The Scottish Government analysts have been looking at what data is available in this area and what it can tell us. They have had further discussions with the researchers at Sheffield University who have indicated that it is not possible to develop elasticities for different income groups in Scotland due to small sample sizes in the available data. This means that it would not be possible to model the economic impact of minimum pricing on income groups in the way that has been done for moderate, hazardous and harmful drinkers.

What can, and has, been done by my analysts is to look at data from the *Scottish Health Survey (SHeS) 2008* on consumption patterns across different income groups and to look at alcohol related health harms by income and deprivation group using the latest Scottish Index of Multiple Deprivation (SIMD) income and employment domains.

I attach a paper from Scottish Government’s Analytical Services Division which provides a factual analysis of what these two sources tell us about alcohol consumption and harm across income groups.

From these analyses it is clear that:

- Low income drinkers are most likely to drink nothing, very little or very heavily;
- The 23% of the lowest income quintile who don’t drink at all will not be affected by minimum pricing;
• 57% of the lowest income quintile drink moderately. They tend to drink at very low levels - averaging 4.9 units per week - and therefore will be only slightly affected by minimum pricing. The average moderate drinker would pay £10 per year more under a 40p minimum price plus a promotions ban. Low income moderate drinkers are likely to pay less than this as they drink less;

• Minimum pricing will impact most on the heaviest drinkers;

• Low income harmful drinkers tend to drink more and are much more likely to be admitted to hospital or to die from an alcohol related cause. They should, therefore, benefit from the greatest reduction in health harms.

I hope this is helpful in informing the Committee's consideration of its draft report.

NICOLA STURGEON
Alcohol consumption and harm across income groups

Purpose

1. This paper sets out evidence on alcohol consumption patterns across different income groups and outlines the relationship between alcohol-related harm and income / employment status. The report aims to inform current debates on the potential impact of alcohol minimum pricing on low income groups.

Alcohol consumption by income category

Drinking patterns

2. Data from the Scottish Health Survey (SHeS) 2008\(^2\) shows that a significantly higher percentage of those with the lowest equivalised household incomes\(^3\) do not drink alcohol, with figure 1 suggesting a clear relationship between income level and likelihood of drinking. Seven percent of those in the highest income quintile do not drink compared to almost a quarter (23%) in the lowest income quintile. Indeed, around 80% of the lowest income quintile either do not drink or drink moderately (defined in this analysis as 21 or less units per week for men; 14 or less units per week for women\(^4\)); the highest percentage of all income groups.

3. Those with the highest incomes are the most likely to drink at hazardous levels (defined as over 21 to 50 units for men; over 14 to 35 units for women). Around a quarter (26%) drink at this level compared to 12% of those within the lowest income quintile. The relationship between household income and harmful drinking (over 50 units per week for men; over 35 units for women) is less clear, however. Those with the lowest incomes are the most likely to drink at harmful levels (9%) followed by individuals with the highest incomes (7%).

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\(^1\) Please note that the consumption figures included in this section have not been previously published; however the data on which they are based is publicly available.


\(^3\) Analysis based on equivalised household income which takes account of household size and composition and is therefore a better indicator of the spending power available to each household than gross or net income. This analysis uses income quintiles, with household income split into five bands, each representing 20% of the overall income distribution. A more detailed analysis, for example based on income deciles, is not advisable based on a single year of data due to the SHeS sample size.

\(^4\) The definitions of moderate, hazardous and harmful drinking used here follow common reporting practice, and are consistent with the categories used in the University of Sheffield minimum pricing report.
4. The Scottish Health Survey 2008 data also allows average consumption across income groups to be calculated. The 2008 survey finds that moderate drinkers as a whole consume an average of 6 units per week (note that this figure excludes those who do not drink). As shown in figure 2, average consumption among moderate drinkers varies by income level, with those in the lowest income quintile drinking the least (an average of 4.9 units per week) and those with the highest incomes drinking the most (7.2 units).

5. There is little variation in average consumption within the hazardous drinking category (hazardous drinkers consume an average of 28 units per week) but significant differences by income level are evident amongst harmful drinkers. While average consumption among the 6% of the population who drink at harmful levels is 71 units per week, those in the lowest income quintile drink considerably more with an average of 86 units per week. This is significantly higher that the average of 60 units per week among drinkers with the highest household incomes. As figure 2 shows, there is a strong correlation between income level and very heavy alcohol consumption.
Consumption distributions by income groups

6. Figures 1 and 2 demonstrate an apparent dichotomy in the drinking behaviour of those with the lowest incomes: they are the most likely not to drink at all or to drink little within the moderate drinking category but also the most likely to drink at harmful levels (and to drink very heavily within this category). What this data doesn’t tell us however, is anything about the consumption distribution within and across income categories. It may be, for example, that for particular income groups the mean weekly consumption figure masks an uneven distribution in the amount drunk (with a significant number drinking at or close to the weekly recommended limit).

7. Figure 3 suggests a significant proportion of those with the lowest incomes drink very little – e.g. less than 2 units per week (note the graph only includes actual drinkers and therefore excludes the 23% who abstain). The shape of the distribution shows that relatively few low income moderate drinkers drink near the maximum recommended weekly limit. The corresponding graph for those with the highest equivalised household income suggests a more uniform distribution with a higher number of moderate drinkers drinking close to the weekly maximum figure (this is reflected in the higher average consumption figure). Distributions for other income quintiles are provided in the annex and demonstrate that the broad pattern noted above are also evident (albeit to a lesser degree) in income quintiles 2 and 4.
Figure 3: Moderate drinkers – consumption distribution by highest and lowest income quintile, 2008

Highest income quintile

Lowest income quintile

8. Figure 4 sets out the distribution for individuals drinking at harmful levels, again for the highest and lowest income quintiles. While the sample sizes are relatively small (and caution is therefore required), the observed distributions are markedly different with many more individuals from the lowest income quintile drinking at very heavy levels (e.g. over 100 units per week). Distributions for other income quintiles are provided in the annex for information and again show heavy consumption in the lower income quintiles.

Figure 4: Harmful drinkers – consumption distribution by highest and lowest income quintile, 2008

Highest income quintile

Lowest income quintile

5 Note a small number of outliers (defined as over 200 units per week) are excluded from the analysis.
Health harms by income and deprivation

9. While individuals living in households with the lowest incomes are the most likely to abstain from drinking alcohol, and have overall average consumption similar to other income groups, there is a well established and clear income / deprivation patterning to alcohol-related health harms. The relationship between income / deprivation status and alcohol-related health harm are explored below on two key measures: alcohol-related hospital admissions and alcohol-related mortality.

Alcohol-related hospital admissions

10. The Scottish Government’s *Long-term monitoring of health inequalities* 2009 report\(^6\) uses the latest available versions of the Scottish Index of Multiple Deprivation (SIMD) income and employment domains to assess patterns and trends in health inequalities. In the absence of individual level data on socio-economic circumstance, which the report’s working group identified as the ideal, an area index based on income and employment was used to define ‘deprivation’. This index was felt to be a better indicator of deprivation for health inequalities analysis than the tradition (full) SIMD measure\(^7\).

11. Between 1997 and 2007, there was a 22.7% increase in rates of new hospital admissions for alcohol related conditions amongst those aged under 75 years as a whole. As shown in figure 5, alcohol related admissions are more common in deprived areas than in areas of low deprivation. In 2007 adults aged under 75 years in the most deprived decile were 5.5 times more likely to be admitted to hospital (as a new case) with an alcohol related condition than those in the least deprived decile. The report found that alcohol-related admissions amongst those aged under 75 years have increased over time across the whole population, with no discernible variation by deprivation.

Figure 5: Alcohol related hospital admissions amongst those aged <75 years by Income-Employment Index: Scotland 2007

\(^6\) *Long-term monitoring of health inequalities: Headline indicators* – September 2009, Scottish Government, 2009 The basis for the

\(^7\) A full description of the index can be found in *Long-term monitoring of health inequalities: Headline indicators* – September 2009 report.
Alcohol-related mortality

12. Between 1998 and 2007, there has been a 15.1% increase in rates of death from alcohol related conditions amongst those aged under 45-74 years as a whole. As figure 6 shows, alcohol-related mortality is significantly higher in the most deprived areas of Scotland. In 2007, adults aged 45-74 years in the most deprived decile were 13.5 times more likely to die from an alcohol related condition than those in the least deprived decile. Increases in alcohol related deaths amongst those aged 45-74 years have been observed across the population, but particularly so in deprived areas. Alcohol-related mortality inequalities have increased in both absolute and relative terms.

Figure 6: Alcohol related mortality amongst those aged 45-74 years by Income-Employment Index: Scotland 2007

13. While further research is required to explain the significantly higher alcohol-related morbidity and mortality rates across deprivation groups, at least part of the explanation may come from the consumption data presented above. While those with the lowest equivalised household income are the most likely not to drink, the data presented in figures 2 and 4 above also suggest they are also the most likely to drink at very heavy levels.

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Summary

- Those on the lowest income are most likely to drink nothing, very little or very heavily.
- Those in the lowest household income quintile in Scotland are three times more likely to abstain from drinking than those in the most affluent quintile (23% compared to 7%).
- Eighty percent of those in the lowest income quintile either do not drink or drink moderately, compared to 67% in the highest income quintile (and an average across all groups of 74%).
- Of those drinking moderately (defined as under 21 units per week for men, under 14 units for women), average consumption is lowest within the lowest income group (4.9 units per week) and highest among those with the highest incomes (7.2 units per week).
- Those with the highest incomes are the most likely to drink hazardingly; 26% of this group drink hazardingly compared to 12% in the lowest income quintile (and an average across all groups of 20%).
- Nine percent of those in the lowest income quintile drink at harmful levels, the largest percentage of any income quintile (the average across all groups is 6%).
- Average consumption among harmful drinkers varies significantly by income level. Those in the lowest income quintile drink significantly more (an average of 86 units per week) compared with those with the highest incomes (60 units per week) and the overall average (71 units).
- There is a strong income / deprivation patterning to alcohol-related health harm – those under 75 years old in the most deprived decile are 5.5 times more likely to admitted to hospital (new admission) due alcohol misuse and 13.5 more likely to die (in the 45-74 age group).

Health Analytical Services Division
Scottish Government
May 2010
## ANNEX A: TABLES AND FIGURES

### Table 1: Drinking type by equivalised annual household income quintile

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<tr>
<th></th>
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### Table 2: Drinking levels by equivalised annual household income quintile

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### Consumption distributions for moderate drinkers

Figure 1: Equivalised household income quintile 2 (second highest income quintile)
Estimated units of alcohol per week

Figure 2: Equivalised household income quintile 3 (third highest income quintile)

Figure 3: Equivalised household income quintile 4 (e.g. second lowest income quintile)

Consumption distributions for harmful drinkers

Figure 4: Equivalised household income quintile 2 (second highest income quintile)
Figure 5: Equivalised household income quintile 3 (third highest income quintile)

Figure 6: Equivalised household income quintile 4 (e.g. second lowest income quintile)