included in the HCI basket under a payments approach as, for most households, tuition fees do not impact household income as the course is acquired, but rather as the course is paid for. If there were any changes to loan repayment (for example, a change in the repayment threshold), the amount of nominal disposable income received by a household would need to change proportionately for that household to maintain the same standard of living.
e. Owner-occupied housing (OOH) costs – A payment based measure of OOH would currently be appropriate for the HCIs, as it reflects the payments that households are actually making and the impact that this would have on their income. For example, if the cost of structural insurance were to rise, a household's nominal disposable income would need to rise proportionately for the household to maintain the same standard of living. However, the Canberra definition of income may suggest imputed rents should be included as income (imputed rents measure the income derived from the service provided by one's own home. For example, if one lived in a 4 bedroom house they would receive a greater service, and therefore imputed income stream, than someone living in a 1 bed bungalow). Depending on the interpretation of this definition, it may be argued imputed rents are a more appropriate measure of housing costs than the payments approach.
f. Capital housing costs – It would be inappropriate to include the capital cost of housing within the HCIs as irregular and typically one-time receipts (such as those from the sale of housing) are excluded from the micro definition of household income. It has been argued that capital gains from housing and other assets should be included under the definition of income (for example Nordhaus and Tobin, 1972). As such, it may be appropriate to produce an analytical series that includes the capital cost of housing to measure any changes in nominal disposable income (under a definition that includes capital gains from the sale of housing) a household would need to maintain the same standard of living. However, Sefton and Weale (2006) have shown that including capital gains with income risks double counting as capital gains from falls in discount rates bring income from the future to the present. The resulting income is also counted when it actually accrues. This issue is particularly acute with changes in house prices since these are very sensitive to movements in discount rates.

g. Savings – savings are not within scope of the HCIs as they have no impact on the real income of households. If a household were to deposit more of their income into savings they would not need a higher level of nominal disposable income to maintain the same standard of living. They could simply withdraw money from their savings.
h. Pension contributions – pensions are calculated as a proportion of income, thus, under a fixed basket approach, any changes in the cost of pension contributions are proportional to changes in a household's income. This means they would be out of scope of the HCIs following this framework, as the nominal disposable income would not have to change following an increase in pension contributions to maintain the same standard of living (as they are dependent on changes in nominal income in the first place).

Annex A1: Austalia and New Zealand's approach to measuring changes in living costs for different household groups, as compared with the UK's proposed indices

Feature	UK (as currently proposed)	New Zealand	Australia
Title	Household Costs Indices	Household Living-cost Price Indices	Selected Living Cost Indices
Acronym	HCIs	HLPIs	sLCIs
Aggregate produced	Yes - for reference	Yes - for reference	No
Theoretical framework	Reflects changes in real disposable income as experienced by different household groups	Reflects changes in the purchasing power of incomes for different demographic groups	Reflects changes over time in the purchasing power of after-tax income for households
Weighting	Democratic	Democratic	Plutocratic
Second hand goods	Excludes transactions between households	Excludes transactions between households	Excludes transactions between households
Interest	Gross - All consumer debt in scope	Gross - All consumer debt in scope	Gross - Include mortgage interest and consumer credit charges but exclude all over financial services
Insurance premia	Gross	Gross	Gross
Owner-occupier housing costs	Payments approach	Mortgage interest	Mortgage interest
Capital costs	Indices produced both with and without capital cost of housing	Not included	Not included
Savings	Not in scope	Not in scope	Not in scope
Pension contributions	For future consideration	Not considered	Not considered

Annex A2: Stylised example of how changes in interest rates affect household income

1. **How much would each household receive in month 1 with an interest rate of 2%?**

Month 1	**£1000 Debt**	**£500 Debt**	**£0 Debt**
£0 Savings	£20 cost	£10 cost	£0
£500 Savings	£10 cost	£0	£10 income
£1000 Savings	£0	£10 income	£20 income

2. **How much would each household receive in month 2 if the interest rate then changed to 5%?**

Month 2	**£1000 Debt**	**£500 Debt**	**£0 Debt**
£0 Savings	£50 cost	£25 cost	£0
£500 Savings	£25 cost	£0	£25 income
£1000 Savings	£0	£25 income	£50 income

3. **How does the change in interest rate affect the income of each household?**

Difference between months 1 and 2	**£1000 Debt**	**£500 Debt**	**£0 Debt**
£0 Savings	-£30 (increase in costs)	-£15 (increase in costs)	=£0 (no change in costs or income)
£500 Savings	-£15 (increase in costs)	=£0 (no change in costs or income)	+£15 (increase in income)
£1000 Savings	=£0 (no change in costs or income)	+£15 (increase in income)	+£30 (increase in income)

The upper left corner of table 3 shows that when the interest rate increases from 2% to 5% the household is £30 worse off. This would mean, with all else equal, that household would need a £30 rise in their nominal disposable income to maintain a consistent standard of living.

Conversely, the lower right corner shows that when the interest rate increases from 2% to 5% the household is £30 better off. This would mean that, with all else equal, that household would need a £30 decrease in their nominal disposable income to maintain a consistent standard of living.

The overall effect that this will have on the measurement of income will depend on the proportions of households falling within each of these categories.

Annex B – A theoretical framework for the Household Costs Indices, proposal 2, John Astin and Jill Leyland

1. Before going further it is as well to point out that no formal theoretical principles were ever established for the CPI, i.e. the EU's HICP. And insofar as there were de facto principles, such as the concept of Household Final Monetary Consumption Expenditure (HFMCE) – which excludes imputed transactions such as the use of rental equivalence for estimating the costs of owner-occupied housing – CPIH departs from them both in using rental equivalence, and in including Council Tax. So a more demanding theoretical framework is being required of the HCI or HCIs3. It is in fact not easy to draw up an overarching principle or set of principles for a price index. This paper will make an attempt – but we would like to suggest that ONS do the same for CPIH. A comparison of the two sets of principles would be helpful for public understanding of the differences and range of potential uses.

2. We start with the basic concept of the HCIs. They have been defined as indices which measure "price change as experienced by UK Households" or the "household experience of inflation" (National Statistician, February 2017). Or "Inflation as experienced by households" (Astin and Leyland, May 20154 as modified in the Stakeholder Panel meeting of May 2017). The task for this paper is to flesh out these definitions to define a set of principles that can be a guide to the construction of HCIs.

Purpose of the HCI

3. It is as well to remind ourselves that consumer price indices are very often intended to be multipurpose indicators. The basic concept defined in paragraph 2 also serves as the basic purpose of HCIs. The household-based concept was (and probably remains) also the purpose of most national consumer price indices, in contrast to the basic macroeconomic purposes (specifically international comparisons and interest-rate setting) of the HICP/CPI.

4. It can be noted the household concept is also the prime purpose of other ONS statistics on wealth, income and consumption. It is therefore also logical to have comparable data for prices.

5. In his report "UK Consumer Prices: A review", Paul Johnson suggested that a household-based index could be used for measuring real incomes for groups of households, such as for pensioner households. This use would imply that data on household incomes and household prices should be compiled in ways that allow them to be compared. Indeed, the distinction between macro and other purposes mirrors – to a certain extent although the analogy should not be pushed too far – the two common approaches for income statistics as set out in the Canberra Group Handbook on Household Income Statistics (UNECE, 2011). Although this specific use of a consumer price index (including the HCI) is an important one, it is also

[3] The intention is that an HCI should be calculated both for groups of houses and as an overall index. Some users would make more use of an overall index; some more use of indices for specific groups. For convenience this paper will mainly refer to HCIs but this should also be taken as referring to the overall index in the singular when appropriate.

[4] Astin J and Leyland J, *Towards a Household Inflation Index*, May 2015

important to remember that the HCIs, like other household-based indices, could potentially be used for other purposes. These include the uprating of wages, pensions and state benefits as well as any other area where the inflation experience of households is deemed relevant. In examining the detailed aspects of the HCI, as described in paragraph 14 et seq., these varied uses should be kept closely in mind.

Other relevant definitions

6. We can take a steer from indices which are produced by Australia (Selected Living Cost Indices, SLCIs) and New Zealand (Household Living-Cost Price Indices, HLPIs). The experience of New Zealand, whose HLPIs are recent and resulted from similar concerns to those behind the proposals for the HCIs, is particularly relevant. Further details as to how these measures are produced are provided in Annex B1. Equally we can also look at the definition of micro income measurement from the Canberra Group Handbook – see Annex B2.

Proposal

7. Taking all of the above into account we suggest:

> *The Household Costs Indices (HCIs) are price[5] indices measuring the inflation experience of all or groups of households. They measure how much the price of a basket of goods and services for all or groups of households have changed.*
>
> *More specifically, they can measure how much the nominal disposable income of different household groups would have to change in response to changes in the prices of expenditures to enable households to continue to purchase a fixed or comparable basket of goods and services without incurring further debt or reducing their savings.*

8. This general principle still leaves room for some debate. So we can specify some sub-principles:

    a. HCIs will monitor the changes in prices of goods, services and other expenditures that households incur to meet their needs, wants and obligations at the present time.

    b. HCIs will reflect the prices and costs of actual expenditures in general at the time those expenditures are incurred.

    c. HCIs will be household ("democratically") weighted – see paragraph 10 below.

[5] It can be argued that the word price is not strictly applicable to some of the items to be included such as interest rates or loan repayments. In this case the word "price" should be taken to include such "quasi-prices". We are not using the word "cost" since while it is sometimes used in a way synonymous with "price" it also refers more precisely to "price x quantity".

Implications of the proposed HCI framework

9. **Timing**: in principle, changes in the price or cost of an item should normally be captured as they are experienced (i.e. using a payments approach to measurement), as this is when they will impact a household's budget. In practice, to avoid the costs of double price collection payments will only be used when there is a substantial difference between the timing of payments and acquisition as in cases such as the advance purchase of tickets, fares or holidays or instances such as university tuition fees which are paid for via student loans.

10. **Index weighting:** Rather than weighting household expenditures according to their total expenditure (as appropriate for a macroeconomic index such as CPI) HCIs will be weighted in such a way that, to the extent practically possible, each household will have equal weighting. These methods have been described as "plutocratic" and "democratic" respectively**.**

11. **Population coverage:** The CPI, with its background in EU coverage, measures expenditure on the "domestic" basis, i.e. covering all expenditure inside the UK, including expenditure by foreign residents and visitors and excluding expenditure abroad by UK residents. For a nationally based index like the HCI or HCIs, all expenditure by households resident in the UK should in principle be included whether at home or abroad and expenditure by foreign residents should be excluded - albeit with some difficulty in estimating the overseas expenditure of UK residents.

Treatment of specific items of expenditure:

12. **Interest payments:** Interest payments made by households, including but not limited to mortgage interest, are an important part of many households' expenditure and should therefore be included. ONS are currently making good progress in this field, including interest on student loans.

13. **Second-hand goods:** For a macroeconomic index, payments to other households for second-hand goods may be ignored, since these are merely transfers within the household sector. But for HCIs, we are not so much looking at the "household sector" as a whole, but at the situation facing individual households or sub-groups. It is thus unclear how this item should be treated. In any case, possibly the bulk of expenditure on second-hand goods is to charity shops, where the goods are donated, not sold. The argument against excluding these payments is less obvious.

14. **Insurance premiums:** The payment of insurance premiums, for such purposes as household or vehicle insurance, can be a significant item of expenditure for many households. The CPI – correctly for a macroeconomic index – regards the bulk of insurance premiums as being returned to the household sector, while a smaller part is retained by the insurance companies. From the point of view of the individual household, it is a different matter. After an accident, say, the insurance payout returns the household to the condition it was in before the accident. What the household is paying for is the guarantee that accidental damage will be compensated for. They are no richer after the accident than before, and therefore it is the gross premium which affects their household budget, and it is thus the gross premium which would be covered by HCIs. The weight of items commonly bought with insurance payouts should be appropriately reduced to avoid double counting.

15. **Airfares, tickets for events and package holidays:** Payments for these items are often made in advance, sometimes quite far in advance. These should, therefore, to the extent practical, be included at the time of payment. ONS already collects information on a number of these.

16. **University tuition fees and student loan repayments:** Whether or not student loans are obtained, and used to fund tuition fees, the fees theoretically and usually have to be paid at some point in time. However, the impact on household budgets may often be spread over a long period of time, leading to the view that HCIs – in accordance with stated principles – should cover such payments at the time they are actually paid.

17. In all the above cases following a change in the price of expenditures the nominal disposable income of households would have to change to enable households to continue to purchase a fixed or comparable basket of goods and services without incurring further debt or reducing their savings.

18. **Owner-occupied housing (OOH) capital costs:** This is, as always, the most difficult aspect of a consumer price index, due to the investment element of such costs; arguments can be put forward for a range of different treatments. There are good arguments for including the capital element of mortgage repayments since these are regular outgoings and can be a substantial part of household spending. Comparing potential mortgage payments with potential rent is a common consideration when deciding whether to buy or rent. Further, shelter is a basic human need, so it would be wrong to exclude its cost no matter how financed.

19. Once a property is bought and a mortgage arranged, the capital to be repaid does not change. However consider a home owner who in year zero is paying a mortgage on his or her current home but then moves in year t to a new home. If property prices have risen in the meantime, the owner will, other things being equal, need a larger mortgage, and hence face greater capital repayments, than if the new property had been purchased and the mortgage on it was taken out in year zero. It should be noted that, in line with normal price index practice, comparison of prices over time have to be adjusted so that the prices of identical or very similar (including location), properties need to be compared.

20. This approach would recognise the fact that the ownership of one's own dwelling is a goal of many households. Moreover, such a goal is not to be confused with the goal of amassing capital, as in stock market or other investments; house price appreciation may well be a potential benefit (not always realised) but it is not the main aim of purchase, which is to provide a secure home for the household escaping the uncertainties of renting. House owners cannot simply sell a house and walk away as is the case with, for example, stocks and shares. If the house is sold another has to be bought or the owner moves into the rental market. The gain from housing is often realised towards the end of life or even at death.

21. In contrast, the one-off payments made when a property is bought without a mortgage, or the down payment is made with a mortgage, are more problematic. These have the character of one-off or exceptional payments and could therefore be excluded from HCIs. There may be a case for including them for first-time buyers. Excluding them for second or subsequent buyers would also have the advantage that it would normally implicitly remove the capital gain on the preceding purchase.

22. If mortgage capital payments are to be included in HCIs it would be logical to include regular payments on a linked endowment policy for endowment mortgages if this can be identified.

23. Adjustments should clearly be made to exclude buy-to-let mortgages from HCIs. A point that has been raised in previous discussions is that mortgages are sometimes taken out or increased in order to fund the purchase of other items. In this case it is logical to include the mortgage interest payment since this simply substitutes for interest that would otherwise need to be paid to purchase the item. Including the capital repayments would, however, in effect be double counting. The best way to deal with this is to make an appropriate adjustment to the weight given to the capital element. Mortgages taken out to extend or renovate a dwelling would remain in scope.

24. As noted in Annex B1, neither Australia nor New Zealand include OOH capital costs (although in New Zealand mortgage interest is linked to property prices). As mentioned, the investment element of such costs does mean that there are arguments for different treatments. It is therefore proposed that HCIs be compiled both with and without capital costs. This would also allow further refinement of this element of the index in the future.

25. **Savings:** These should not be covered by HCIs since they are not relevant to maintaining expenditures in the current or near future.

26. **Pension contributions:** These should not be covered by HCIs since they are intended to nurture future expenditure.

Annex B1: Australia and New Zealand's approach to measuring changes in living costs for different household groups, as compared with the UK's proposed HCI

1. When discussing what the sets of indices they are aiming to measure, Australia states that the SLCIs:

> "*…reflect changes over time in the purchasing power of the after-tax incomes of households. It measures the impact of changes in prices on the out-of-pocket expenses incurred by households to gain access to a fixed basket of consumer goods and services."*

while New Zealand states that the HLPIs:

> "*…are a new set of price indexes that measure the inflation experience of groups of households…….The committee recommended we provide extra indexes to reflect changes in the purchasing power of incomes for different demographic groups."*

2. Both of these indices are therefore consumer price indices of the traditional variety, and can be used, among other purposes, to estimate "real" household incomes.

3. While both countries consider their indices as measuring changes in the purchasing power of household income, it is important to note that incomes can vary while purchasing power typically relates to a fixed monetary value (for example, 1GBP in the UK).

The table below summarises the key features of the Australian and New Zealand indices, and compares them with their equivalents in the HCIs.

Feature	UK (as currently proposed)	New Zealand	Australia
Title	Household Costs Indices	Household Living-cost Price Indices	Selected Living Cost Indices
Acronym	HCIs	HLPIs	SLCIs
Aggregate produced	Yes	Yes - for reference	No
Theoretical framework	See text	Measures the inflation experience of groups of household……Reflects changes in the purchasing power of incomes for different demographic groups	Reflects changes over time in the purchasing power of after-tax income for households
Weighting	Democratic	Democratic	Plutocratic
Second hand goods	Net but see text	Net	Net
Interest	Gross - All consumer debt in scope	Gross - All consumer debt in scope	Gross - Include mortgage interest and consumer credit charges but exclude all other financial services
Insurance premia	Gross	Gross	Gross
Owner-occupier housing costs	Payments approach	Mortgage interest with link to house prices	Mortgage interest
Capital costs	Indices produced both with and without capital cost of housing	Not included (other than through above)	Not included
Savings	Not in scope	Not in scope	Not in scope
Pension contributions	Not considered	Not considered	Not considered

Annex B2: **Relevant measures of household income**

1. For the purpose of measuring the effects of price changes on real incomes, the incomes index needed for comparison with HCIs would need to have, as far as possible, matching coverage.

2. We can therefore take a lead from the definition of micro income measurement from the Canberra Group Handbook on Household Income Statistics (UNECE, 2011). This states that income consists of "all receipts whether monetary or in kind (goods and services) that are received by the household or by individual members of the household at annual or more frequent intervals, but excludes windfall gains and other such irregular and typically one-time receipts." This is not the place to begin a detailed discussion of such a definition, but it seems a good starting point for ONS.

3. From the practical point of view it may be difficult to exclude the expenditure equivalent of "windfall gains" but it seems probable that such expenditure items (e.g. items of valuable jewellery etc) would normally be excluded both from the LCF-based weights of HCIs and also from the HCI price surveys. However, it can safely be said that the Canberra definition rules out savings and items such as pension contributions, which are intended to nurture or protect spending power at some time in the future.

Annex C: Differences between the proposed HCIs and CPIH

Unless it is necessary to change methodology to meet the conceptual aim of the indices, the HCIs will be constructed following the same methodology as CPIH to facilitate reconciliation between the indices. As such, features such as the formulae, aggregation structure, fixed-basket approach, and quality adjustment methods will remain the same as in CPIH. Future improvements or changes to these practices will be made to both the CPIH and the HCIs except where the different concepts call for different treatments.

Table 1 shows where there will be differences between the CPIH and the HCIs as they have been proposed to be published at the end of 2017.

Table 1: Differences between CPIH, CPI and the HCIs as published at the end of 2017

CPIH	**CPI (currently the same as HICP)**	**HCIs (as calculated at the end of 2017)**
'Plutocratic' (economy-wide expenditure) weighting	'Plutocratic' (economy-wide expenditure) weighting	'Democratic' (household expenditure) weighting
Rental equivalence approach to measuring owner-occupied housing (OOH)	Not included	Payments approach to measuring owner occupied housing (OOH)
Interest on debt excluded	Interest on debt excluded	Interest on credit card debt included
Net insurance premiums (insurance premiums less insurance payouts)	Net insurance premiums (insurance premiums less insurance payouts)	Gross insurance premiums (insurance premiums not taking into account insurance payouts)
Acquisition approach to higher education (tuition fees included as each year of a course is acquired)	Acquisition approach to higher education (tuition fees included as each year of a course is acquired)	Payments approach to higher education (tuition fees included as they are paid for, whether directly or via a loan)
Exclude capital costs	Exclude capital costs	Produced both with and without the capital cost of housing
Council Tax included	Council Tax excluded	Council Tax included

The HCIs published at the end of 2017 will serve as a prototype, and further development is expected to happen throughout the coming years. This development will be spurred through feedback from users and advice from our advisory panels, and includes, but is not limited to:

- modifying the index to ensure it reflects national (rather than domestic) expenditure
- extending the use of a payments approach to other items (such as airfares, package holidays, cars)
- extending the scope of debt from credit card debt to all consumer debt
- further consideration regarding the inclusion of second hand goods
- reviewing and improving the payments approach to OOH