

SHAAP

**Purchasing Patterns for
Low Price Off Sales Alcohol:
Evidence from the Expenditure
and Food Survey**

Professor Anne Ludbrook
Health Economics Research Unit
Institute of Applied Health Sciences
University of Aberdeen
Foresterhill
Aberdeen AB25 2ZD
e-mail: a.ludbrook@abdn.ac.uk

PAPER FOR SCOTTISH HEALTH ACTION ON ALCOHOL PROBLEMS

MAY 2010

Disclaimer

The Health Economics Research Unit receives core funding from the Chief Scientist Office, Scottish Government Health Directorates, and from the University of Aberdeen. All opinions expressed are those of the author and should not be attributed to any funding body.

Key points summary

- all income groups purchase low price off sales alcohol (figures 1 and 6).
- the relationship between income group and the amount of alcohol purchased at the cheapest price (below 30p a unit) is not straightforward. Although the lowest income group buys more than the highest at this price, there is little difference between the middle income groups and the lowest (figure 2).
- at prices of 30p to 40p and 40p to 50p the amount purchased tends to increase with income (figures 3 and 4).
- middle-to-higher income groups are the main purchasers of alcohol priced between 30p and 50p (figure 5).
- for individual alcohol types (beer, lager, table wine and spirits), the lowest income groups purchase less than the average number of units below 30p and below 40p (figure 7)
- low income households are less likely to purchase off sales alcohol at all (table 2 and figure 8)

Background

The Alcohol etc. (Scotland) Bill, currently under consideration by the Scottish Parliament, has included minimum pricing as one of the proposals for reducing alcohol related harms. An area of concern relating to this policy has been the possible regressive effects of such an intervention, i.e. if it results in raising alcohol prices only for households with lower incomes, or if it affects those with low incomes more than it affects those with higher incomes. This paper looks at the distribution by price and income of alcohol purchased from off sales.

Data

The analysis reported here uses data from the Expenditure and Food Survey (EFS) (now called the Living Cost and Food Survey) for 2007. The EFS collects data from a representative sample of UK households. The sample has not been restricted to Scottish data for this analysis as the sample size within each income group would become too small for robust analysis. Individual data were accessed from the UK Data Archive which provides separate figures for expenditure by each household for different types of off-sales alcohol and on-sales alcohol and the volume of purchases for different alcohol product groups over a two week reference period.

The volumes of alcoholic drinks purchased are converted to alcohol units by reference to an average alcohol by volume (abv) value for each product type:

Table 1 Alcohol by volume (abv) values from the EFS

Alcohol product group	ABV value
Beers	3.96
Lagers and continental beers	3.91
Ciders and perry	4.81
Champagne, sparkling wines and wine with mixer	11.50
Table wine	11.49
Spirits with mixer	7.43
Fortified wines	14.53
Spirits	40.13
Liqueurs and cocktails	33.72
Alcopops	4.68

Note: *the abv values are provided within the EFS but are currently under revision. There appear to be some anomalies, with the value for fortified wines being below the defined 15% value and spirits appearing high as most products are either 37.5% or 40%.*

Combining the expenditure data with the purchased number of units allows the average price per unit of alcohol to be calculated for the total off sales alcohol purchased by each household, and for separate types of alcohol product purchased, in the 2 week reference period. The analysis reported here uses both total off sales purchases and off sales purchases of beer, lager, table wine and spirits. These four types of alcohol are those most frequently purchased by households, as reported in the EFS, and they account for 87% of the total units of alcohol purchased. The other alcohol types have smaller numbers of observations available for separate analysis. Whilst the analysis of total off sales alcohol provides an overview of purchasing patterns, the purchases made by a household may be composed of both high price and low price items. The data available do not provide prices for every individual item but more detail can be obtained by carrying out further analysis at the level of different types of alcohol purchased. This can provide more information where households have combined both low and high price purchasing (see Box 1).

Box 1 Example of analysis by beverage type and total purchasing data

Suppose, during a two week period, a household purchases some lager on special offer at a low unit price (30p) and also buys some wine at £5.40 a bottle (60p per unit). Both of these transactions can be included in the separate analysis by type of alcohol. However, the analysis based on total alcohol purchased will only show that 38 units were purchased at an average price of 44p per unit. In this example, the analysis of total alcohol purchased will under record both the low price and higher priced transactions.

20 units of lager (approximately 5 litres) at 30p per unit expenditure £6

18 units of wine (approximately 2 bottles) at 60p per unit expenditure £10.80

Total shows 38 units purchased at an average price of 44p (£16.80 divided by 38)

Purchases have been grouped into five price bands: less than 30p; 30p to 40p; 40p to 50p; 50p to 60p; and over 60p. These price bands provide an insight into purchasing patterns that may be affected by different levels of a minimum price.

The EFS also collects information on household income and presents this information in terms of both gross household income and equivalised household income. Equivalised household income takes account of household size and composition, which means that a single person household with an income of £300 per week, for example, would not be considered the same as a family of four with an income of £300 per week. Thus, equivalised income is a better indicator of the spending power available to each household and is used here to examine the purchasing of alcohol across income groups. The lowest income deciles, in particular, have a more mixed representation of household types when equivalised income is used; the gross income deciles are dominated by single pensioner households. A comparison of the income thresholds and household composition is provided in the appendix.

Table 2 shows the allocation of households in the EFS samples in 2007 to income deciles, the equivalised household incomes for each decile and the average number of adults in the household. Although this has been accounted for in the income groups, the number of adults may also have an effect on the amount of alcohol purchased. It can be seen that the lowest income deciles have fewer adults. The table also shows the number of households in each income decile that have actually made purchases of off sales alcohol during the 2 week reference period. Only one third of households in the lowest income decile made purchases compared with 70 percent in the highest income decile. As noted above, the analysis has also considered purchases of 4 specific types of

alcohol, which implies that there could be data on up to 4 reported purchases per household. The final column of table 2 shows the total number of purchases for the 4 specific types of alcohol in each decile and therefore indicates how many more transactions can be included in the analysis of beer, lager, table wine and spirits.

Table 2 Descriptive data for equivalised household income deciles

Decile	Number of households	Income boundaries £	Average number of adults	Number (%) of households purchasing alcohol	Number of observations for purchases of 4 main types of alcohol
1	621	Below 190	1.5	208 (33%)	260
2	619	190-256	1.6	233 (38%)	284
3	646	256-334	1.7	267 (41%)	339
4	635	334-409	1.9	316 (50%)	422
5	613	409-492	1.9	324 (53%)	429
6	620	492-587	2.0	342 (55%)	487
7	614	587-698	2.0	393 (64%)	572
8	607	698-866	2.0	375 (62%)	541
9	596	866-1162	1.9	399 (67%)	578
10	565	Over 1162	1.8	393 (70%)	579
	6136			3250	

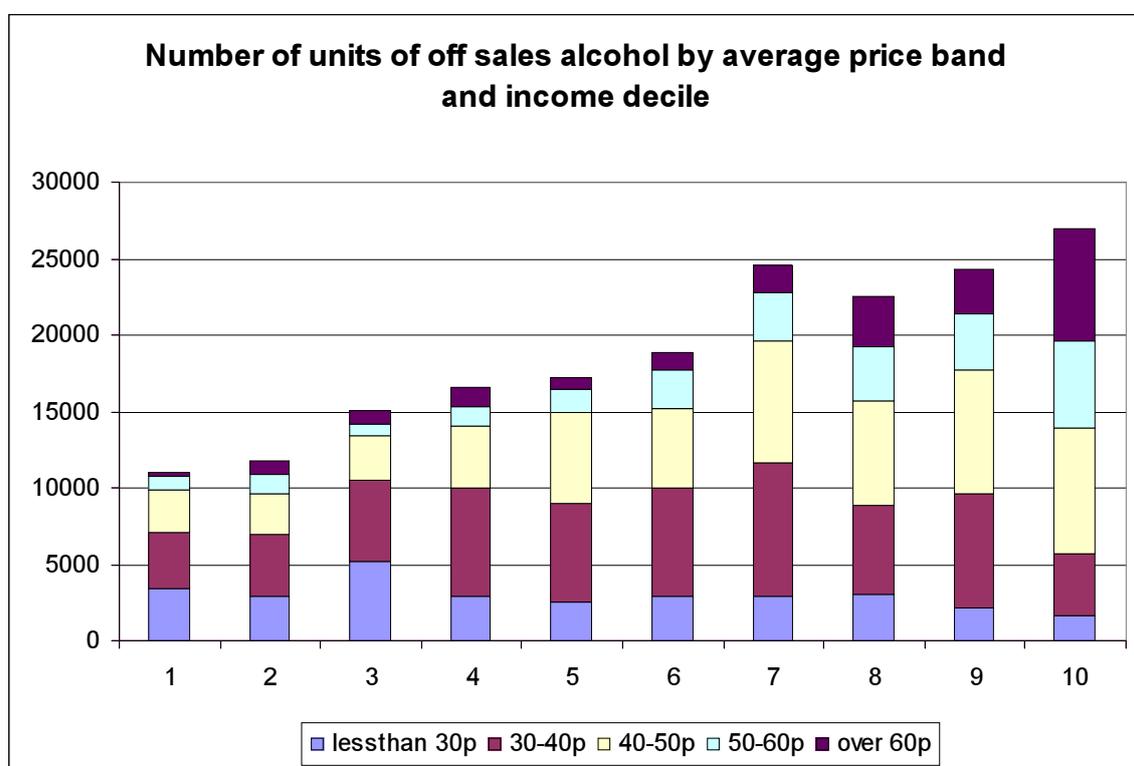
Results

Total off sales purchases

(i) Distribution of purchases by income and average price

Figure 1 shows the distribution of purchases of off sales alcohol by income and average price per unit. All income groups are seen to purchase alcohol in each price band. Overall, the amount of off sales alcohol purchased increases across the income deciles, at least in part because fewer households in the lower income deciles purchased alcohol.

Figure 1 Purchasing patterns by price and income for off sales alcohol



Looking at the results in more detail, at less than 30 per unit the lowest 2 income deciles purchased more off sales alcohol than the highest 2 income deciles but overall the relationship between the number of units purchased below 30p and income decile is not particularly strong (figure 2). Moving to the next price band (figure 3), 30p to 40p, it can be seen that the number of units purchased at 30-40p increases with income up to income decile 7 and the highest income decile (10) purchases slightly more than the lowest income decile (1). At 40p to 50p (figure 4), there is a clear upward trend in purchasing at this price with income, which becomes more marked in the higher price bands (not illustrated).

Figure 2 Distribution of off sales purchases at an average price of 30p or less

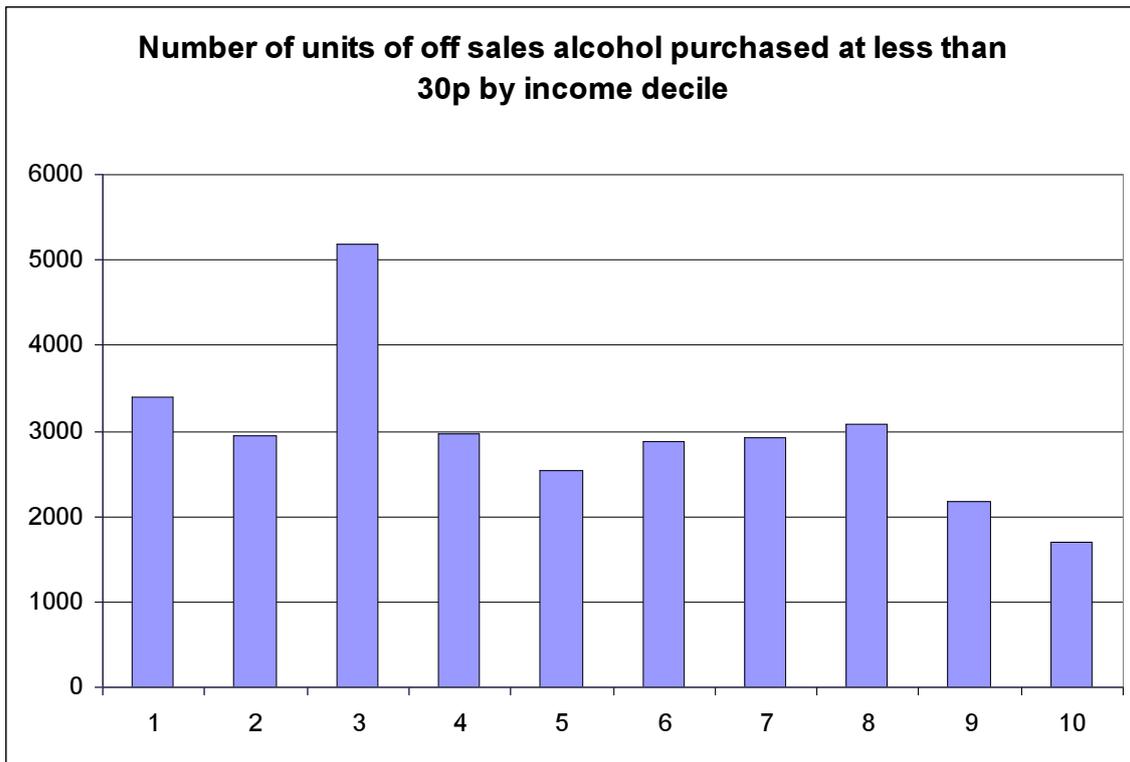


Figure 3 Distribution of off sales purchases at an average price of 30p to 40p



Figure 4 Distribution of off sales purchases at an average price of 40p to 50p

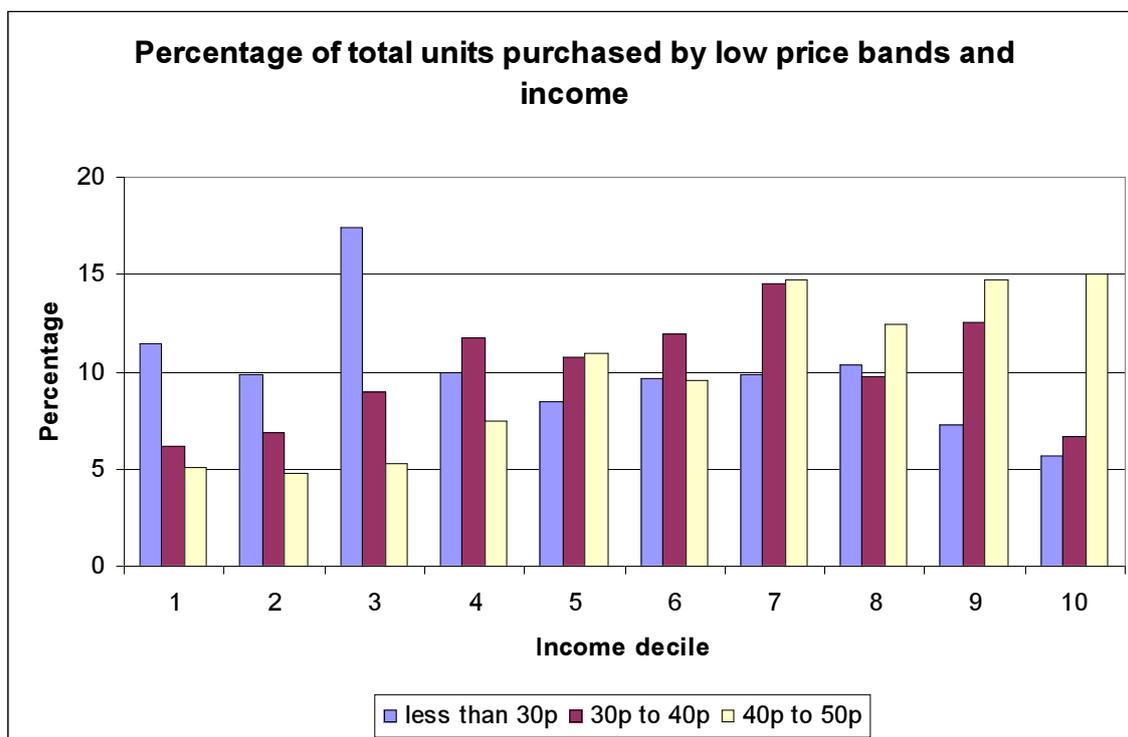


(ii) Proportion of cheaper alcohol purchased by income

In order to provide a clearer picture of which income groups purchase most of the cheaper alcohol, the amount of alcohol purchased at each of the 3 lower price bands by each income group was expressed as a percentage of the total purchased in each price band. The results are shown in figure 5.

If all income groups purchased equal amounts of cheaper alcohol, then they would each purchase 10 percent of the total. Thus, in figure 5, the bars which go above the 10 percent line show greater than average purchasing of cheaper alcohol. These are seen to be mainly in the middle to higher income groups, with the lower income deciles only exceeding 10 percent for the very lowest price band.

Figure 5 Percentage of cheaper off sales alcohol purchased by income decile



Off sales purchases by product type

This section considers the data available for the purchasing of different alcohol products; beer, lager, table wine and spirits.

(i) Distribution of purchases by income and average price

The graphs on the next page (figure 6) show, for each main alcohol product, the total number of units of alcohol purchased by households in each income decile, for off sales only, in each price band. Note that the scale for each graph is different, reflecting the different volumes of each type of alcohol purchased. Table wine has the largest number of units being purchased and beer has the lowest.

Table wine is the only example where there is a very clear tendency for the total number of units purchased at all prices to increase with income. For the other alcohol products, the relationship is less clear. For example, there is a trend for the units of lager purchased to increase with income to decile 7 but this is then reversed for the highest income bands.

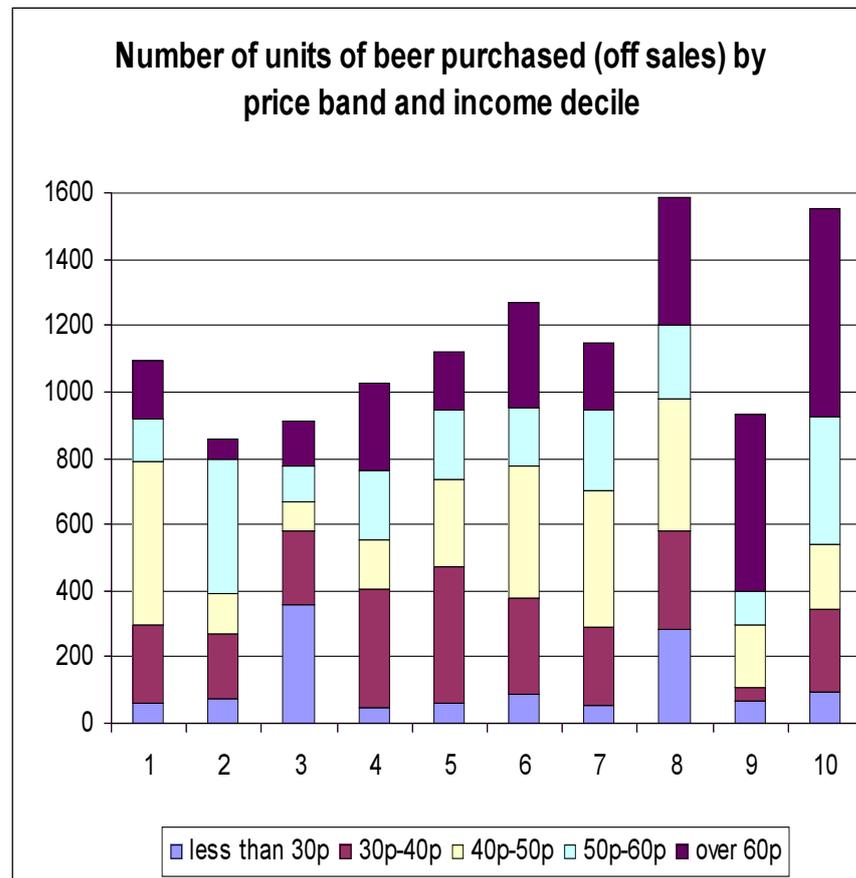
The graphs show that the cheapest price category of alcohol, less than 30p per unit, is purchased by all income groups. Overall, there is no particular relationship between the

number of units purchased at the lowest price and income. If this relationship existed, then the graphs would show the highest volume of purchasing at the lowest price being in decile 1, declining through the income groups with the lowest volume of purchasing being in decile 10. What is seen is that some middle to high income groups purchase more units of the cheapest price alcohol than the lowest income groups.

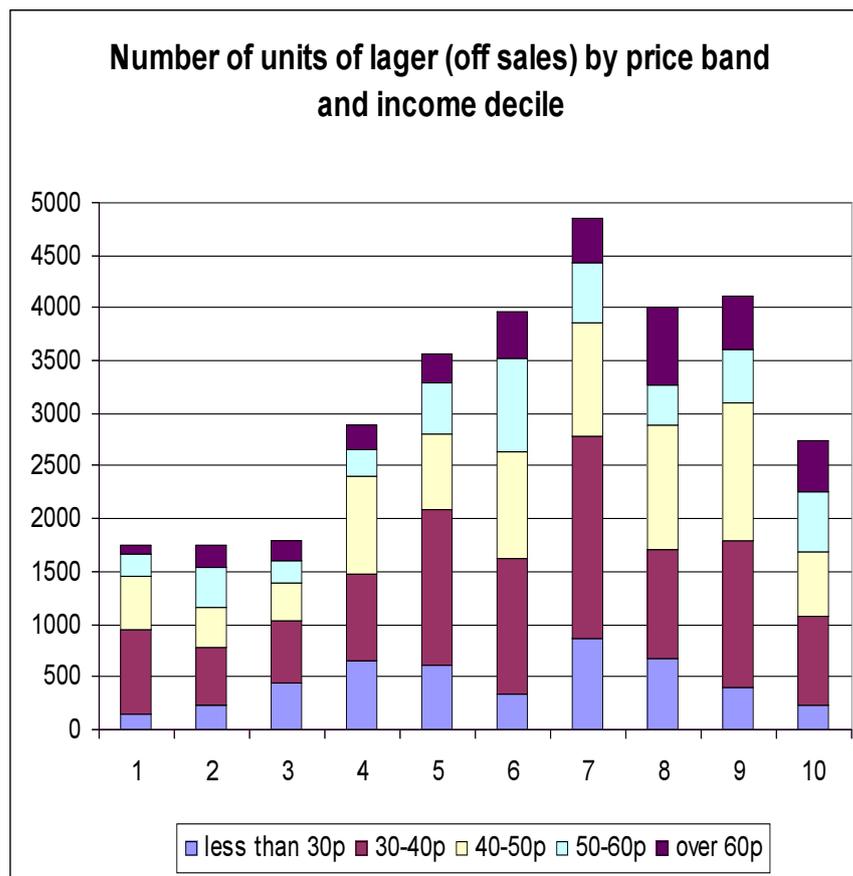
- decile 3 purchases more units of beer at less than 30p than other income groups, with the second highest purchasing being in decile 8
- decile 7 purchases more units of lager at less than 30p than other income groups
- deciles 3, 7 and 8 are the highest purchasers of table wine at less than 30p
- decile 3 purchases more units of spirits at less than 30p than other income groups

Figure 6 Purchasing patterns by price band and income decile for off sales

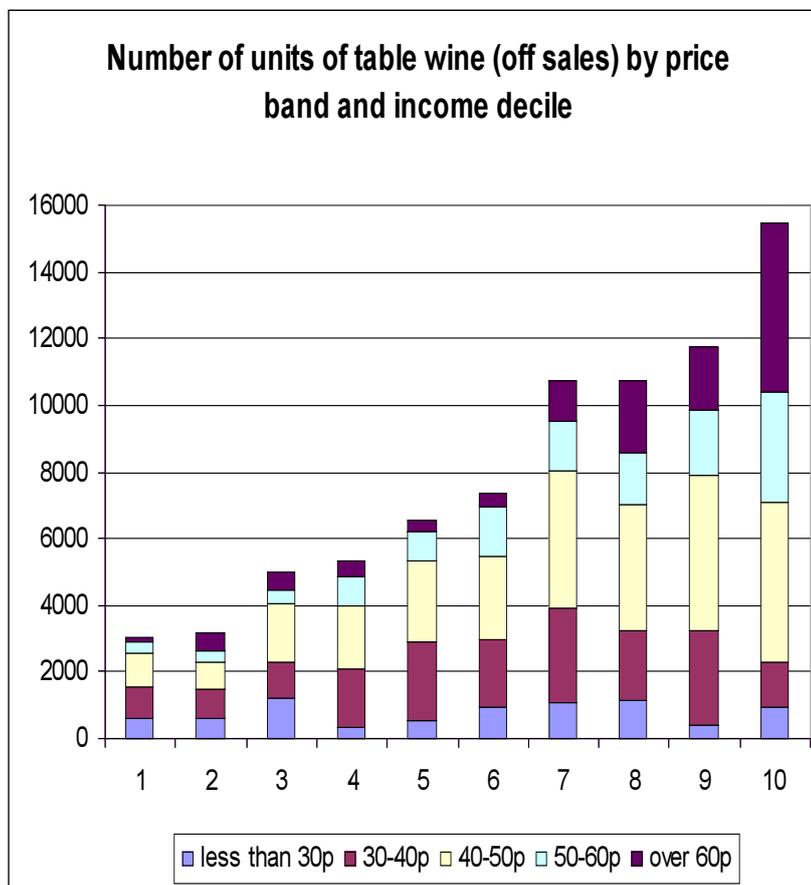
6(a) BEER



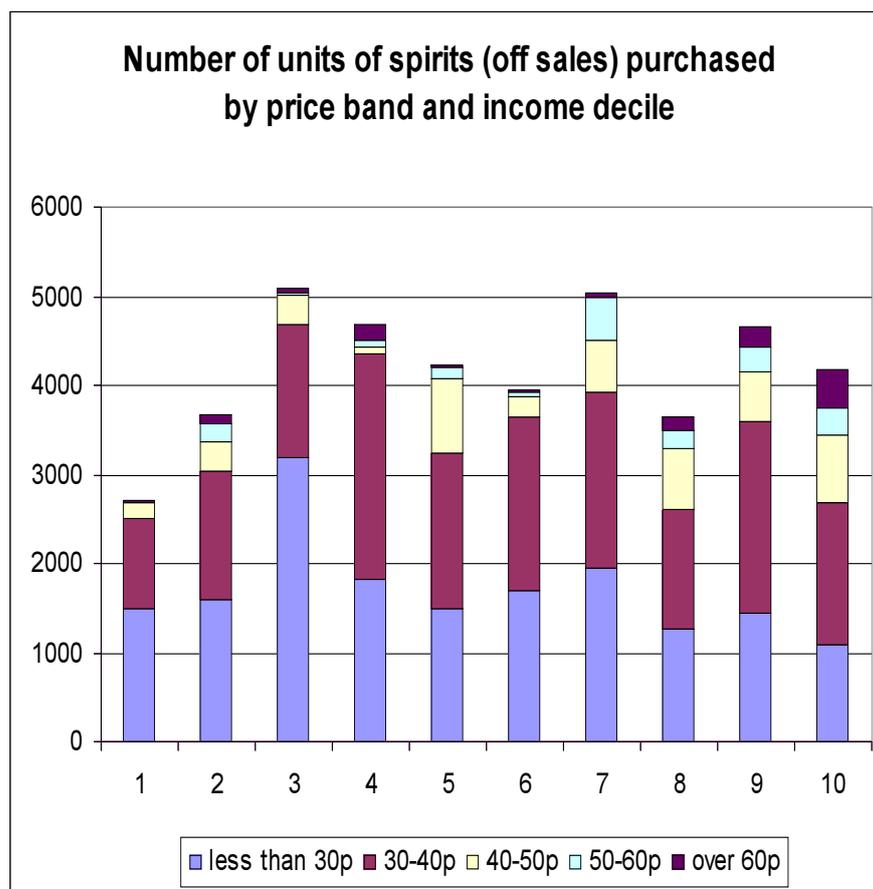
6(b) LAGER



6(c) TABLE WINE



6(d) SPIRITS



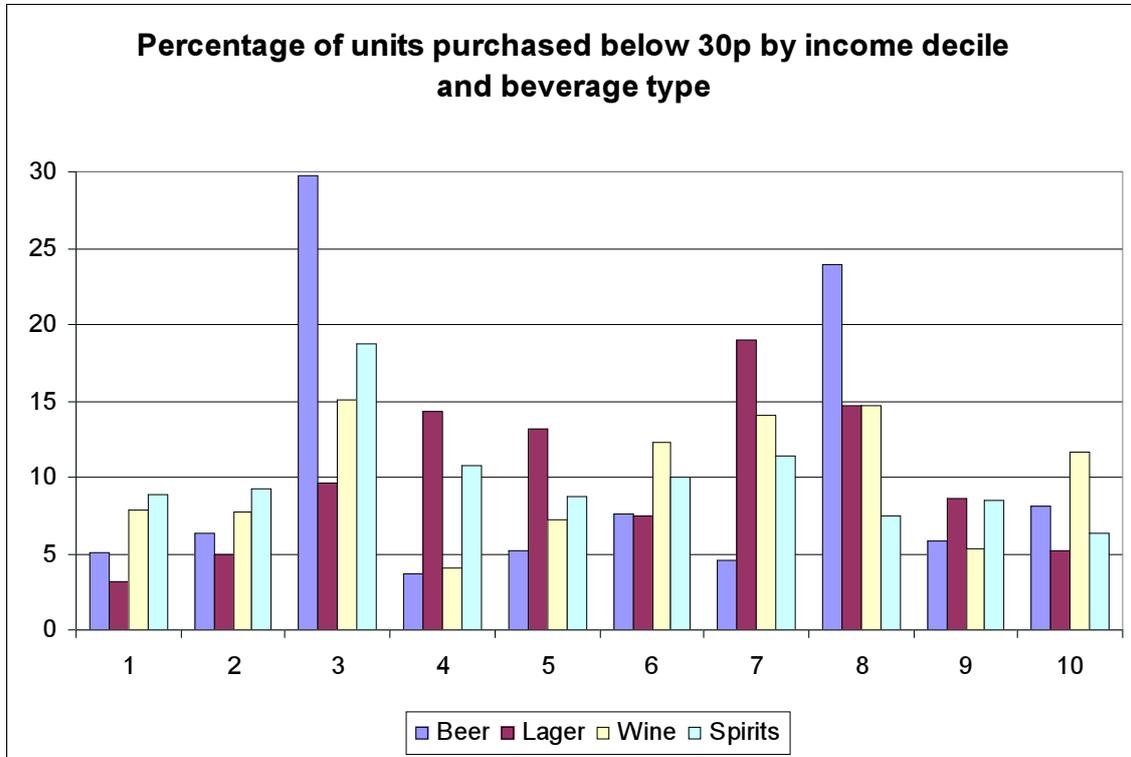
ii) Proportion of cheaper alcohol purchased by income

In order to provide a clearer picture of which income groups purchase most of the cheaper alcohol, the amount of alcohol purchased at less than 30p and at less than 40p by each income group was expressed as a percent of the total purchased at less than 40p for each type of alcohol. The results are shown in figure 7. If all income groups purchased equal amounts of cheaper alcohol, then they would each purchase 10 percent of the total.

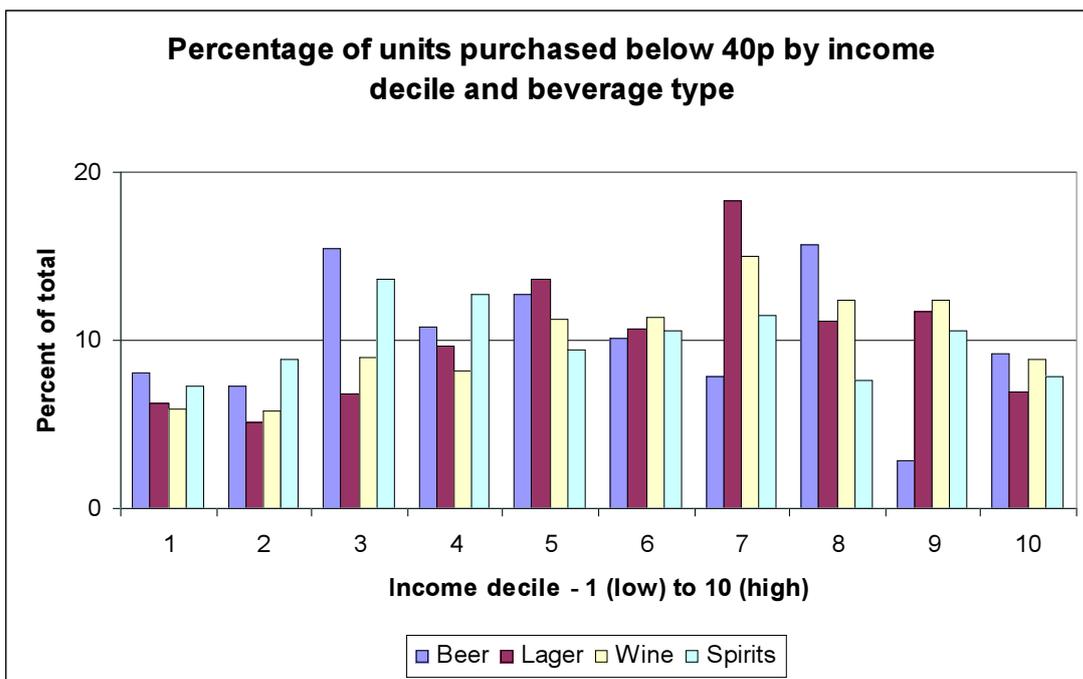
Thus, in figure 7, the bars which go above the 10 percent line show greater than average purchasing of cheaper alcohol. These are seen to be mainly in the middle to higher income groups, with the lowest two income deciles never exceeding 10 percent at either low price threshold. The percentages show much greater variation when the threshold is taken at 30p, reflecting the fact that there are a smaller number of observations included at this price level. Income decile 3 purchases more than average of beer and spirits.

Figure 7 Percentage of cheaper off sales alcohol purchased by income decile and beverage type

7(a) BELOW 30p



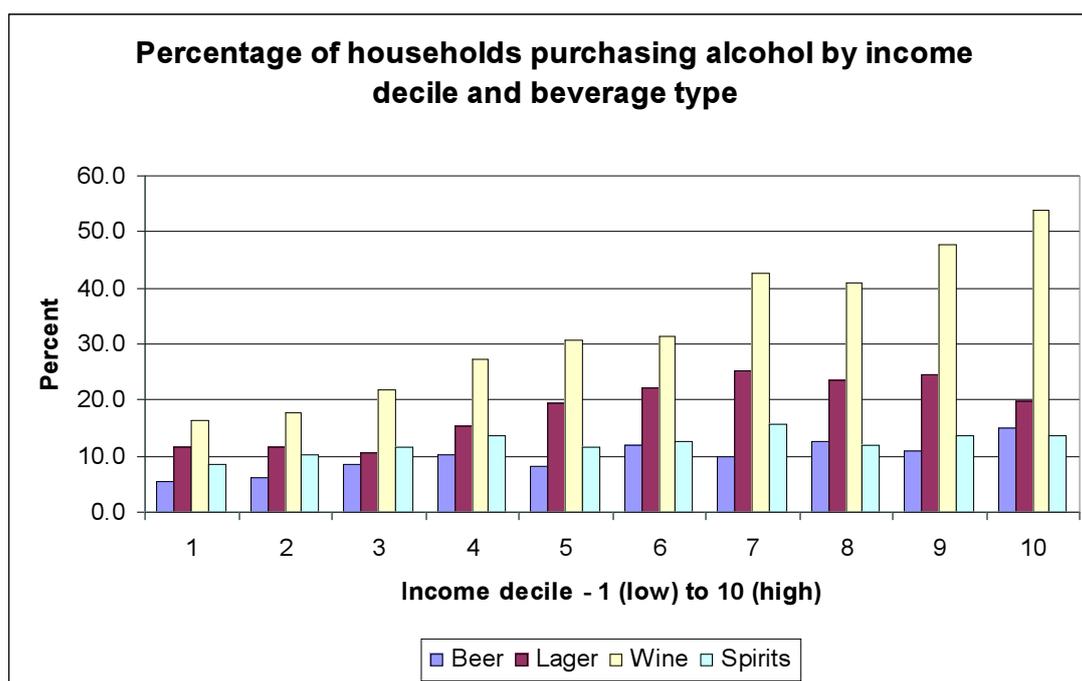
7(b) BELOW 40p



(iii) Proportion of households purchasing cheaper off sales alcohol

Part of the explanation for the finding that low income groups are not the main purchasers of cheap alcohol is that fewer low income households are purchasers of alcohol at all. This was shown in table 2 for total alcohol purchases and figure 8 confirms this for individual alcohol products. The percentage of households in the lowest three income deciles making purchases in the reference period was less than the average for all four products. This aspect of the income gradient is most noticeable for table wine.

Figure 8



Summary

These data from the EFS suggest that the purchasing of low priced alcohol occurs across the income distribution. If anything, middle income groups appear to purchase more of the lower price alcohol. One potential explanation may be that these households have sufficient discretionary income to allow them to take advantage of discounted special offers. This cannot be tested with the data available, however. The tendency for middle and higher income groups to buy more low price alcohol is more noticeable in the price bands at 30p to 40p and 40p to 50p than in the price band below 30p. This may suggest that higher values for a minimum price (40p or 50p rather than 30p) will spread the effect more evenly across income groups.

Appendix Equivalised income and household composition

The purpose of producing equivalised incomes for household is to make comparisons more meaningful as larger households would require a higher income to achieve the same standard of living as a smaller household. The EFS uses the McClements scale, shown below, to weight the household composition. The reference point is a two adult household, which has a weight of 1 (0.61 + 0.39). (See Family Spending 2008 <http://www.statistics.gov.uk/statbase/product.asp?vlnk=361> Chapter 3 for further details)

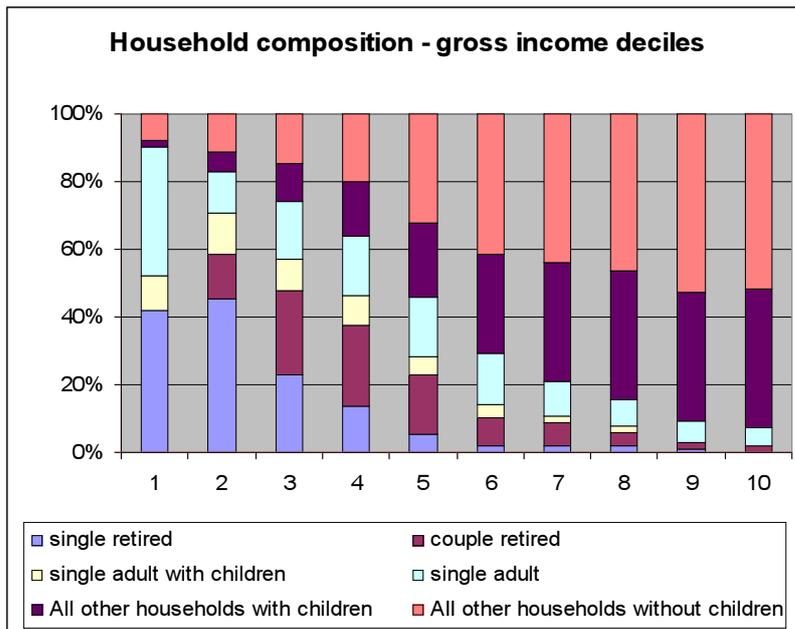
McClements Equivalence Scale (Before Housing Costs)

Position of household member	Equivalence value
Cohabiting head of household	0.61
Partner/Spouse	0.39
1st additional adult	0.42
Subsequent adults	0.36
Single head of household	0.61
1st additional adult	0.46
2nd additional adult	0.42
Subsequent adults	0.36
Child aged: 16–18	0.36
13–15	0.27
11–12	0.25
8–10	0.23
5–7	0.21
2–4	0.18
Under 2	0.09

The income thresholds are shown below for gross and equivalised income deciles. The main differences in the income boundaries are that the lowest gross income decile has a higher threshold and the highest gross income decile has a lower threshold.

Income decile	Gross weekly equivalised income	Gross weekly income
1	Up to £190	Up to £149
2	£191 to £256	£150 to £223
3	£257 to £334	£224 to £305
4	£335 to £409	£306 to £404
5	£410 to £492	£405 to £522
6	£493 to £587	£523 to £647
7	£588 to £698	£648 to £784
8	£699 to £866	£785 to £985
9	£867 to £1,162	£986 to £1,300
10	£1,163 and over	£1,301 and over

The figures below show the household composition for each income decile comparing the gross income deciles with the equivalised income deciles. The main differences are a reduced proportion of single pensioner households in the lowest income deciles and an increased proportion of households with children.



Household composition - equivalised income deciles

