Changing Lanes
The impact of differing post-Brexit trading policies on the cost of living

Online Appendix

List of abbreviations

COI+	Classification of items of expenditure used in the LCFS data; these 5-digit expenditure codes are derived from the 3-digit European classification COICOP
COICOP	Classification of Individual Consumption According to Purpose
CPC	Central Product Classification
EM	Emerging Markets
EU27	The EU Member States (as of 1 July 2013) less the UK
HS	Harmonised System
ISIC4	International Standard Industrial Classification Revision 4
LCFS	Living Costs and Food Survey data
MFN	Most Favoured Nation (tariff)
RHIC	Rest of High-Income countries
RHS	Right-hand side
RoW	(Residual) rest of the World
UK SIC 2007	UK Standard Industrial Classification 2007
UNSD	United Nations Statistics Division
WITS	World Integrated Trade Solutions; online platform that gives access to several trade-related databases

Calculating inflation rates for different households

Section 1 of the report looked at how the impact of rising inflation was felt by different households, across the income distribution and across regions and nations of the UK.

Our approach to calculating inflation rates for different households was similar to that used by Flower and Wales (2014).[1] What we did differently, however, was to calculate spending shares for groups at the divisional rather than the group level, similar to the approach used by Corlett and Clarke (2017).[2]

After calculating weights using the LCFS we then adjusted these to make them comparable with the weights derived from national accounts using the difference between LCFS and CPI, as per ratios provided in Flower and Wales (2014). Spending shares were produced for each year between 2001 and 2014 and were used to weight the price data. We extended our analysis to July 2017 using expenditure data from 2015-16 because this was the latest available data.

A Bespoke Converter from the Harmonised System Trade Classification (HS) to Coicop_plus (COI+) expenditure codes

This bespoke converter from the HS classification to COI+ expenditure codes is the cornerstone of our calculations that allowed us to calculate trade and tariff statistics for individual categories of final consumption goods.[3]

This exercise of creating the bespoke converter involved four steps:

1. **Mapping Harmonised System HS2007 codes to Central Product Classification CPC1.0 codes using a converter available from the World Integrated Trade Solutions (WITS) website[4] (HS2007→CPC1.0)**
   This is an m:1 converter, where a 6-digit HS2007 code maps to a single 5-digit CPC1.0 subclass, but a 5-digit CPC1.0 subclass can map to more than one HS2007 code. There are approximately 5,400 HS headings and 1,100 CPC1.0 subclasses.

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[1] Flower, P. and Wales, P. (2014). *Variation in the inflation experience of UK households: 2003 – 2014*, ONS, December 2014. Available at: http://webarchive.nationalarchives.gov.uk/20160106135314tf_/http://www.ons.gov.uk/ons/rel/elmr/variation-in-the-inflation-experience-of-uk-households/2003-2014/index.html.

[2] Corlett, A. and Clarke, S. (2017). Living Standards 2017 The past, present and possible future of UK incomes, Resolution Foundation, February 2017.

[3] These data at the COI+ level were required to disaggregate the price effects from ISIC4 group level to COI+ product level (see 'Disaggregating the price effects' below).

[4] A complete list of the WITS product concordance tables, including HS2007 to CPC1.0 converter, can be downloaded from: http://wits.worldbank.org/product_concordance.html.

2. **Mapping CPC1.0 codes to a European Classification of Individual Consumption According to Purpose COICOP codes using a converter available from the United Nations Statistics Division (UNSD) website[5] (CPC1.0→COICOP)**
   This is an m:m converter, where a 5-digit CPC1.0 subclass maps to one or more 3-digit COICOP class (and vice versa). There are 117 COICOP classes covering both goods and services.

3. **Disaggregating COICOP to COI+ expenditure codes used in the UK Living Costs and Food Survey (LCFS) (COICOP→COI+)**
   There is no official converter for this; 5-digit COI+ expenditure codes map onto the COICOP coding frame, but use an extra level that allows for a more precise recording of expenditure items. There are 425 COI+ categories of which 200 do not match in any obvious way to HS headings because they refer to services. Hence 225 categories refer to goods which we can match to HS.[6]

4. **A heavy manual sift to simplify the conversion and eliminate headings not appropriate to the analysis of final consumption. This was partly based on the Office for National Statistics' *LCF Expenditure Codes 2014 - Volume D*.[7]**
   The final, extensive, manual sift was based on textual comparison of definitions the 5,400 HS headings and the 7,968 items listed in the ONS Expenditure Codes.[8] This entailed dropping any HS heading that manifestly would not be relevant to final consumption – notably intermediate goods (e.g. bulk chemicals or bulk steel) and investment goods (e.g. railway locomotives or large pressure vessels).

There are other methods of producing an HS-COI+ converter, but these would either involve introducing extra conversion steps (e.g. using UNSD converters, a conversion from HS2007 to COICOP involves the following steps: HS2007→CPC2.0, CPC2.0→CPC1.1 and CPC1.1→CPC1.0, and CPC1.0→COICOP) or involve converting a more dated HS revision (i.e. using UNSD converters, HS1996→CPC1.0 and CPC1.0→COICOP). In these circumstances using converters from two different sources, i.e. WITS and UNSD, seemed like a best available option.

We aimed to the maximum plausible extent to make the final conversion an m:1 conversion, i.e. to allocate each HS heading to only one COI+ category. This inevitably introduces some inaccuracy, but we have no data on how headings should be apportioned over categories, so complete accuracy is not feasible anyway. Where apportioning HS headings was

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[5] A complete list of the UNSD correspondence tables, including CPC1.0 to COICOP converted, can be downloaded from: https://unstats.un.org/unsd/cr/registry/regdnld.asp?Lg=1.

[6] COI+ contains 7 categories which refer to the hire or rental of clearly defined goods. In our analytical exercises we attribute to these headings price increase equal to 75 per cent of the price increase of their substantive component. Any expenditure which refers to servicing, repairing or installing goods was treated as entirely a service and hence not mapped to HS at all. There was also a small number of COI+ categories that we can match to HS headings but for which we cannot do the analysis owing to lack of data (e.g. COI+ '01.1.4.7.1 Eggs' or '04.5.4.1.2 Wood and peat').

[7] See: http://doc.ukdataservice.ac.uk/doc/7992/mrdoc/excel/7992_volume_d_expenditure_codes_2014.xls.

[8] We are grateful Oliver Winters for assistance with this stage.

unavoidable, we divided any trade attributed to the heading equally across its various COI+ destination categories. The most extensive case of this sort was for garments and clothing, in which the COI+ distinguishes women's and girls' clothing, but HS combines them, and similarly for men. Footwear is likewise split by women, men and children in COI+ but not in HS. The final major area of apportionment was for motor vehicles, where COI+ distinguishes the purchase and hire-purchase of motor vehicles, new and second-hand vehicles, and accessories and spare parts, whereas HS makes none of these distinctions at 6-digit level.

The simulation model and data

To simulate the effect of Brexit on prices we used the partial equilibrium multi-market model and collected data on production, trade and tariffs for five country groups that feature in our multi-market set-up, i.e. the UK, EU27, RHIC, EM and RoW. To match the household consumption data from the LCFS, where possible we sought production, trade and tariff data for 2014.[9] Most of the modelling was done at the 4-digit ISIC4 level, with the exception of 18 categories of fresh foodstuffs, which were modelled directly at the COI+ level.[10]

To run the simulations, we reconciled production, trade and tariffs data, which are typically reported in different systems of classification. For manufacturing industries, we used the OECD Bilateral Trade in Goods by Industry and End-use ISIC Rev.4 conversion key to express trade and tariff data (originally reported in HS classification system) at the 4-digit ISIC4 level. Production and trade data for fresh foodstuffs was reported according to the FAOSTAT Commodity List, which in most cases could easily be matched to the COI+ categories of final consumption goods used in the LCFS.[11]

Production data was further adjusted to capture the size of domestic sales (i.e. home consumption of home production) In principle, this could done by subtracting the value of exports from the value of domestic production. These calculations, however, resulted in a number of domestic sales figures turning negative. This is due to an inherent discrepancy in measuring production (as an activity) and trade (as a commodity).

A different method of adjusting production data to capture domestic sales – chosen in this study – is to use the input-output tables to calculate the share of production that is consumed in the domestic market (as opposed to the share that is exported). To adjust the UK production figures we used the ONS's UK Input-Output Analytical Tables for 2013, which reports data for 105 sectors, predominantly at the 2-digit level of the UK Standard Industrial Classification (SIC) 2007.

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[9] When this research first began, the LCFS2014 was the latest household consumption data available.
[10] These 18 categories of fresh foodstuffs include Rice, Citrus fruits – fresh, Bananas – fresh, Apples – fresh, Pears – fresh, Stone fruits – fresh, Berries – fresh, Other fresh, chilled or frozen fruits, Dried fruit and nuts, Leaf and stem vegetables (fresh or chilled), Cabbages (fresh or chilled), Vegetable grown for their fruit (fresh, chilled or frozen), Root crops, non-starchy bulbs and mushrooms (fresh, chilled or frozen), Dried vegetables, Potatoes, Salt, spices and culinary herbs, Coffee, Tea.
[11] In a small number of cases FAO commodity can be matched to more than one COI+ category of final consumption goods. For example, FAO's 'mangoes, mangosteens guavas' can be matched to COI+ 'Stone fruits – fresh' and COI+ 'Other fresh, chilled or frozen fruits'.

The partial equilibrium multi-market model used to simulate the effect of Brexit on prices assumes that the demand derives from an Armington structure,[12] where products are differentiated by place of production and demand is allocated across varieties from different sources according to a constant elasticity of substitution (CES) utility function. On the supply side, the model assumes that each variety is supplied by a perfectly competitive industry that is subject to (mildly) rising marginal costs.

The critical parameters in the partial equilibrium multi-market model include:

- the elasticity of substitution between different varieties of the same product – set at -5 for the manufacturing industries and at -10 for fresh foodstuffs;[13]
- the elasticity of demand for an aggregate product – set at -1.5;[14]
- the elasticity of supply – for UK suppliers to the UK market the supply elasticity is set at 6 for manufacturing industries and at 3 for fresh foodstuffs, for other suppliers the supply elasticity is set at 15.[15]

We ran a series of sensitivity analyses to examine how the overall simulation results change as we halved or doubled the values of elasticities. We found that the results did not change materially.

Disaggregating the price effects

The partial equilibrium multi-market model allows us to estimate the impact of Brexit on prices for 65 ISIC4 groups (manufactured items) and 18 COI+ products (fresh food items). For the former, following the simulations price changes need to be disaggregated from the ISIC4 groups into COI+ categories.

This Appendix discusses two approaches to disaggregating the estimated change in price for a particular ISIC4 group into price changes for its component COI+ categories. Let P be the price index for any group of COI+ categories defined at the ISIC4 level and t be (1 + the corresponding average tariff) for that group. Using ^ to denote proportionate changes (dx/x), for any simulation, the multi-market model produces an estimate of $\hat{P}/\hat{t}$.

P is a weighted average of the prices of the individual categories in the group, p_i; each category also has a corresponding t_i .

$$\hat{P} = \sum_i w_i \hat{p_i} \qquad (1)$$

where the w_i sum to unity.

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[12] Armington, P.S. (1969). A Theory of Demand for Products Distinguished by Place of Production, *IMF Staff Papers*, 16(1):159-78.
[13] A value of -5 is commonly used as an elasticity of substitution. Doubling elasticity of substitution to -10 for fresh foodstuffs reflects a strong substitutability for primary products.
[14] Most models use a value of between -1 and -1.5
[15] Smaller value of supply elasticity for fresh foodstuffs reflects land and labour constraints for primary products. Larger value of supply elasticity for foreign suppliers reflects the relatively small size of the UK market compared to these regions' overall supply.

The simplest approach to disaggregating $\hat{P}$ into the individual $\hat{p}_i$s is to take $\hat{P}/\hat{t}$ as a parameter (γ), constant across *i,* and apply it to each category, so that

$$\hat{p}_i = \gamma \hat{t}_i \tag{2}$$

However, this is arguably rather crude because it ignores any differences among categories in their exposure to imports or in the structure of their import markets. Of course, we have insufficient data to measure these effects directly, but one solution to the disaggregation is to write the effect of a tariff change on an individual category as

$$\frac{\hat{p}_i}{\hat{t}_i} = \frac{\hat{p}_i}{\widehat{p_i^m}} \frac{\widehat{p_i^m}}{\hat{t}_i} \tag{3}$$

where $\widehat{p_i^m}$ is the change in the price of the imports *affected directly* by the tariff change. The second term is the pass-through from tariffs to the internal price of imports and the first term the transmission of import price shocks to overall consumer prices. In a small open economy with homogeneous goods, both terms would be unity: tariffs would be passed-through completely to import prices and import prices would completely determine domestic prices for the good. In our context of differentiated categories, however, neither is likely to be unity.

First, assuming that pass-through is the same for all categories in the group, let

$$\frac{\widehat{p_i^m}}{\hat{t}_i} = \beta \qquad \text{all } i. \tag{4}$$

Second, with heterogeneous goods the overall price of category *i* will be a weighted average of the domestic price (assumed to be, to a first approximation, unchanged), the affected import price and other import prices. Hence

$$\frac{\hat{p}_i}{\widehat{p_i^m}} = \frac{m_i}{c_i} \tag{5}$$

Where m_i is consumption of directly affected imported supplies of the category and c_i total consumption. In fact, we have no direct data on the imported component of consumption of each category; our data refer to total imports of the relevant category which will probably include some intermediate and possibly government demand. Assuming that this overstatement is the same for all categories in the group, we write instead,

$$\frac{\hat{p}_i}{\widehat{p_i^m}} = \alpha \frac{m_i}{c_i} \tag{6}$$

Substituting (4) and (6) into (3)

$$\hat{p}_i = \alpha\beta \left(\frac{m_i}{c_i}\right) \hat{t}_i \tag{7}$$

Returning to (1), the obvious weights for the group consumer price index are consumption weights, i.e. $w_i = (c_i/c^T)$, where c^T represents total group consumption. Similarly, the obvious weights for constructing the group level average tariff are import weights (m_i/m^T). Substituting for w_i in (1) and using (7), we get

$$\hat{P} = \sum_i \left[\frac{c_i}{c^T} \alpha\beta \frac{m_i}{c_i} \hat{t_\iota} \right] \quad (8)$$

which becomes

$$\hat{P} = \alpha\beta \frac{m^T}{c^T} \hat{t} \quad (9)$$

From which we can derive an expression for $\alpha\beta$ from the model output (γ) and the data on total group consumption and imports. Substituting this expression into (7) and writing s_i^m for the share of category *i* in group 'affected' imports (m_i/m^T) and similarly s_i^c for (c_i/c^T), we obtain the 'disaggregation formula'

$$\hat{p_\iota} = \gamma \frac{s_i^m}{s_i^c} \hat{t_\iota} \quad (10)$$

The effect of the tariff change on category *i* on the price of consumption of category *i* depends on the effect of tariffs on prices at the group level (which in turn reflects the average openness to imports of the group and the relative importance in consumption of the categories whose tariffs change most) and also increases as the share of category *i* in group imports increases relative to its share of group consumption.

There is one final complication. The analysis above implicitly assumed that *i* counted across all the goods included in the ISIC4 group under consideration. However, given that we are deriving consumption prices and are using a consumption classification and data, we have disaggregated share data (s_i^c) only for the consumption part of expenditure on the group. As noted above, for the tariff headings that cover both final consumption and other types of expenditure (intermediates, government, investment and exports) we have to assume that the share of consumption in total expenditure is the same for all *i* (=α). But there are also tariff headings for goods which cannot plausibly enter final consumption and we have left these out of the tariff averages for categories *i*. Thus the shares which should been calculated out of total imports and expenditure for the group were actually calculated over only the subset of headings that could have pertained to consumption and so should strictly be multiplied by factors of s_I^m and s_I^c respectively, where the subscript *I* denotes the total share of the included categories. If s_I^m and s_I^c are the same – i.e. the included categories are as important in group expenditure as they are in group imports, these adjustment factors cancel out. If, on the other hand, we assume that the share of included categories was λ times larger for imports than for expenditure, each element of the RHS of (10) needs to be increased by a factor of λ.

In fact, equation (10) faces some serious practical difficulties and requires further refinement. First, in a few cases, s_i^c is actually reported as zero. This implies that $\hat{p_\iota}$, the price change of *i*, does not enter the cost of living calculation, but we set it at zero for convenience. In a number of other cases s_i^c is very small – the COI+ category accounts for only a small share of the group consumption, but the share in group imports, s_i^m, is substantially larger. This implies implausible price changes for category *i.* The problem is almost certainly that the import data cover all uses of the category, whereas the consumption shares cover only final consumption. To better approximate the share of imports in consumption we need to combine the information about the importance of *i* in consumption with information about its openness to imports, giving the former precedence because of its better focussed measurement. Thus,

when s_i^c and s_i^m are similar we need make no adjustment but when they are far apart we need a value that more closely approximates the former. We do this as follows

$$\ln(\widetilde{s_i^m}) = \ln(s_i^c) + 0.8*\tanh[\ln(s_i^m) - \ln(s_i^c)] \qquad (11)$$

where s_i^m is the revised import share and the other terms as above. tanh(.) is a sigmoid function that attenuates its argument with asymptotes of -1 and +1. This implies that for cases of very large positive deviations between s_i^m and s_i^c , $\widetilde{s_i^m}$ is at most 0.8*e* (=2.17) times larger than s_i^c, and similarly 0.8*e* smaller for large negative deviations[16].

In fact there is one more piece of information that we should exploit. If we set aside any discrepancies in the mapping between COI+ and ISIC4, when s_i^m is very low – i.e. there are next to no imports of *i* at all – we can be sure there are next to no imports for final consumption. Thus in these cases we do not want (11) pulling s_i^m upwards towards s_i^c. To this end for values s_i^m between 0 and 0.05 scale the import share further such that

$$\overline{s_i^m} = \theta\, s_i^m + (1-\theta)\widetilde{s_i^m}\,, \quad \theta = (1 - \frac{s_i^m}{0.05}) \quad \text{if } s_i^m < 0.05$$

$$\overline{s_i^m} = \widetilde{s_i^m} \qquad \text{otherwise.}$$

Finally, for each group the $\overline{s_i^m}$ are scaled such that $\sum_i \overline{s_i^m} = 1$.

This somewhat convoluted process offers only one, albeit plausible, way in which to reconcile the price and tariff changes in individual categories with that estimated for the group. It is essentially introducing additional variance into the series of individual price changes based on *a priori* reasoning. To measure the extent to which variance is added , we observe from equation (10) that

$$\ln(\hat{p}_i) = \ln(\gamma \hat{t}_i) + \ln\left(\frac{s_i^m}{s_i^c}\right)$$

Hence the variance of the log of our final series of price changes may be expressed precisely in terms of the variances and covariance of the logs of the 'crude' price change and the ratio of import to consumption shares.

$$Var[\ln(\hat{p}_i)] = Var[\ln(\gamma \hat{t}_i)] + Var[\ln\left(\frac{s_i^m}{s_i^c}\right)] + 2*\mathrm{Cov}[\ln(\gamma \hat{t}_i), \ln\left(\frac{s_i^m}{s_i^c}\right)]$$

Which, in numbers, for our main exercise is:

$$2.567 \quad = \quad 1.667 \quad + \quad 1.107 \quad + \quad 2 * (- 0.103)$$

That is, the two components of the final price series are more or less orthogonal and the 'synthetic' shares contribute about 40% of the variance of the price rises across categories.

[16] We do this scaling in terms of logarithms to preserve this symmetry.

Tariff pass-through to the consumer prices

How strongly changes in tariffs translate to changes in prices depends on the 'pass-through elasticity', defined as the ratio between changes in price and tariff rate. If this ratio is equal to one (defined as a complete pass-through) then we know that a five per cent increase in tariff rate will push prices up by five per cent. There are a number of factors that affect the size of a tariff pass-through, including market structure and the degree of competition, but the existing evidence suggests that the pass-through is incomplete.

Our analysis of the effects of tariff changes on consumer prices under the 'MFN Brexit' and the 'Zero Tariff Brexit' scenarios also suggest an incomplete tariff pass-through. Under the 'MFN Brexit', for example, a 37 per cent increase in tariffs on meat imported from the EU pushes up the meat prices by 6 per cent. This is because not all meat that we consume in the UK comes from imports. And also, not all meat that we import comes from the EU (or otherwise, from partner countries affected by tariff change).

Tariff changes are calculated at ISIC4 group level (using the OECD converter that links 6-digit HS codes to 4-digit ISIC4 codes) and COI+ product level (using our bespoke converter that links 6-digit HS codes to COI+ codes). These are calculated as a trade-weighted average of tariff changes for partner countries affected by tariff change. Under the 'MFN Brexit' scenario, tariff change equals the EU28 applied MFN tariff (i.e. EU27 is the only partner country affected by tariff change and tariff goes up from 0 per cent to the MFN level). Under the 'Zero Tariff Brexit' scenario, tariff change is a trade-weighted average of tariff changes for the RHIC, the EM and the RoW.

Although it may seem counterintuitive, sometimes the 'Zero Tariff Brexit' results in larger tariff changes than the 'MFN Brexit'. After all, the latter increases the tariff on EU imports from 0 per cent to the MFN rate, whereas the former changes tariffs from, at most, the MFN rate to 0 per cent. However, in calculating tariffs for final consumption goods, different tariff lines are weighted together by the value of trade with the relevant partner. Since trade patterns vary, so too can the reported average tariffs.

Altogether, the multi-market partial equilibrium model and the disaggregation formula (discussed above) allow us to estimate the expected impact of a change in tariffs on prices under two Brexit scenarios for 218 COI+ categories of final consumption goods.[17]

The main results on tariff-pass-through to the consumer prices (see: Section 3: The impact on prices) and the impact of price changes on different households (see: Section 4: The impact on people and places) are summarised in terms of 18 summary product groups. These are not standard groups from any official publication, but have been designed by the authors to aid the presentation of data and to best summarise the consumption and trade policy issues we are dealing with.

[17] The LCFS2014 data distinguish 425 COI+ categories in total. The 207 COI+ categories for which we do not calculate new prices encompass services (e.g. package holidays or air fare), as well as goods for which we cannot collect production/trade data (e.g. eggs).

Table ***1*** below shows the allocation of 218 COI+ categories to 18 summary product groups.

Table 1: The composition of 18 summary product groups

	Summary Product Group	COI+ Code	COI+ Name
1.	Bread and cereals	01.1.1.2.1	Bread
2.	Bread and cereals	01.1.1.4.2	Pastry (savoury)
3.	Bread and cereals	01.1.1.5.1	Other breads and cereals
4.	Meat	01.1.2.1.1	Beef (fresh, chilled or frozen)
5.	Meat	01.1.2.2.1	Pork (fresh, chilled or frozen)
6.	Meat	01.1.2.3.1	Lamb (fresh, chilled or frozen)
7.	Meat	01.1.2.4.1	Poultry (fresh, chilled or frozen)
8.	Meat	01.1.2.5.1	Sausages
9.	Meat	01.1.2.5.2	Bacon and Ham
10.	Meat	01.1.2.5.3	Offal, pate etc
11.	Meat	01.1.2.6.1	Other preserved or processed meat and meat preparations
12.	Meat	01.1.2.7.1	Other fresh, chilled or frozen edible meat
13.	Fish	01.1.3.1.1	Fresh, chilled or frozen fish
14.	Fish	01.1.3.2.1	Fresh, chilled or frozen seafood
15.	Fish	01.1.3.3.1	Dried, smoked or salted fish and seafood
16.	Fish	01.1.3.4.1	Other preserved or processed fish and seafood and fish and seafood preparations
17.	Dairy products	01.1.4.1.1	Whole milk
18.	Dairy products	01.1.4.2.1	Low fat milk
19.	Dairy products	01.1.4.3.1	Preserved milk
20.	Dairy products	01.1.4.4.1	Yoghurt
21.	Dairy products	01.1.4.5.1	Cheese and curd
22.	Dairy products	01.1.4.6.1	Other milk products
23.	Dairy products	01.1.5.1.1	Butter
24.	Oils and fats	01.1.5.2.1	Margarine and other vegetable fats
25.	Oils and fats	01.1.5.3.1	Olive oil
26.	Oils and fats	01.1.5.4.1	Edible oils
27.	Oils and fats	01.1.5.5.1	Other edible animal fats
28.	Fruit	01.1.6.1.1	Citrus fruits - fresh
29.	Fruit	01.1.6.2.1	Bananas - fresh
30.	Fruit	01.1.6.3.1	Apples - fresh
31.	Fruit	01.1.6.4.1	Pears - fresh
32.	Fruit	01.1.6.5.1	Stone fruits - fresh
33.	Fruit	01.1.6.6.1	Berries - fresh
34.	Fruit	01.1.6.7.1	Other fresh, chilled or frozen fruits
35.	Fruit	01.1.6.8.1	Dried fruit and nuts
36.	Fruit	01.1.6.9.1	Preserved fruit and fruit-based products
37.	Vegetables	01.1.7.1.1	Leaf and stem vegetables (fresh or chilled)
38.	Vegetables	01.1.7.2.1	Cabbages (fresh or chilled)
39.	Vegetables	01.1.7.3.1	Vegetable grown for their fruit (fresh, chilled or frozen)
40.	Vegetables	01.1.7.4.1	Root crops, non-starchy bulbs and mushrooms (fresh, chilled or frozen)
41.	Vegetables	01.1.7.5.1	Dried vegetables
42.	Vegetables	01.1.7.6.1	Other preserved or processed vegetables
43.	Vegetables	01.1.7.7.1	Potatoes
44.	Vegetables	01.1.7.8.1	Other tubers and products of tuber vegetables
45.	Sugar, jam and confectionery	01.1.1.2.2	Buns, crispbread and biscuits
46.	Sugar, jam and confectionery	01.1.1.4.1	Cakes and puddings
47.	Sugar, jam and confectionery	01.1.8.1.1	Sugar
48.	Sugar, jam and confectionery	01.1.8.2.1	Jams, marmalades
49.	Sugar, jam and confectionery	01.1.8.3.1	Chocolate

50.	Sugar, jam and confectionery	01.1.8.4.1	Confectionery products
51.	Sugar, jam and confectionery	01.1.8.5.1	Edible ices and ice cream
52.	Sugar, jam and confectionery	01.1.8.6.1	Other sugar products
53.	Other food products	01.1.1.1.1	Rice
54.	Other food products	01.1.1.3.1	Pasta products
55.	Other food products	01.1.9.1.1	Sauces, condiments
56.	Other food products	01.1.9.2.1	Salt, spices and culinary herbs
57.	Other food products	01.1.9.3.1	Baker's yeast, dessert preparations, soups
58.	Other food products	01.1.9.4.1	Other food products
59.	Beverages and tobacco	01.2.1.1.1	Coffee
60.	Beverages and tobacco	01.2.1.2.1	Tea
61.	Beverages and tobacco	01.2.1.3.1	Cocoa and powdered chocolate
62.	Beverages and tobacco	01.2.2.1.1	Mineral or spring waters
63.	Beverages and tobacco	01.2.2.2.1	Soft drinks
64.	Beverages and tobacco	01.2.2.3.1	Fruit juices
65.	Beverages and tobacco	02.1.1.1.1	Spirits and liqueurs (brought home)
66.	Beverages and tobacco	02.1.2.1.1	Wine from grape or other fruit (brought home)
67.	Beverages and tobacco	02.1.2.1.2	Fortified wine (brought home)
68.	Beverages and tobacco	02.1.2.1.3	Ciders and Perry (brought home)
69.	Beverages and tobacco	02.1.2.1.4	Alcopops (brought home)
70.	Beverages and tobacco	02.1.2.2.1	Champagne and sparkling wines (brought home)
71.	Beverages and tobacco	02.1.3.1.1	Beer and lager (brought home)
72.	Beverages and tobacco	02.2.1.1.1	Cigarettes
73.	Beverages and tobacco	02.2.1.2.1	Cigars
74.	Beverages and tobacco	02.2.1.3.1	Other tobacco
75.	Clothing and footwear	03.1.1.1.1	Clothing materials
76.	Clothing and footwear	03.1.2.1.1	Men's outer garments
77.	Clothing and footwear	03.1.2.1.2	Men's under garments
78.	Clothing and footwear	03.1.2.2.1	Women's outer garments
79.	Clothing and footwear	03.1.2.2.2	Women's under garments
80.	Clothing and footwear	03.1.2.3.1	Boys' outer garments (5-15)
81.	Clothing and footwear	03.1.2.3.2	Girls' outer garments (5-15)
82.	Clothing and footwear	03.1.2.3.3	Infants' outer garments (Under5)
83.	Clothing and footwear	03.1.2.3.4	Children's under garments (Under 16)
84.	Clothing and footwear	03.1.3.1.1	Men's accessories
85.	Clothing and footwear	03.1.3.1.2	Women's accessories
86.	Clothing and footwear	03.1.3.1.3	Children's' accessories
87.	Clothing and footwear	03.1.3.1.4	Haberdashery
88.	Clothing and footwear	03.1.4.1.1	Clothing hire*
89.	Clothing and footwear	03.2.1.1.1	Footwear for men
90.	Clothing and footwear	03.2.1.2.1	Footwear for women
91.	Clothing and footwear	03.2.1.3.1	Footwear for children (5 to 15 years) and infants (Under 5 years)
92.	Fuel and energy	04.5.2.1.1	Gas account payment
93.	Fuel and energy	04.5.2.1.2	Second dwelling: gas account payment
94.	Fuel and energy	04.5.2.1.4	Gas slot meter payment
95.	Fuel and energy	04.5.2.2.1	Bottled gas for central heating
96.	Fuel and energy	04.5.2.2.2	Bottled gas - other
97.	Fuel and energy	04.5.3.1.1	Central heating oil
98.	Fuel and energy	04.5.3.1.2	Paraffin
99.	Fuel and energy	04.5.4.1.1	Coal and coke
100.	Fuel and energy	07.2.2.1.1	Petrol
101.	Fuel and energy	07.2.2.1.2	Diesel
102.	Fuel and energy	07.2.2.1.3	Other motor oils
103.	Household articles	04.3.1.1.2	Equipment hire, small materials
104.	Household articles	05.1.1.1.1	Household furniture and furnishings
105.	Household articles	05.1.1.1.3	Fancy/decorative goods

106.	Household articles	05.1.2.1.1	Carpets and rugs
107.	Household articles	05.1.2.1.2	Hard floor coverings
108.	Household articles	05.2.1.1.1	Bedroom textiles including duvets and pillows
109.	Household articles	05.2.1.1.2	Other household textiles, including cushions, towels, curtains
110.	Household articles	05.3.1.1.1	Refrigerators, freezers and fridge-freezers
111.	Household articles	05.3.1.2.1	Clothes washing machines and clothes drying machines
112.	Household articles	05.3.1.2.2	Dish washing machines
113.	Household articles	05.3.1.3.1	Gas cookers
114.	Household articles	05.3.1.3.2	Electric cookers and combined electric/gas cookers
115.	Household articles	05.3.1.3.3	Microwave ovens
116.	Household articles	05.3.1.4.1	Heaters, air conditioners, shower units
117.	Household articles	05.3.1.5.1	Vacuum cleaners and steam cleaners
118.	Household articles	05.3.1.6.1	Sewing and knitting machines
119.	Household articles	05.3.1.7.1	Fire extinguishers, water softeners, safes etc
120.	Household articles	05.3.2.1.1	Small electric household appliances, excluding hairdryers
121.	Household articles	05.3.3.1.4	Rental/hire of major household appliances*
122.	Household articles	05.4.1.1.1	Glassware, china and pottery
123.	Household articles	05.4.1.2.1	Cutlery and silverware
124.	Household articles	05.4.1.3.1	Kitchen utensils
125.	Household articles	05.4.1.3.2	Storage and other durable household articles
126.	Household articles	05.5.1.1.1	Electrical tools
127.	Household articles	05.5.2.1.1	Small tools
128.	Household articles	05.5.2.1.2	Door, electrical and other fittings
129.	Household articles	05.5.2.1.4	Electrical consumables
130.	Household articles	05.6.1.1.1	Detergents, washing-up liquid, washing powder
131.	Household articles	05.6.1.1.2	Disinfectants, polishes, other cleaning materials and some pest control products
132.	Household articles	05.6.1.2.1	Kitchen disposables
133.	Household articles	05.6.1.2.2	Household hardware and appliances, matches
134.	Household articles	05.6.1.2.3	Kitchen gloves, cloths etc
135.	Household articles	05.6.1.2.4	Pins, needles and tape measure
136.	Household articles	05.6.1.2.5	Nails, nuts, bolts, washers, tape and glue etc
137.	Household articles	05.6.2.2.3	Hire of household furniture and furnishings*
138.	Household articles	12.1.2.1.1	Electrical appliances for personal care, including hair dryers, shavers etc
139.	Household articles	12.1.3.1.1	Toilet paper
140.	Household articles	12.1.3.1.2	Toiletries (disposable including tampons, lipsyl, toothpaste, deodorant, paper handkerchiefs)
141.	Household articles	12.1.3.1.3	Bars of soap, liquid soap, shower gel etc
142.	Household articles	12.1.3.1.4	Toilet requisites (durable including razors, hairbrushes, toothbrushes, face cloths, scales etc)
143.	Household articles	12.1.3.1.5	Hair products
144.	Household articles	12.1.3.1.6	Cosmetics and related accessories
145.	Household articles	12.1.3.1.7	Baby toiletries and accessories (disposable)
146.	Medical goods	06.1.1.1.1	NHS prescription charges and payments
147.	Medical goods	06.1.1.1.2	Medicines and medical goods (not NHS)
148.	Medical goods	06.1.2.1.1	Other medical products (eg plasters, condoms, hot water bottles, tubigrip)
149.	Medical goods	06.1.3.1.1	Purchase of spectacles, lenses, prescription sunglasses
150.	Medical goods	06.1.3.1.3	Non optical appliances and equipment (eg wheelchairs, batteries for hearing aids, shoe build up)
151.	Transport vehicles and accessories	07.1.1.1.1	Outright purchase of new car/van

152.	Transport vehicles and accessories	07.1.1.1.2	Loan/HP purchase of new car/van
153.	Transport vehicles and accessories	07.1.1.2.1	Outright purchase of second-hand car/van
154.	Transport vehicles and accessories	07.1.1.2.2	Loan/HP purchase of second-hand car/van
155.	Transport vehicles and accessories	07.1.2.1.1	Outright purchase of new/second hand motor cycle
156.	Transport vehicles and accessories	07.1.2.1.2	Loan/HP purchase of new/second hand motor cycle
157.	Transport vehicles and accessories	07.1.3.1.1	Purchase of bicycle
158.	Transport vehicles and accessories	07.1.4.1.1	Animal drawn vehicles
159.	Transport vehicles and accessories	07.2.1.1.1	Car/van accessories and fittings
160.	Transport vehicles and accessories	07.2.1.1.2	Car/van spare parts
161.	Transport vehicles and accessories	07.2.1.1.3	Motor cycle accessories and spare parts
162.	Transport vehicles and accessories	07.2.1.1.4	Anti-freeze, battery water, cleaning materials
163.	Transport vehicles and accessories	07.2.1.1.5	Bicycle accessories, repairs, other costs
164.	Transport vehicles and accessories	07.2.4.1.4	Hire of self-drive cars and vans and bicycles*
165.	Transport vehicles and accessories	07.2.4.1.5	Car leasing payments*
166.	Transport vehicles and accessories	09.2.1.1.1	Purchase of boats, trailers and horses
167.	Transport vehicles and accessories	09.2.1.1.2	Purchase of caravans, mobile homes (incl decoration)
168.	Transport vehicles and accessories	09.2.1.1.3	Purchase of motor caravan (new) - outright
169.	Transport vehicles and accessories	09.2.1.1.4	Purchase of motor caravan (new) - loan/HP
170.	Transport vehicles and accessories	09.2.1.1.5	Purchase of motor caravan (second-hand) - outright
171.	Transport vehicles and accessories	09.2.1.1.6	Purchase of motor caravan (second-hand) - loan/HP
172.	Transport vehicles and accessories	09.2.1.1.7	Accessories for boats, horses, caravans, motor caravans
173.	Audiovisual equipment	08.2.1.1.1	Telephone purchase
174.	Audiovisual equipment	08.2.1.1.2	Mobile phone purchase
175.	Audiovisual equipment	08.2.1.1.3	Answering machine, fax machine, modem purchase
176.	Audiovisual equipment	09.1.1.1.1	Audio equipment, CD players
177.	Audiovisual equipment	09.1.1.1.2	Audio equipment - in car
178.	Audiovisual equipment	09.1.1.1.3	Accessories for audio equipment - headphones etc
179.	Audiovisual equipment	09.1.1.2.1	Television set purchase
180.	Audiovisual equipment	09.1.1.2.2	Satellite dish purchase
181.	Audiovisual equipment	09.1.1.2.4	Video recorder purchase
182.	Audiovisual equipment	09.1.1.2.5	Purchase of digital TV decoder
183.	Audiovisual equipment	09.1.1.2.6	Spare parts for TV, video, audio
184.	Audiovisual equipment	09.1.1.2.8	DVD Purchase
185.	Audiovisual equipment	09.1.2.1.1	Photographic and cinematographic equipment
186.	Audiovisual equipment	09.1.2.2.1	Optical instruments, binoculars, telescope, microscope
187.	Audiovisual equipment	09.1.3.1.1	Personal computers, printers, calculators
188.	Audiovisual equipment	09.1.4.1.1	Records, CD's, audio cassettes
189.	Audiovisual equipment	09.1.4.1.2	Blank and pre-recorded video cassettes
190.	Audiovisual equipment	09.1.4.1.3	Camera films
191.	Audiovisual equipment	09.1.4.1.4	Blank and pre-recorded DVDs
192.	Audiovisual equipment	09.4.2.3.9	Cassette hire (library), CD hire (library)*
193.	Items for hobbies and activities	09.2.2.1.1	Musical instruments (purchase and hire)
194.	Items for hobbies and activities	09.2.2.2.1	Major durables for indoor recreation (eg snooker tables, gaming machines)
195.	Items for hobbies and activities	09.3.1.1.1	Games, toys and hobbies (excluding artists materials)
196.	Items for hobbies and activities	09.3.1.1.4	Games, toys etc (misc fancy, decorative)
197.	Items for hobbies and activities	09.3.2.1.1	Equipment for sport, camping and open air recreation
198.	Items for hobbies and activities	09.3.2.1.2	BBQ and swings

199.	Items for hobbies and activities	09.4.1.1.5	Hire of equipment and accessories for sport and open-air recreation*
200.	Items for hobbies and activities	09.5.1.1.1	Books
201.	Items for hobbies and activities	09.5.2.1.1	Newspapers
202.	Items for hobbies and activities	09.5.2.1.2	Magazines and periodicals
203.	Items for hobbies and activities	09.5.3.1.1	Cards, calendars, posters and other printed matter
204.	Items for hobbies and activities	09.5.4.1.1	Stationery, diaries, address books, art materials
205.	Miscellaneous	03.1.3.1.5	Protective headgear (crash helmets)
206.	Miscellaneous	04.3.1.1.1	Paint, wallpaper, timber
207.	Miscellaneous	05.1.1.1.4	Garden furniture
208.	Miscellaneous	05.5.1.1.2	Lawn mowers and related accessories
209.	Miscellaneous	05.5.2.1.3	Garden tools and equipment
210.	Miscellaneous	09.3.3.1.1	Plants, flowers, seeds, fertilisers, insecticides
211.	Miscellaneous	09.3.3.1.2	Garden decorative
212.	Miscellaneous	09.3.3.1.3	Artificial flowers, potpourri
213.	Miscellaneous	09.3.4.1.1	Pet food
214.	Miscellaneous	12.3.1.1.1	Jewellery, clocks and watches
215.	Miscellaneous	12.3.2.1.1	Leather and travel goods (excluding baby items)
216.	Miscellaneous	12.3.2.2.1	Other personal effects n.e.c
217.	Miscellaneous	12.3.2.2.2	Baby equipment (excluding prams and pushchairs)
218.	Miscellaneous	12.3.2.2.3	Prams, pram accessories and pushchairs
Note: * refers to seven COI+ categories classed as hire or rent of goods; for these we assume that their prices increase by three-quarters of the amount by which the goods they hire increase; section 4.1 ‘Tariff pass-through to the consumer prices’ estimates change in import prices of final consumption goods, leaving out seven COI+ hire and rent categories for which we cannot calculate tariff increase.			

Source: authors’ own allocations