

Inequality and concentration: Are the poor more exposed to concentrated markets?

Stephen Davies & Franco Mariuzzo

Centre for Competition Policy and School of Economics,
University of East Anglia

CCP Working Paper 22-01

This version: 19 January 2022

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Contact Details:

Stephen Davies S.W.Davies@uea.ac.uk
Franco Mariuzzo F.Mariuzzo@uea.ac.uk

Inequality and concentration: Are the poor more exposed to concentrated markets?*

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Abstract

This paper contributes to the empirical literature on the distributional impact of competition. Using a novel combination of the national survey of household expenditure and the business structure database for the UK, it establishes two descriptive facts. First, the poor are relatively more dependent than the rich on their product purchases and services supplied by more concentrated markets. Second, it finds a significant negative correlation across products and services between the income elasticity of demand and the concentration of the industries supplying those products. At this stage, we draw no inferences from these results. However, this analysis points to some interesting research questions and policy issues concerning the nature of competition in those industries which supply the necessities in consumption.

Keywords: household expenditure, income elasticity of demand, industry concentration.

JEL classifiers: D63, H11, L22.

*We thank participants at the Centre for Competition Policy seminar for useful comments and discussions.

[†]School of Economics and Centre for Competition Policy, University of East Anglia (UK). Email: s.w.davies@uea.ac.uk

[‡]School of Economics and Centre for Competition Policy, University of East Anglia (UK). Email: f.mariuzzo@uea.ac.uk

1 Introduction

Within the reawakening of research interest in the last decade into the causes of widening income/wealth inequality, seminal contributions, such as Piketty (2013), Furman and Orszag (2018) and Philippon (2019), have pointed to a potential influence of competition and market power. Industrial Organisation (IO) economists have also begun to contribute and inter alia, Baker and Salop (2015), —have argued for an important role for competition policy as a means for fostering greater equality. The consensus appears to be that greater competition helps reduce income inequality, but this is rarely substantiated with formal empirical analysis. Our paper will contribute some empirical analysis with a relatively limited objective, designed to provide an important building block for future work. We examine whether the poor are relatively more reliant than the rich in their purchases in buying from concentrated markets. To do this, we exploit a data source in the public domain which is traditionally overlooked by IO economists, but one which provides a rich source of fairly disaggregated patterns of consumer expenditures. This is the official annual Living Costs and Food (LCF) Survey which reports the outlays across 136 products (throughout, we use ‘product’ to denote goods or services) categories for each of the ten deciles in the household income distribution. By combining this information with disaggregated data on concentration (HHI) at the five-digit industry level, we examine the relationship between market concentration and the distribution of household expenditure at the product level.

We present two alternative tests. In the first non-parametric test, we construct an index of exposure to concentration at the income decile level. This index shows the weighted average HHI for a given income level (here, decile of the distribution). The weight is the share of the household’s income or aggregate expenditure allocated to a product). This index is found to decline across the deciles of the income distribution. This result is robust to whether weights are shares of income or expenditure and whether the concentration is measured at the manufacturer or retail level. In the second test, we estimate Engel curves and income elasticities for the product categories and find a significant negative correlation between the estimated elasticities and market concentration of the industries supplying the products concerned. Products that are relatively income inelastic, which typically form a more sizeable proportion of the poor’s expenditure, tend to be more concentrated.

We stress that, in themselves, these results amount to no more than stylised facts, without

any welfare implications per se. Of course, if more concentrated markets charge higher markups, there are inferences for how welfare loss will vary across the income distribution, but that is not within the brief of this paper.

Section 2 begins with a brief literature survey, which locates our paper within the “which welfare standard?” debate, and suggests a natural empirical methodology, Section 3 describes the data, section 4 reports our results, and Section 5 concludes.

2 Selective Literature Survey

Within the IO literature, three papers, in particular, have been instrumental in stimulating our research. In recent years, Baker and Salop (2015) have argued persuasively for the potential role of competition policy and, in older literature, Comanor and Smiley (1975) and Creedy and Dixon (1998) set out methodologies that helped us form our ideas on how to approach the subject empirically.

Baker and Salop (2015) argue that competition policy, if firmly based on the consumer welfare standard, will necessarily help foster greater equality —simply because the marginal propensity to consume is less than unity. Thus, the poor, who allocate proportionately more of their income to consumption will benefit from lower prices, while the rich who save more, lose proportionately more from the reduced returns from stocks as a result of reduced monopoly profits. We follow this lead in framing inequality in terms of consumer versus producer surplus, but we are also now interested in how that consumer surplus is distributed amongst consumers (by income). This raises the obvious policy question of whether the surplus of some consumers might be valued more highly than others. While we do not pursue normative questions like this in the present paper, the line of thought leads naturally back to the two strands in the older literature. One, picking up on the traditions of Harberger from the 1960s, examines the impact of Monopoly on Aggregate Inequality. Comanor and Smiley (1975) show how the share of the wealthiest in GNP would decline in the absence of monopoly, to the benefit of all those below the median. Again, this is driven by the fact that the wealthy own most company shares, but the poor do relatively more of the consumption. More recent papers with similar methodologies are Ennis et al. (2019) and Gans et al. (2019). The other strand of the literature was stimulated by Creedy and Dixon (1998) which asks who bears the brunt of monopoly on the consumer side? They differ in estimating exposure across industries using estimates of the price elasticities from

Australian data to understand the welfare loss of monopoly for different income levels.

Two questions, in particular, are posed by this literature: do the poor lose out either or both because

- Across markets: their consumption is disproportionately high in markets where firms have more power, or
- Within markets: are they more likely to pay higher prices —price discrimination.

Here, we address the first question, albeit only with a first step focusing on concentration, which is not necessarily synonymous with competition.

3 Data

The UK’s annual Living Costs and Food Survey (LCF) (formerly known as the Household Expenditure Survey) shows household expenditures across various product categories. It is conducted by the UK Office of National Statistics (ONS) and is used for many purposes. In the form used here, it splits the sample into the ten deciles of the income distribution and reports the decile mean expenditure on each of 136 products, usually defined at a three-digit level, such as “fish and fish products”. In the most recent version (year ending 2018), the sample size is over 27,000.¹ The ONS is confident that this provides a representative population sample, except for 11 smaller products (such as Alcopops) for which reliable estimates are not recoverable for all deciles.

The data on concentration, in the form of the Hirschman-Herfindahl index, HHI, are taken from the Department for Business, Energy and Industrial Strategy (BEIS). They are annual and disaggregated into 608 five-digit industries, for 2006-2018.²

Since the two sources do not use the same product classification schemes, the process of matching the two is not trivial. Appendix Tables A1 and A2 report our matching between categories. There are only 15 unmatched products, and these are excluded from our analysis, including the 11 products excluded because of the small sample survey size in total. These 26 excluded product categories account for 10.4% of total household expenditure (see Table

¹See detailed household expenditure by disposable income decile group: Table 3.1 <https://www.ons.gov.uk/peoplepopulationandcommunity/personalandhouseholdfinances/expenditure/datasets/detailedhouseholdexpenditurebydisposableincomemedecilegroupuktable31>. Accessed on 9 January 2022.

²See publication “Sectoral indicators of concentration and churn: 2006-2018” <https://www.gov.uk/government/publications/business-sectors-indicators-of-concentration-and-churn>. Accessed on 9 January 2022.

1). It should also be noted that, because the five-digit SIC classification is generally more disaggregated, many of the expenditure categories correspond to more than one SIC industry. In these cases, we use the mean of the SIC HHIs but see the next paragraph for one important exception.

The most substantive data issue concerns which stage in the vertical industrial chain should we match the goods expenditures: the industries producing the product (for brevity, manufacturing) or the industries selling the final product (retailing)? This issue is mainly confined to goods since consumers typically buy services directly through the provider rather than a retailing intermediary. A case can be made for either, and we report both alternatives below. We tend to prefer retailing because of the undoubted retailer buyer power and also because concentration for manufacturing industries is constructed from data on production within the UK, which excludes important importers and includes exports outside the UK.

Table 2 reports the frequency distributions for the HHI in its “numbers-equivalent” form. Conceptually this converts the value of the HHI into the hypothetical number of equal-sized firms which would generate that value. So $HHI = 2000$ is equivalent to a market with five equal-sized firms. For manufacturing, as can be seen in column one, 22% of products have HHI above 2000 (very concentrated) and about 27% between 1000 and 2000 (moderately concentrated). For retailing, the HHI are typically lower, with only 11% of markets recorded as very concentrated and 17% moderately concentrated. Not surprisingly, 43 of the retailing industries involve a combination of specialist retailers and large grocery supermarket chains. Typically, but not always, concentration is much higher in the latter. Unfortunately, at this stage in our research, we have been unable to identify any systematically available data on the supermarket/specialist mix. At present, therefore, we assume either an 80:20 or 50:50 split. We report results for both, although our preference is for the 80:20 split in favour of the supermarkets), with the 80:29 weighting, over 54% of retail markets now have HHI greater than 1000 (see column three).

4 Methodology & Estimation

4.1 Weighted HHI

We define for decile d , its weighted average HHI as:

$$HHI_d = \sum_j HHI_j w_{dj} \quad j = 1 \dots 110. \quad (1)$$

Where w_{dj} is the share of decile d 's expenditure (income) accounted for by product/service j . We employ two alternative weighting scheme. Using expenditure weights (expenditure on product j as a proportion of total expenditure), the weights sum to unity; using income weights (expenditure on product j as a proportion of total income), they sum to less than unity to the extent that the decile saves. This is a non-trivial difference in terms of substance since using income weights attributes a non-zero weight to the savings category, which will be more important for the richer deciles, who account for most of the savings.

Figure 1 shows how the weighted average HHI varies across the deciles, for either manufacturing or retail (either the 50:50 or 80:20 version) using income weights. To aid interpretation, consider the manufacturer index: the poorest 10% of the population buys products in markets that are typically concentrated at level 1088, while for the richest, the typical value is 832. In numbers equivalent form, the poorest buy from markets with 10 equivalent suppliers while the richest buy from markets with typically 12 equivalent suppliers. Across the table as a whole, four results emerge. These are quantified in the first panel of Appendix Table A1.

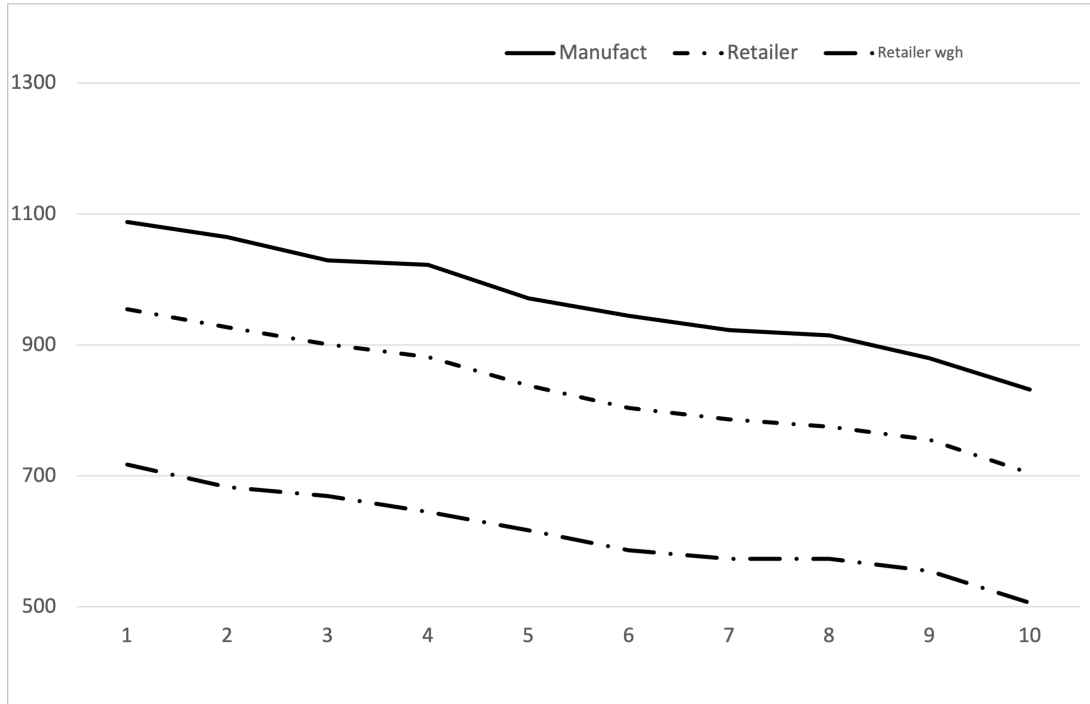


Figure 1: Weighted HHI by income deciles

1. In all three series there is a monotonic decline across the deciles.
2. The magnitudes of the declines are substantial. For example, D10's index is never more than 76.5% of D1's for all measures.

3. The rate of decrease is greatest for retailers when supermarkets are weighted more, where D10's index is 70% of D1's.
4. The levels are greater for manufacturing than for retailing.

We also depict the relationship between decile income and concentration using coefficients of correlation (Table 3). These are the correlations for the average HHI of each decile and its ranking for manufacturers and retailers with the two alternative weighting schemes. As can be seen, the correlations are always negative and close to unity.

These results are all robust to using expenditure weights, as can be seen from the lower panel of Table A3 and the second row of Table 3.

4.2 Income elasticity and concentration

In the second step to our empirics, we next estimate the income elasticity of demand for each of the 110 product categories by least-squares. For each product, we regress log expenditure against log income for the ten deciles over four years, totalling 40 observations per regression. We include time dummies. We also perform the Ramsey's regression specification-error test (RESET) to detect a possible specification error driven by functional form. We add the square of the log of income when the test rejects the null hypothesis of no misspecification. When this is the case, we calculate the income elasticity of demand at the average log income value.

Table 4 illustrates the frequency of ranges of the estimated income elasticities of demand. We note that about 22% of the sample products are estimated as inferior goods ($\eta_I < 0$) and 30% as luxury goods ($\eta_I > 1$).

Next, these 110 estimated elasticities are correlated with the HHI of the supplying industry. Table 5 reports the results, first for the HHI of the manufacturing industries and then for retailers. In the case of manufacturing and retailers with larger weights attached to supermarkets, there are significant negative associations between the income elasticity and concentration of the supplying industries. This reinforces some of the findings given above.

In Figure 2, we also reproduce a non-parametric graphical relationship between correlation and income elasticity of demand. We focus on the two significant cases from Table 5. The results for manufacturers are in panel(a); here there is a noticeable negative association across inferior and normal goods, but then a slight increase in concentration in the range of luxury good elasticities. Panel (b) of the figure shows a similarly negative but less pronounced relationship

for HHI of retailing industries.

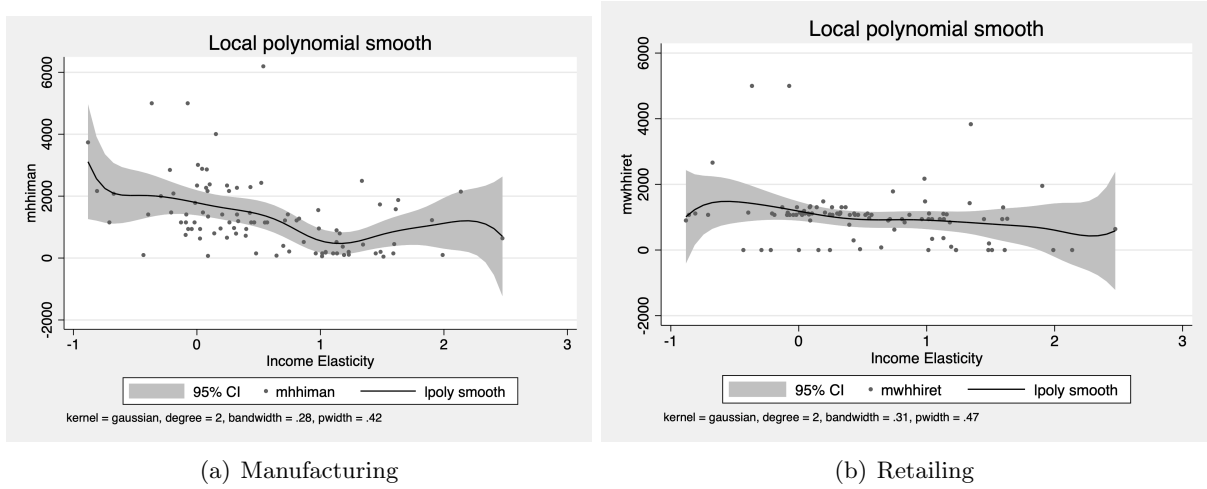


Figure 2: Association between weighted concentration and income elasticity

5 Conclusions and Implications

When taking stock of these results, we should emphasise that we have unearthed two, at best, descriptive facts. The poor tend to be more reliant in their annual spend on the products and services supplied by the more concentrated industries, and this appears to be because industries supplying the essential (income-inelastic) products/services tend to be more concentrated.

Since these findings appear to be novel in the literature, further tests for other countries and periods would be ideal before we could claim the status of “stylised facts”.

We should also emphasise that no causality can be deduced from these results - our methods are descriptive and not inferential, and there is no underlying theoretical model that has been specified or tested.

More positively, however, these two facts do raise interesting questions that deserve further work. For instance, what is it that makes income-inelastic industries particularly concentrated? What are the implications for competition? The policy implications are also intriguing: when applying the consumer welfare standard to mergers, for example, should the Competition Agency attach more weight to the welfare of poorer consumers? If so, should special attention be paid to proposed mergers in those industries?

Table 1: Coverage of household expenditure for the matched sample

		Total		Excluded	
		Avg week spend (£)*	N products	Avg week spend (£)*	N products
1	Food and non-alcoholic drinks	58.5	39	0	0
2	Alcoholic drink, tobacco	11.9	6	0	1
3	Clothing and footwear	24.2	12	0.4	2
4	Housing (net), fuel and power	73.5	7	9.4	3
5	Household goods and services	38.1	9	2.5	1
6	Health	7.1	3	3.3	1
7	Transport	76.2	11	4.2	3
8	Communication	16.6	4	0	0
9	Recreation and culture	71.0	21	14.9	7
10	Education	7.4	2	0.4	1
11	Restaurants and hotels	46.8	8	2.2	2
12	Miscellaneous goods and services	41.3	14	13.5	5
1-12	All expenditure groups	472.6	136	47.6	26*

Notes: *Average expenditure period 2015-18. Eleven product categories were excluded because the HES survey sample was too small; fifteen others because we were unable to match the HES categories to the standard industry classification code.

Table 2: Frequency distribution of HHI for the matched sample

HHI range	Range firms	N manufact. and services	N retailing and services	N retailing and services (80:20 weighting)
		(1)	(2)	(3)
≥ 5000	$N \leq 2$	3	2	2
2500-4999	$4 \geq N > 2$	6	5	2
2000-2499	$5 \geq N > 4$	15	5	1
1000-1999	$10 \geq N > 5$	30	19	54
500-999	$20 \geq N > 10$	19	56	20
0-499	$N > 20$	27	19	27
N observed HHI		100	106	106
N missing HHI		10	4	4
N obs		110	110	110

Notes: Calculated from average HHI over period 2015-18. Restricted sample without 26 product categories.

Table 3: Correlations HHI and income deciles

weights	manufacturing and services	retailing and services	retailing and services (weighted†)
share of income	-0.993*	-0.993*	-0.987*
share of expenditure	-0.960*	-0.963*	-0.932*

Notes: *Significant 1%. In the first row, products are weighted by their share of disposable income. In the second row, products are weighted by their share of expenditure. HHI is calculated as simple average period 2015-2018. †Weights are based on supermarkets weighing 80% and other retailers weighing 20%.

Table 4: Frequency distribution of income elasticities for the matched sample

Income elasticity of demand (η_I) range	No. of categories
$\eta_I < 0$	24
$1 > \eta_I > 0$	53
$\eta_I \geq 1$	33
Total obs	110

Notes: Range of estimated income elasticities of demand.

Table 5: Estimates of association HHI and income elasticities

	HHI manuf. (1)	HHI retailer (2)	HHI retailer (weighted) (3)
constant	1662.318*** (150.413)	1171.386*** (124.885)	1142.825*** (110.560)
elasticity	-561.478*** (150.601)	-162.481 (117.070)	-257.325** (105.226)
F-stat	13.900	1.926	5.980
R ²	0.136	0.020	0.061
Obs	97	101	101

Notes: Robust standard errors in parentheses. *p<0.10 **p<0.05
***p<0.01. Year dummies included in the estimation of income elasticities.

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A Appendix

Table A1: Matching categories of HES and concentration data for manufacturing and services

category	description	SIC5	SIC4	SIC5	SIC4	SIC5	SIC4
1.1.1	Bread, rice and cereals	10612	1061	10710	1071		
1.1.2	Pasta products	10730	1073				
1.1.3	Buns, cakes, biscuits etc	10720	1072				
1.1.4	Pastry (savoury)	10710	1071	10720	1072		
1.1.5	Beef (fresh, chilled or frozen)	10110	1011				
1.1.6	Pork (fresh, chilled or frozen)	10110	1011				
1.1.7	Lamb (fresh, chilled or frozen)	10110	1011				
1.1.8	Poultry (fresh, chilled or frozen)	10120	1012				
1.1.9	Bacon and ham	10130	1013				
1.1.10	Other meat and meat preparations	10110	1011				
1.1.11	Fish and fish products	10200	1020				
1.1.12	Milk	10511	1051				
1.1.13	Cheese and curd	10512	1051				
1.1.14	Eggs	1470	0147				
1.1.15	Other milk products	10519	1051				
1.1.16	Butter	10512	1051				
1.1.17	Margarine, other vegetable fats and peanut butter	10420	1042				
1.1.18	Cooking oils and fats	10410	1041				
1.1.19	Fresh fruit	10390	1039				
1.1.20	Other fresh, chilled or frozen fruits	10390	1039				
1.1.21	Dried fruit and nuts	10390	1039				
1.1.22	Preserved fruit and fruit based products	10390	1039				
1.1.23	Fresh vegetables	10390	1039				
1.1.24	Dried vegetables	10390	1039				
1.1.25	Other preserved or processed vegetables	10390	1039				
1.1.26	Potatoes	10310	1031				
1.1.27	Other tubers and products of tuber vegetables	10390	1039				
1.1.28	Sugar and sugar products	10810	1081	10822	1082		
1.1.29	Jams, marmalades	10390	1039				
1.1.30	Chocolate	10821	1082				
1.1.31	Confectionery products	10821	1082	10822	1082		
1.1.32	Edible ices and ice cream	10520	1052				
1.1.33	Other food products	10890	1089				
1.2.1	Coffee	10832	1083				
1.2.2	Tea	10831	1083				
1.2.3	Cocoa and powdered chocolate	10821	1082				
1.2.4	Fruit and vegetable juices (inc. fruit squash)	10320	1032				
1.2.5	Mineral or spring waters	11070	1107				
1.2.6	Soft drinks (inc. fizzy and ready to drink fruit drinks)	11070	1107				
2.1.1	Spirits and liqueurs (brought home)	11010	1101				
2.1.2	Wines, fortified wines (brought home)	11020	1102				
2.1.3	Beer, lager, ciders and perry (brought home)	11050	1105				
2.1.4	Alcopops (brought home)	11000	1100				
2.2.1	Cigarettes	12000	1200				
2.2.2	Cigars, other tobacco products and narcotics	12000	1200				
3.1.1	Men's outer garments	14131	1413				
3.1.2	Men's under garments	14141	1414				
3.1.3	Women's outer garments	14132	1413				
3.1.4	Women's under garments	14142	1414				
3.1.5	Boys' outer garments (5-15)	14131	1413				
3.1.6	Girls' outer garments (5-15)	14132	1413				
3.1.7	Infants' outer garments (under 5)	14131	1413				
3.1.8	Children's under garments (under 16)	14131	1413				
3.1.9	Accessories	14190	1419				

3.1.10	Haberdashery and clothing hire	No match	No match				
3.2.0	Footwear	15200	1520				
4.1.3	Net rent	68310	6831				
4.4.1	Electricity	35110	3511				
4.4.2	Gas	35210	3521				
4.4.3	Other fuels	No match	No match				
5.1.1	Furniture and furnishings	31020	3102	31030	3103	31090	3109
5.1.1	Furniture and furnishings	13921	1392	13923	1392		
5.1.2	Floor coverings	16290	1629	22230	2223		
5.2.0	Household textiles	13923	1392				
5.3.0	Household appliances	27510	2751	27520	2752		
5.4.0	Glassware, tableware and household utensils	25710	2571	23410	2341		
5.5.0	Tools and equipment for house and garden	25730	2573				
5.6.1	Cleaning materials	20412	2041				
5.6.2	Household goods and hardware	25710	2571	25720	2572	25730	2573
5.6.3	Domestic services, carpet cleaning, hire/repair of furniture/furnishings	95240	9524				
6.1.1	Medicines, prescriptions, healthcare products etc	21100	2110				
6.1.2	Spectacles, lenses, accessories and repairs	32500	3250				
6.2.0	Hospital services	86100	8610				
7.1.1	Purchase of new cars and vans	29100	2910				
7.1.2	Purchase of second hand cars or vans	45112	4511				
7.2.1	Spares and accessories	29310	2931	29320	2932		
7.2.2	Petrol, diesel and other motor oils	19201	1920				
7.2.3	Repairs and servicing of cars	45200	4520				
7.3.1	Rail and tube fares	49100	4910	49311	4931		
7.3.2	Bus and coach fares	49319	4931				
7.3.4	Other travel and transport	51101	5110	51102	5110		
8.1.0	Postal services	53100	5310				
8.2.0	Telephone and telefax equipment	26301	2630				
8.3.0	Telephone and telefax services	61100	6110	61200	6120	61300	6130
8.4.0	Internet subscription fees	61100	6110	61200	6120	61300	6130
9.1.1	Audio equipment and accessories, CD players	26400	2640				
9.1.2	TV, video and computers	26400	2640	26200	2620		
9.3.1	Games, toys and hobbies	32409	3240				
9.3.2	Computer software and games	26200	2620				
9.3.3	Equipment for sport, camping and open-air recreation	32300	3230				
9.3.4	Horticultural goods, garden equipment and plants	No Match	No Match				
9.3.5	Pets and pet food	10920	1092				
9.4.1	Sports admissions, subscriptions, leisure class fees	77210	7721				
9.4.2	Cinema, theatre and museums etc	90040	9004	91020	9102		
9.4.3	TV, video, satellite rental, cable, licences subscriptions	60200	6020				
9.4.6	Gambling payments	92000	9200				
9.5.1	Books	58110	5811				
9.5.2	Diaries, address books, cards etc	17230	1723				
9.5.3	Newspapers	18110	1811				
9.5.4	Magazines and periodicals	18129	1812				
10.1.0	Education fees	85200	8520	85310	8531		
11.1.1	Restaurant and caf meals	56100	5610				
11.1.2	Alcoholic drinks (away from home)	56301	5630	56302	5630		
11.1.3	Take away meals eaten at home	56103	5610				
11.1.4	Other take-away and snack food	56290	5629				
11.2.1	Holiday in the UK	55100	5510				
11.2.2	Holiday abroad	79120	7912				
12.1.1	Hairdressing, beauty treatment	96020	9602				
12.1.2	Toilet paper	17220	1722				
12.1.3	Toiletries and soap	20420	2042	20411	2041		
12.1.4	Baby toiletries and accessories (disposable)	20420	2042				
12.1.5	Hair products, cosmetics and related electrical appliances	20420	2042				
12.4.1	Household insurances - structural, contents	65120	6512				
12.4.2	Medical insurance premiums	65120	6512				
12.4.3	Vehicle insurance including boat insurance	65120	6512				
12.5.1	Moving house	49420	4942				

12.5.2	Bank, building society, post office, credit card charges	64191	6419	64192	6419
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Table A2: Matching categories of HES and concentration data for retailing and services

category	description	SIC5	SIC4	SIC5	SIC4	SIC5	SIC4
1.1.1	Bread, rice and cereals	47240	4724	47110	4711		
1.1.2	Pasta products	47240	4724	47110	4711		
1.1.3	Buns, cakes, biscuits etc	47240	4724	47110	4711		
1.1.4	Pastry (savoury)	47240	4724	47110	4711		
1.1.5	Beef (fresh, chilled or frozen)	47220	4722	47110	4711		
1.1.6	Pork (fresh, chilled or frozen)	47220	4722	47110	4711		
1.1.7	Lamb (fresh, chilled or frozen)	47220	4722	47110	4711		
1.1.8	Poultry (fresh, chilled or frozen)	47220	4722	47110	4711		
1.1.9	Bacon and ham	47220	4722	47110	4711		
1.1.10	Other meat and meat preparations	47220	4722	47110	4711		
1.1.11	Fish and fish products	47230	4723	47110	4711		
1.1.12	Milk	47290	4729	47110	4711		
1.1.13	Cheese and curd	47290	4729	47110	4711		
1.1.14	Eggs	47290	4729	47110	4711		
1.1.15	Other milk products	47290	4729	47110	4711		
1.1.16	Butter	47290	4729	47110	4711		
1.1.17	Margarine, other vegetable fats and peanut butter	47290	4729	47110	4711		
1.1.18	Cooking oils and fats	47290	4729	47110	4711		
1.1.19	Fresh fruit	47210	4721	47110	4711		
1.1.20	Other fresh, chilled or frozen fruits	47210	4721	47110	4711		
1.1.21	Dried fruit and nuts	47210	4721	47110	4711		
1.1.22	Preserved fruit and fruit based products	47210	4721	47110	4711		
1.1.23	Fresh vegetables	47210	4721	47110	4711		
1.1.24	Dried vegetables	47210	4721	47110	4711		
1.1.25	Other preserved or processed vegetables	47210	4721	47110	4711		
1.1.26	Potatoes	47210	4721	47110	4711		
1.1.27	Other tubers and products of tuber vegetables	47210	4721	47110	4711		
1.1.28	Sugar and sugar products	47240	4724	47110	4711		
1.1.29	Jams, marmalades	47240	4724	47110	4711		
1.1.30	Chocolate	47240	4724	47110	4711		
1.1.31	Confectionery products	47240	4724	47110	4711		
1.1.32	Edible ices and ice cream	56103	5610	47110	4711		
1.1.33	Other food products	47250	4725	47110	4711		
1.2.1	Coffee	47250	4725	47110	4711		
1.2.2	Tea	47250	4725	47110	4711		
1.2.3	Cocoa and powdered chocolate	47250	4725	47110	4711		
1.2.4	Fruit and vegetable juices (inc. fruit squash)	47250	4725	47110	4711		
1.2.5	Mineral or spring waters	47250	4725	47110	4711		
1.2.6	Soft drinks (inc. fizzy and ready to drink fruit drinks)	47250	4725	47110	4711		
2.1.1	Spirits and liqueurs (brought home)	47250	4725	47110	4711		
2.1.2	Wines, fortified wines (brought home)	47250	4725	47110	4711		
2.1.3	Beer, lager, ciders and perry (brought home)	47250	4725	47110	4711		
2.2.1	Cigarettes	47260	4726	47110	4711		
2.2.2	Cigars, other tobacco products and narcotics	47260	4726	47110	4711		
3.1.1	Men's outer garments	47710	4771	47190	4719		
3.1.2	Men's under garments	47710	4771	47190	4719		
3.1.3	Women's outer garments	47710	4771	47190	4719		
3.1.4	Women's under garments	47710	4771	47190	4719		
3.1.5	Boys' outer garments (5-15)	47710	4771	47190	4719		
3.1.6	Girls' outer garments (5-15)	47710	4771	47190	4719		
3.1.7	Infants' outer garments (under 5)	47710	4771	47190	4719		
3.1.8	Children's under garments (under 16)	47710	4771	47190	4719		
3.1.9	Accessories	47710	4771	47190	4719		
3.2.0	Footwear	47721	4772				
4.1.3	Net rent	68310	6831				

4.4.1	Electricity	35130	3513				
4.4.2	Gas	35220	3522				
5.1.1	Furniture and furnishings	47599	4759	47190	4719		
5.1.2	Floor coverings	47530	4753				
5.2.0	Household textiles	47510	4751				
5.3.0	Household appliances	47540	4754	47190	4719		
5.4.0	Glassware, tableware and household utensils	47599	4759	47190	4719		
5.5.0	Tools and equipment for house and garden	47780	4778	47110	4711		
5.6.1	Cleaning materials	47700	4770	47110	4711		
5.6.2	Household goods and hardware	47520	4752	47190	4719		
5.6.3	Domestic services, carpet cleaning, hire/repair of furniture/furnishings	95240	9524				
6.1.1	Medicines, prescriptions, healthcare products etc	47740	4774	47730	4773		
6.1.2	Spectacles, lenses, accessories and repairs	47782	4778				
6.2.0	Hospital services	86100	8610				
7.1.1	Purchase of new cars and vans	45111	4511				
7.1.2	Purchase of second hand cars or vans	45112	4511				
7.2.1	Spares and accessories	45320	4532				
7.2.2	Petrol, diesel and other motor oils	47300	4730				
7.2.3	Repairs and servicing of cars	45200	4520				
7.3.1	Rail and tube fares	49100	4910	49311	4931		
7.3.2	Bus and coach fares	49319	4931				
7.3.4	Other travel and transport	51101	5110	51102	5110		
8.1.0	Postal services	53100	5310				
8.2.0	Telephone and telefax equipment	47429	4742				
8.3.0	Telephone and telefax services	61100	6110	61200	6120	61300	6130
8.4.0	Internet subscription fees	61100	6110	61200	6120	61300	6130
9.1.1	Audio equipment and accessories, CD players	47430	4743				
9.1.2	TV, video and computers	47410	4741				
9.3.1	Games, toys and hobbies	47650	4765	47190	4719		
9.3.2	Computer software and games	47410	4741	58210	5821		
9.3.3	Equipment for sport, camping and open-air recreation	47640	4764				
9.3.4	Horticultural goods, garden equipment and plants	47760	4776				
9.3.5	Pets and pet food	47760	4776				
9.4.1	Sports admissions, subscriptions, leisure class fees	77210	7721				
9.4.2	Cinema, theatre and museums etc	90040	9004	91020	9102		
9.4.3	TV, video, satellite rental, cable, licences subscriptions	60200	6020				
9.4.6	Gambling payments	92000	9200				
9.5.1	Books	47610	4761	47190	4719		
9.5.2	Diaries, address books, cards etc	47620	4762				
9.5.3	Newspapers	47620	4762				
9.5.4	Magazines and periodicals	47620	4762				
9.6.2	Package holidays - abroad	79120	7912				
10.1.0	Education fees	85200	8520	85310	8531		
11.1.1	Restaurant and caf meals	56100	5610				
11.1.2	Alcoholic drinks (away from home)	56301	5630	56302	5630		
11.1.3	Take away meals eaten at home	56103	5610				
11.1.4	Other take-away and snack food	56290	5629				
11.2.1	Holiday in the UK	55100	5510				
11.2.2	Holiday abroad	79120	7912				
12.1.1	Hairdressing, beauty treatment	96020	9602				
12.1.2	Toilet paper	47750	4775	47190	4719		
12.1.3	Toiletries and soap	47190	4719				
12.1.4	Baby toiletries and accessories (disposable)	47750	4775	47110	4711		
12.1.5	Hair products, cosmetics and related electrical appliances	47750	4775	47110	4711		
12.4.1	Household insurances - structural, contents	65120	6512				
12.4.2	Medical insurance premiums	65120	6512				
12.4.3	Vehicle insurance including boat insurance	65120	6512				
12.5.1	Moving house	49420	4942				
12.5.2	Bank, building society, post office, credit card charges	64191	6419	64192	6419		

Table A3: Weighted HHI by income decile

decile	manufacturing and services	retailing and ser- vices	retailing and ser- vices (weighted*)
	weighted by income†		
D1	1088	955	717
D2	1065	927	683
D3	1029	901	669
D4	1023	881	645
D5	971	838	617
D6	944	804	586
D7	923	786	573
D8	915	775	573
D9	880	755	555
D10	832	704	506
	weighted by expenditure‡		
D1	1175	1032	775
D2	1140	993	731
D3	1138	997	741
D4	1118	964	706
D5	1103	952	701
D6	1101	938	684
D7	1089	929	677
D8	1098	931	689
D9	1075	924	678
D10	1055	894	643

Notes: †The weighted average HHI is calculated on income at the year-level. Then, simple average period 2015-2018. ‡The weighted average HHI is calculated on expenditure at the year-level. Then, simple average period 2015-2018. *Weights are based on supermarkets weighing 80% and other retailers weighing 20%.