Minimum Alcohol Pricing: A targeted measure?

Final Report

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Authorship and acknowledgements

This report has been produced by cebr, an independent economics and business research consultancy established in 1992. Contributors to the project were Nur Ata, Arek Ohanissian, Mark Pragnell (project director), Ben Read (project manager) and Richard Snook.

This study has been commissioned by SABMiller plc and has utilised some data provided by Statistics Canada, The University of Sheffield and the Department of Health.

The report does not necessarily reflect the views of SABMiller plc.

London, June 2009
Executive summary

centre for economics and business research ltd, one of the UK’s leading independent economic consultancies, has been commissioned by SABMiller plc to undertake a study into the economic impact of the introduction of minimum alcohol pricing in the United Kingdom.

This review identifies significant concerns with the evidence base behind the case for minimum alcohol pricing, and shows that the economic case for the introduction of minimum alcohol pricing in the United Kingdom appears to be weak.

Proposals for minimum pricing

Minimum pricing proposals have been put forward in both Scotland and England. In March 2009 the Chief Medical Officer for England, Sir Liam Donaldson, called for a 50 pence per unit minimum price to be implemented in his annual report on the state of public health. In March 2009, the Scottish Government published a framework document Changing Scotland’s Relationship with Alcohol: A Framework for Action which indicated that the government would pursue the introduction of a minimum retail price for alcohol. No specific minimum price was mentioned, but the examples given within the document alluded to a 40 pence per unit minimum price.

The key rationale put forward by proponents of minimum pricing is that it would target heavier drinkers and younger drinkers, as these drinkers tend to consume stronger and cheaper products. The evidence presented in the University of Sheffield report suggests that heavier drinkers do tend to pay less per unit of alcohol than moderate drinkers, but it also actually suggests that younger drinkers spend more per unit of alcohol than the average moderate drinker.

Evidence from Canada

Despite the fact that minimum alcohol pricing has operated in eight out of the ten Canadian provinces since the 1990s, and that proponents of minimum pricing often cite it as an example of the success of the policy, surprisingly little academic research has been undertaken which measures the effectiveness of the minimum pricing policy in Canada.
We have attempted to source data which would enable us to undertake such analysis, but unfortunately have not be able to locate publicly available data on alcohol pricing levels over time in the different Canadian provinces.

We have instead undertaken some graphical analysis of Canadian alcohol consumption, crime and health data. This analysis shows that there has been a marked response in consumption patterns, with provinces that have introduced minimum pricing seeing below trend growth in consumption levels, whilst provinces which have not seeing above trend alcohol consumption growth levels. The data on crime and health is largely inconclusive, but may merit further research.

**The relationship between alcohol pricing and alcohol consumption**

One of the key factors that will influence the effectiveness of minimum pricing as a policy is the extent to which drinkers, and particularly heavier drinkers, are influenced by changes in the price of alcohol in their consumption decisions.

We have found that the relationship between price and alcohol consumption is complex. Different types of drinker typically exhibit very different responses to changes in price. Most specifically:

- Overall, consumption of alcohol products appears to be price inelastic – this means that a 10 per cent increase in price will typically lead to a less than 10 per cent reduction in consumption

- Heavier drinkers appear to be more responsive to price changes of individual alcohol products than moderate drinkers, as they are more likely to switch between different types of alcohol product to maintain alcohol consumption levels

- However, when overall alcohol consumption levels and prices are taken into account, heavier drinkers are less responsive to price changes than moderate drinkers. The University of Sheffield study estimates that hazardous and harmful drinkers have a price elasticity of -0.21 across all alcohol products – this implies that a 10 per cent increase in price would only lead to a 2.1 per cent reduction in consumption amongst heavier drinkers

- This means that pricing legislation is unlikely to have a significant impact on overall consumption levels of those drinkers that it is intended to target, unless price increases are set at very high levels, which would place an unfair burden on moderate drinkers
The University of Sheffield study

One of the most important pieces of evidence on the potential impact of minimum pricing in the United Kingdom is the University of Sheffield Independent Review of the Effects of Alcohol Pricing and Promotion: Part B – Modelling the Potential Impact of Pricing and Promotion Policies for Alcohol in England¹. As part of this project we have undertaken a critique of this study, and have found the following key issues with the methodology and the way the study is presented.

The executive summary of the University of Sheffield report provides scope for misinterpretation of the evidence, as it highlights ‘own price’ elasticities which show that for individual alcohol products, heavier drinkers are more responsive to price changes. However, own price elasticities include the impact of switching between product types. The executive summary fails to mention the substantial evidence that overall, heavier drinkers are least responsive to price changes.

The University of Sheffield’s price-consumption model appears to overestimate the potential impact of price changes on consumption levels of hazardous and harmful drinkers – we estimate that the results may be out by a factor of two. The implications of this are that the resultant modelled estimates of reductions in health, crime and workplace harms – the benefits of increased alcohol prices – are also over-estimated by a similar order of magnitude.

The evidence base on the relationship between alcohol consumption and crime, and consumption and ‘workplace harms’ is weak, meaning that estimates of changes in these harms due to minimum pricing may be inaccurate.

The report states that moderate drinkers would face very little cost increases as a result of minimum pricing. However, whilst their definition of moderate drinkers is sound (anyone that drinks less than the recommended maximum weekly intake of 21 units for males and 14 units for females), what is not immediately clear from the report is that moderate drinkers cover a huge range of drinkers, from someone that drinks perhaps a glass of wine per month, to someone that drinks two or three small glasses of wine per day. The result of this is that on average moderate drinkers, as defined in the Sheffield study, drink only 5-6 units per week. Clearly this means that any change in alcohol pricing is not going to have a massive financial impact on what is defined as the average moderate drinker. However, the Sheffield evidence also reveals that the average consumption level amongst all drinkers is around 16 units per week – still within the moderate drinker range. At this level the financial impact of minimum pricing would be significantly more than it is on average for moderate drinkers.

Consumers lose, firms win

Our key finding is that from an economic perspective, minimum pricing cannot be justified. Whilst placing a significant additional financial burden on consumers, the benefits to

individual consumers in terms of improved health, and to wider society in terms of reduced NHS, policing and other social costs are small.

Specifically, we have found that if minimum pricing at 50 pence per unit was introduced:

- Consumers would end up paying almost £1.8 billion per year more for alcohol products – the equivalent of £68 per household per year
- Consumers would also lose out by the equivalent of an additional £1.2 billion per year in lost ‘consumer welfare’ (satisfaction from drinking)
- The value of benefits of improved health and job prospects for individuals would be less than £0.8 billion per year
- The savings to wider society including NHS and policing costs and costs to victims of crime would only be around £200 million per year
- Therefore the net economic cost of minimum pricing (excluding impact on firms) would be around £2 billion per annum
- The only significant beneficiaries from minimum pricing would be those involved in the distribution or production of alcohol - suppliers, retailers or producers. Our initial estimates suggest that overall supplier, retailer or producer profitability would increase by between £1.8 – 2.2 billion per year if minimum pricing at 50 pence per unit was introduced in Great Britain. A proportion of these profits would go to overseas agents.

The following chart illustrates our estimates of the economic impact of minimum alcohol pricing if it were introduced in Great Britain.

**Summary of economic impact of minimum pricing in Great Britain based upon adjusted University of Sheffield estimates (£million, discounted value over 10 years)**
In summary, the economic case for minimum pricing is weak. Consumers would pay a significant price for relatively little benefit, and because heavier drinkers are relatively unresponsive to price changes, the savings to wider society are likely to be minimal.
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I Introduction and background

This is an independent review of the potential impact of minimum alcohol pricing in the United Kingdom, a policy which has been put forward by The Scottish Government and The Chief Medical Officer in England.

Independent review of minimum alcohol pricing proposals

It has been conducted by the centre for economics and business research ltd (cebr), an independent economics research consultancy founded in 1992. In addition to providing respected regular forecasts of global economic trends, cebr is a leading expert in calculating the potential economic impact of new policies and regulation.

The review has been commissioned by SABMiller plc. Nevertheless, the views expressed herein are those of the authors only and are based upon independent research by them.

The remainder of this chapter describes minimum pricing proposals and the policy context behind these proposals.

1.1 Minimum pricing proposals in the United Kingdom

The United Kingdom and Scottish governments have both taken some steps towards introducing minimum pricing for alcohol products.

In July the UK Department of Health published a consultation document on its national alcohol strategy, Safe, Sensible, Social – Consultation on Further Action. It stated the Government is considering “if any further actions on alcohol and price might be both proportionate and necessary in order to have a significant impact on alcohol related harm”. As part of this, the Department for Health commissioned research by The University of Sheffield into the links between alcohol pricing, consumption and harm\(^2\). The research was split into two phases – Phase A considered the available academic evidence into the subject,

and Phase B undertook detailed modelling of the potential impact of pricing and promotion policies for alcohol in England. The Phase B report was published in November 2008.

In March 2009 the Chief Medical Officer for England, Sir Liam Donaldson, called for a 50 pence per unit minimum price to be implemented in England in his annual report on the state of public health. Whilst this call was broadly rebuffed by senior ministers, including the Prime Minister Gordon Brown, minimum alcohol pricing remains very much a live issue within England.

In Scotland, proposals for minimum alcohol pricing are much further down the line. In June 2008 the Scottish Government published a consultation on its alcohol strategy, Changing Scotland’s Relationship with Alcohol: A Discussion Paper on Our Strategic Approach. In this document it explicitly stated that the government would propose action to institute a minimum price, and invited views on the subject. Following on from this, The Scottish Government published a framework document Changing Scotland’s Relationship with Alcohol: A Framework for Action which indicated that the government would pursue the introduction of a minimum retail price for alcohol. No specific minimum price was mentioned, but the examples given within the document alluded to a 40 pence per unit minimum price.

Originally, the Scottish Government planned to introduce plans through existing legislation, which would limit the amount of parliamentary time spent debating the subject. However, after significant pressure from opposition MSPs the Scottish Government has backed down and will instead bring forward a new bill later in the year.

Policy context: Why minimum pricing?

Policymakers across the United Kingdom have become increasingly concerned about the impact of excessive alcohol consumption on public health and crime, as the impacts of excessive alcohol consumption have increased over the past twenty years. Both the English and Scottish governments estimate that the total costs of alcohol misuse are significant and growing.

In England, the total costs of alcohol misuse is estimated by the Department for Health to be between £17 billion - £25 billion per annum, of which £2.7bn is direct costs to the NHS.

The Scottish Government estimates that the total costs of alcohol misuse is around £2.3bn per annum, of which around £0.4bn is direct costs to the NHS.

Minimum alcohol pricing has been put forward as a potential policy option to attempt to reduce excessive alcohol consumption, and therefore reduce alcohol related health and crime problems. There are very few examples of minimum pricing being adopted in practice, but a form of minimum pricing has operated in eight of the ten Canadian provinces since the late 1990s. Minimum alcohol pricing as proposed in the United Kingdom would involve setting a minimum price per standard unit of alcohol, below which retailers and licensed premises would not be able to retail alcohol products.
Minimum pricing is favoured over flat increases in taxation by some policymakers as it is seen as a more ‘targeted’ measure, impacting those drinkers that are considered to do most harm to themselves and wider society. The Scottish Government and the Chief Medical Officer in England have put forward the following arguments in favour of minimum alcohol pricing:

- Minimum pricing will impact most on young people and heavy drinkers, as these drinkers tend to consume stronger and cheaper products;
- Increasing the price of alcohol reduces consumption and alcohol-related harm;
- Moderate drinkers would be relatively unaffected.

On the first of these points, there is partial evidence in favour. Figure 1.1 shows that heavier drinkers do tend to purchase lower price per alcohol unit products. However, the University of Sheffield study also shows that younger drinkers actually tend to pay more per unit than the average moderate drinker, as seen in figure 1.2.

Figure 1.1: Average price per unit paid by different types of drinker
This report seeks to consider the extent to which minimum pricing is likely to achieve the policy goals of reducing alcohol related health, crime and social problems, and also considers the overall economic impact of the introduction of minimum pricing. We also seek to critique the various arguments behind minimum pricing, and to provide an evidence based assessment of some of the assertions made by policy makers and the health lobby.

1.3 Structure of this report

The remainder of this report is structured as follows:

- Chapter 2 presents a selection of the most credible expert evidence into the relationship between alcohol pricing and consumption, and highlights what this means for the potential effectiveness of a minimum alcohol pricing policy;

- Chapter 3 considers the available evidence from Canada on the effectiveness of minimum pricing there;

- Chapter 4 provides a critique of the University of Sheffield Study;

- Chapter 5 considers the potential impact of the introduction of minimum pricing on individual alcohol consumers;

- Chapter 6 looks at the impact of minimum alcohol pricing on wider society;

- Chapter 7 presents our estimates of the impact of minimum pricing on firms;
• Chapter 8 provides our overall assessment of the economic case for minimum alcohol pricing.
2 Evidence on the link between alcohol prices and consumption

2.1 Chapter summary

In this chapter we present a selection of the most credible expert evidence into the relationship between alcohol pricing and consumption, and highlight what this means for the potential effectiveness of a minimum alcohol pricing policy.

The key findings presented in this chapter are summarised below.

- The relationship between price and alcohol consumption is complex. Different types of drinker typically exhibit very different responses to changes in price.
- Overall, alcohol products appear to be price inelastic – this means that a 10 per cent change in price will typically lead to a less than 10 per cent reduction in consumption.
- Heavier drinkers appear to be more responsive to price changes of individual alcohol products than moderate drinkers, as they are more likely to switch between different types of alcohol product to maintain alcohol consumption levels.
- However, when overall alcohol consumption levels and prices are taken into account, heavier drinkers are less responsive to price changes than moderate drinkers. The University of Sheffield study estimates that hazardous and harmful drinkers have a price elasticity of -0.21 across all alcohol products – this implies that a 10 per cent increase in price would only lead to a 2.1 per cent reduction in consumption.
- This means that pricing legislation is unlikely to have a significant impact on overall consumption levels of those drinkers that it is intended to target, unless price increases are set at very high levels.

2.2 The theory

In the case of virtually all goods and services, price changes have an inverse effect on consumer demand. This means that if the price of a product increases, demand for the product will fall, other things being equal. All credible evidence shows that alcohol products exhibit this ‘normal’ relationship between price and consumption.

The degree of responsiveness of demand to prices varies considerably between goods. A good which is ‘inelastic’ to price changes is one where a given proportionate change in price leads to a less than proportionate change in demand. For example an increase of 10% in the price of an inelastic good will result in demand falling by less than 10%. Goods which are ‘elastic’ to price respond to price changes with a greater than proportionate change in demand.
There are many factors which determine how responsive, or elastic, demand for a good or service is to price, such as:

- **Substitutes**: The more substitutes there are for a good, the higher the elasticity, as people can easily switch from one good to another if a minor price change is made.

- **Proportion of income**: The higher the proportion that the product's price is of the consumer's income, the higher the elasticity, as people will be careful with purchasing the good because of its cost.

- **Necessity**: The more necessary a good is, the lower the elasticity, as people will attempt to buy it no matter the price, such as the case of insulin for those that need it.

- **Duration**: The longer a price change holds, the higher the elasticity, as more and more people will stop demanding the goods (i.e. if you go to the supermarket and find that blueberries have doubled in price, you'll buy it because you need it this time, but next time you won't, unless the price drops back down again).

- **Breadth of definition**: The broader the definition, the lower the elasticity. For example, Company X's fried dumplings will have a relatively high elasticity, whereas food in general will have an extremely low elasticity.

2.3 **Switching behaviour versus aggregate behaviour**

In considering the potential impact of this policy it is important to understand the differences between different types of price elasticities quoted in academic literature.

Some literature considers the price elasticities of individual alcohol products such as beer, wine and spirits, whilst other literature considers the impact of price changes on overall aggregate demand. There are different definitions of each of these types of price elasticity which we outline here:

- **Cross price elasticities** – refer to the extent to which the price of one good or service influences the demand of another good or service. In the case of alcohol, cross elasticities would help us to consider how responsive demand for wine is in relation to the price of beer;

- **‘Own price’ elasticities** – these refer to the responsiveness of a specific type of product to changes in price, when other prices are held constant. The ‘own price elasticity’ of beer refers to how responsive the demand for beer is to a change in the price of beer, assuming the price of all other products, including other alcohol products, remains constant. Therefore, this price elasticity includes the extent to which beer consumers switch to consumption of wine when the price of beer changes;

- **Aggregate price elasticities** – these refer to the overall price elasticity of demand for a particular related group of products.
In the case of minimum pricing proposals, the single most important consideration from a policy perspective is the impact of alcohol price changes on overall alcohol consumption levels, for different types of drinker, rather than the extent to which changes in alcohol prices impact on consumption of different types of alcohol products. A policy which reduces beer consumption whilst increasing spirits consumption cannot be said to be effective in reducing overall alcohol consumption. It is therefore the aggregate price elasticity which is of most relevance.

2.4 Different types of drinker

From a policy perspective, it is also important to distinguish between the responsiveness to price of different types of drinker. If we accept the premise that a minimum pricing policy would be primarily focused upon curbing the drinking habits of heavy drinkers, who are responsible for the greatest amount of harm to themselves and others, then it is important to understand the relative responsiveness of different types of drinker to price changes.

The University of Sheffield Phase B report\textsuperscript{3} provides a definition of different types of drinker, which we will use throughout this report. These definitions are based upon existing guidelines on alcohol consumption in England, where drinkers are classified in three drinking categories based on their mean intake per week. The definition is as follows:

- **“moderate drinkers”** - drinkers with an intake of alcohol less likely to damage health and/or associated with negative consequences (up to 21 units per week for men and 14 units for women)

- **“hazardous drinkers”** - drinkers with an increased risk of psychological and physical consequences due to alcohol intake (21 to 50 units per week for men and 14 to 35 units for women)

- **“harmful drinkers”** - i.e. drinkers with an intake that is likely to adversely affect health and/or other negative consequences (more than 50 units per week for men and more than 35 units per week for women).

2.5 The evidence

Of all potential alcohol policy measures, the impact of price changes on consumption levels has been the most widely investigated. Whilst there exists an enormous volume of research, perhaps the most important studies in this area are two meta-analyses by Gallet\textsuperscript{4} (2007) and Wagenaar et al\textsuperscript{5} (2008), plus The University of Sheffield Phase B study.

\textsuperscript{3} Meier et al, ‘Independent Review of the Effects of Alcohol Pricing and Promotion, Part B, University of Sheffield, 2008


\textsuperscript{5} Wagenaar, A, Salois, MJ, Komro, KA (2008). Effects of Beverage Alcohol Taxes and Prices on Consumption - A Systematic Review and Meta-analysis of 1003 Estimates from
According to The University of Sheffield’s systematic review of evidence into this subject, both meta-analyses mentioned above are of good quality. The Gallet (2007) study covered a meta-analysis of 132 separate international studies which report alcohol elasticities, and was described as being ‘certainly superior to any such analysis possible within the time and resource constraints of these reviews’. The Wagenaar et al (2008) study covered a meta-analysis of 91 individual studies, and was described as being ‘highly comprehensive’ by the Sheffield review.

Both of these meta-analysis studies computed aggregate elasticities for all alcohol products, as well as individual own-price elasticities for certain product categories. In addition, the Wagenaar et al study computed aggregate elasticities for different types of drinker.

The University of Sheffield Phase B study has also calculated aggregate elasticities for different types of drinker, along with own price elasticities for different product groups and types of drinker.

The table below summarises the aggregate elasticities calculated by these studies.

<table>
<thead>
<tr>
<th>Study</th>
<th>Territory</th>
<th>Mean / median elasticity</th>
<th>Elasticity for moderate drinkers</th>
<th>Elasticity for heavy drinkers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wagenaar et al</td>
<td>International</td>
<td>-0.51</td>
<td>-0.62*</td>
<td>-0.28</td>
</tr>
<tr>
<td>Gallet</td>
<td>International</td>
<td>-0.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sheffield</td>
<td>UK</td>
<td>-0.40*</td>
<td>-0.47</td>
<td>-0.21</td>
</tr>
</tbody>
</table>

* Implied elasticities

There are two key conclusions that can be drawn from these aggregate alcohol elasticities:

- In general, demand for alcohol products is inelastic to price changes. The three studies highlighted above find an average elasticity of between -0.40 and -0.54, which implies that a 10 per cent general price increase across all alcohol products would lead to a 4.0 - 5.4 per cent reduction in consumption of alcohol products.

- Heavier drinkers are generally less responsive to price changes than moderate drinkers, in terms of their overall consumption. The elasticity of -0.21 found in the Sheffield study implies that a 10 per cent general price increase across all alcohol products would only lead to a 2.1 per cent reduction in alcohol consumption amongst heavy drinkers.

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112 Studies.

Figure 2.1: Implied relationship between price changes and consumption changes

Other academic evidence supports these findings. Manning et al (1995)\textsuperscript{7} found that moderate drinkers are generally the most price elastic, and that the 95\textsuperscript{th} percentile of drinkers have an elasticity not significantly different from zero.

As well as being supported by the evidence these findings have an intuitive appeal. One would expect that amongst heavier drinkers there will be a proportion of people that have some level of dependency upon alcohol, which would increase with the amount of alcohol consumed. In addition, amongst heavier drinkers there will be a greater degree of social drinking. Intuitively, both dependence and social ritual are likely to mean a greater degree of resistance to price changes.

\subsection*{2.5.1 Own-price elasticity evidence}

Much of the other important evidence in this area considers the own-price elasticity of specific alcohol products.

The University of Sheffield study presents some interesting evidence in relation to own-price elasticities by different types of drinker. It finds that, on the whole, own price elasticities are higher for heavier drinkers than they are for moderate drinkers. The following table shows the typical range of own-price elasticities for different types of drinker.

Table 2.2: Typical range of own-price elasticities by category of drinker

<table>
<thead>
<tr>
<th>Category of drinker</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate</td>
<td>-0.29</td>
<td>-0.52</td>
</tr>
<tr>
<td>Hazardous</td>
<td>-0.30</td>
<td>-0.61</td>
</tr>
<tr>
<td>Harmful</td>
<td>-0.41</td>
<td>-0.70</td>
</tr>
</tbody>
</table>

One of the key reasons that own-price elasticities increase with levels of alcohol consumption is that heavier drinkers are more prepared to switch between different types of alcohol product when faced with a price change than are moderate drinkers. This is explained in the following way in the University of Sheffield Phase B report:

‘Some evidence exists in the literature to suggest that heavier drinkers are less responsive to price changes than lighter drinkers…by contrast, our own [evidence] shows, in general, own-price elasticity magnitudes increasing with mean quantity of alcohol consumed. However, the relationship we observe between overall price elasticity and level of drinking is more complex due to substitution effects, with hazardous [and harmful] drinkers showing the greatest level of substitution behaviour, which in some cases is an order of magnitude greater than that estimated for moderate drinkers.

To enable more direct comparability with the estimates in the literature we have also generated elasticity estimates for total alcohol purchasing…These are in broad agreement with the literature, showing that – at the highest level of aggregation – hazardous and harmful drinkers (combined elasticity of -0.21) are less price elastic than moderate drinkers (combined elasticity of -0.47).’ — University of Sheffield Phase B report, page 51

In other words, heavier drinkers are more likely to switch consumption from beer to spirits if the price of beer goes up and the price of other alcohol products remains constant, than are moderate drinkers. However this does not mean that heavier drinkers are more responsive to price changes in terms of their overall alcohol consumption than are moderate drinkers, and the aggregate elasticities presented earlier suggest that the opposite is the case.

Unfortunately this evidence appears to have been mis-interpreted by proponents of minimum pricing, including the Chief Medical Officer for England.

‘There is a clear relationship between price and consumption of alcohol. As price increases consumption decreases, although not equally across all drinkers. Price increases generally reduce heavy drinkers’ consumption by a greater proportion than they reduce moderate drinkers’ consumption.’ – Chief Medical Officer Annual Report 2008, chapter on ‘Passive Drinking’, page 22

Such mis-interpretation of the evidence favours the case for minimum alcohol pricing as it suggests that heavier drinkers would react more strongly to price changes than moderate drinkers, in terms of their overall consumption levels. In fact the evidence seems to suggest that heavier drinkers are more likely to switch from one product category to another in the face of price changes, but overall consumption levels are less responsive to price changes.
3 Evidence from Canada

3.1 Chapter summary

Despite the fact that minimum alcohol pricing has operated in eight out of the ten Canadian provinces since the 1990s, and that proponents of minimum pricing often cite it as an example of the success of the policy, surprisingly little academic research has been undertaken which measures the effectiveness of the minimum pricing policy in Canada. Indeed, our review of evidence found no studies that have considered the impact of minimum pricing policy on alcohol pricing, consumption and harm in Canada. In addition, there appears to be no publicly available statistical data on changes in alcohol price in Canada, which would have allowed us to undertake econometric analysis on changes in alcohol pricing and the resultant impacts on consumption and alcohol-related harms.

Minimum pricing was implemented in the eight provinces over the period 1990-1998. The method of implementation has not been entirely consistent, and reliable data on the pricing regimes is not available, therefore it has not been possible to undertake statistical analysis.

Instead, given the lack of direct evidence, we have undertaken some graphical analysis of consumption, crimes and health related data from Statistics Canada for the 10 Canadian provinces. By aggregating the data into minimum pricing (MP) provinces and non-minimum pricing (NMP) provinces, and comparing trends over time for each, we have been able to draw some tentative conclusions on the impact of minimum pricing in Canada. The provinces are as follows:

- Non-minimum pricing (NMP) provinces – Alberta and Quebec
- Minimum pricing (MP) provinces – Newfoundland & Labrador; Prince Edward Island; Nova Scotia; New Brunswick; Ontario; Manitoba; Saskatchewan; and British Columbia

3.2 Impact on consumption

The data shows that alcohol consumption in provinces that have instituted minimum pricing has fallen relative to those that do not have a minimum pricing regime. Figure 3.1 shows that there is a clear break through the 1990s where the pre-minimum pricing position of higher consumption in the eight minimum pricing provinces is reversed. After 1998, consumption growth in non-minimum pricing provinces increases significantly above minimum pricing provinces.

This result is not unexpected. As we have already seen, alcohol price does influence demand.
One of the impacts of minimum pricing in Canada seems to have been a growth in spirits sales in minimum pricing provinces, relative to non-minimum pricing provinces. This is not a desirable outcome from a policy point of view, as it suggests that drinkers are moving to higher strength products as a result of higher prices.
Non minimum pricing provinces have seen an acceleration in wine sales compared with minimum pricing provinces. This may be as a result of minimum pricing keeping wine prices artificially high. It may also reflect other social factors although no firm conclusions can be drawn on this.

**Figure 3.3: Wine sales per capita, annual sales by volume (litres), 1980-2007**

However, there has been a significant divergence in beer sales between minimum pricing and non-minimum pricing provinces. In many provinces, minimum pricing is set around the price of a crate of beer, therefore it is beer price that is most directly affected. Anecdotal evidence suggests that whilst beer volume sales have been adversely affected, profitability of beer companies operating in Canada is amongst the highest in the developed world.
3.3 Impact on behaviour

Here we consider the extent to which data from Canada shows any change in crime and health outcomes as a result of the introduction of minimum alcohol pricing.

The only crime data available from Canada that can be directly linked to alcohol consumption is that on ‘impaired traffic operation’ (drink driving). Figure 3.5 shows that during and since the introduction of minimum pricing there has been little or no noticeable difference between the trend in Minimum Pricing and Non-Minimum Pricing provinces, suggesting that minimum pricing has had little impact in this regard. However it must be said that this is in the context of a consistent and declining trend in drink driving crimes, which reflects wider social and legislative changes which would have had a significant impact on the incidence of drink driving.
We now go on to consider trends in crimes that are less explicitly linked to excessive alcohol consumption. Figure 3.6 presents data on violent crime statistics, which show that since the introduction of minimum alcohol pricing, there has been a downward trend in violent crime within minimum pricing provinces, but an upward trend in the two provinces that have not introduced minimum pricing. In reality there may be many reasons for such trends, including economic, social and other policy changes that have happened over this time period. For example, this period may also have seen changes in policing, criminal justice or other social policies, and may have also seen an increasing ‘gentrification’ of urban areas relative to rural areas. However it does seem clear that there has been a difference in trends on violent crimes between minimum pricing and non-minimum pricing provinces since the 1990s, which would suggest that this is an area for further investigation.
Minimum Alcohol Pricing: A targeted measure?

Figure 3.6: Trends in violent crimes in Canada, 1977-2007

Figure 3.7 shows how property crimes have changed in the groups of provinces before, during and since introduction of minimum pricing in Canada. We can see that since introduction, the gap between the higher crime rates in minimum pricing provinces and lower rates in non-minimum pricing provinces has narrowed substantially. However, it must also be said that there was also little or no difference between property crime rates in each of the province types in the five years leading up to 1992. Overall, this data is inconclusive although again it does suggest that there may have been some underlying change since the introduction of minimum pricing.
Figure 3.7: Trends in property crimes in Canada, 1977-2007

Figure 3.8 below shows how alcoholic liver disease mortality rates have changed over the period 2000-2004. Unfortunately a longer time series of data is not available from Statistics Canada. It can be seen that overall alcoholic liver disease mortality rates are higher in minimum pricing provinces than non minimum pricing provinces. However, over this time period the gap between the province categories has narrowed somewhat, but no firm conclusions can be drawn from such a short time series.

Figure 3.8: Trends in alcoholic liver disease mortality, annual age-standardised rate per 100,000 pop. 2000-2004
4 A critique of the University of Sheffield Study

4.1 Chapter summary

In this chapter we present our key findings with respect to the methodology and findings presented within the University of Sheffield report "Independent Review of the Effects of Alcohol Pricing and Promotion: Part B – Modelling the Potential Impact of Pricing and Promotion Policies for Alcohol in England".

In this chapter we highlight some of the key issues with specific aspects of the University of Sheffield report, which may lead to different conclusions on the effectiveness of a minimum price per unit policy. Later in the report we provide alternative valuations of the costs and benefits of minimum pricing in the United Kingdom alongside those calculated by the University of Sheffield.

The key findings presented in this chapter are summarised below.

- The executive summary of the University of Sheffield report is quite misleading, as it highlights own price elasticities which show that for individual alcohol products, heavier drinkers are more responsive to price changes. However as explained in Chapter 3 of this report, own price elasticities include the impact of switching between product types. The executive summary fails to mention the substantial evidence that overall, heavier drinkers are least responsive to price changes.

- The report lacks strong evidence on the relationship between alcohol consumption and harm in several key areas, including on crime. Where insufficient evidence exists, the assumption is that there is a linear response between alcohol consumption and harm. In reality, it is unlikely that the relationship is linear and in the case of crimes, it seems likely that at high levels of alcohol consumption there is a diminishing propensity to cause crime.

- The results of the detailed modelling undertaken by the University of Sheffield are counter-intuitive and not in line with the evidence presented in the report. In particular, the results suggest that price changes have a greater proportionate impact on overall consumption by hazardous and harmful drinkers than they do moderate drinkers.

- The report states that moderate drinkers would face very little cost increases as a result of minimum pricing. However, whilst their definition of moderate drinkers is sound (anyone that drinks less than the recommended maximum weekly intake of 21 units for males and 14 units for females), what is not immediately clear from the report is that moderate drinkers cover a huge range of drinkers, from someone that drinks perhaps a glass of wine per month, to someone that drinks two or three small glasses of wine per day. The result of this is that on average moderate drinkers, as

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defined in the Sheffield study, drink only 5-6 units per week. Clearly this means that any change in alcohol pricing is not going to have a massive financial impact on what is defined as the average moderate drinker. However, the Sheffield evidence also reveals that the average consumption level amongst all drinkers is around 16 units per week – still within the moderate drinker range. At this level the financial impact of minimum pricing would be significantly more than it is on average for moderate drinkers.

The remainder of this chapter is split into two broad sections – the first comments on the evidence and methodology presented within the report, and the second comments on the outputs of the detailed modelling exercise undertaken within the study and presented in the report.

### 4.2 The evidence and methodology used by the Sheffield team

The key evidence presented in the report which relates to the potential effectiveness of a minimum pricing policy is that on the relationship between price and alcohol consumption, and also the evidence on the relationship between consumption and harm.

#### 4.2.1 The relationship between price and alcohol consumption

The report provides details of how the Sheffield team have combined a number of data sources on pricing and consumption – the General Household Survey (GHS), the Expenditure and Food Survey (EFS) and a large Nielsen database of volume and sales value of alcohol for 32 different product types. Given the various limitations of the datasets, the overall approach utilised by the Sheffield team in combining the datasets appears to be sensible.

The report describes how the Sheffield team have utilised data from the EFS from the most recent five years available – 2001/02 – 2005/06 – for sixteen alcohol product categories, in order to estimate elasticities in relation to price, income and other factors.

The resultant matrices of ‘own price’ elasticities and ‘cross price’ elasticities show significant differences in own and cross elasticities between different alcohol types and type of drinker. Whilst it is difficult to comment on the plausibility of specific elasticities within these matrices, the following overall issues stand out:

- ‘Own price’ elasticities for different types of drink tend to increase with the amount of alcohol consumed, therefore moderate drinkers have the lowest elasticities to price and harmful drinkers have the highest elasticities. This is consistent with a situation where heavier drinkers have a greater tendency to switch between products given a price change in one particular product.

- The report also states that the Sheffield team have calculated high-level price elasticities across all alcohol products. As discussed in chapter 2 these show a much lower responsiveness to price for hazardous and harmful drinkers than they do for moderate drinkers. However as the Sheffield report states ‘these are for reference
only and are not included in the model’. It is our view that this is a significant oversight on the part of the Sheffield team – at the very least this finding should have been used as a ‘sense check’ to the results of the model, and in reality the overall responsiveness of alcohol consumption to price is a valid input to be included within the model, given the potentially large inaccuracies involved in modelling the responsiveness of individual alcohol products to price changes

- The latter finding is not reported in the executive summary of the University of Sheffield report, whilst the finding that own price elasticities are higher for heavier drinkers is reported in the executive summary. This leaves the reader with the impression that heavier drinkers are more responsive to price changes than moderate drinkers, when the evidence actually suggests that they are less responsive at an aggregate level. Unfortunately, this misunderstanding seems to have pervaded into the thinking of officials including the Chief Medical Officer in England and officials in the Scottish Executive.

4.2.2 The relationship between consumption and harm

As part of the development of its consumption to harm models the University of Sheffield team undertook a comprehensive review of ‘risk functions’ relating to the relative and absolute risks of different types of harm given different levels of alcohol consumption.

Broadly these risk functions relate to:

- Health harms
- Crime harms
- Workplace harms

Broadly these harms have been divided into those that are wholly attributable to alcohol consumption and those that are partially attributable to alcohol consumption. In addition, they are sub-divided into harms that relate to chronic drinking (ie. sustained high levels of drinking) and those that relate to binge drinking (acute conditions).

4.2.2.1 Health Harms

The analysis includes 47 different health conditions relating to alcohol consumptions. These are divided into the following types of conditions:

- Wholly attributable chronic conditions
- Wholly attributable acute conditions
- Partly attributable chronic conditions
- Partly attributable acute conditions

Chronic conditions are linked to the mean daily alcohol intake of drinkers, whilst acute conditions are linked to the maximum level of daily alcohol intake.
In the case of wholly attributable chronic conditions, risk functions were derived from a variety of sources including Corrao et al (2004), Hamajima et al (2002), Gutjahr et al (2001) and Rehm et al (2004). These risk functions vary considerably both in slope and importantly in shape. For example, the risk function used for coronary heart disease actually shows a declining risk of disease for relatively low levels of alcohol consumption.

**Figure 4.1:** Relative risk of coronary heart disease at different levels of alcohol consumption\(^{10}\)

In the case of wholly attributable conditions, the Sheffield team uses a comprehensive report by the North West Public Health Observatory\(^{11}\) (NWPHO), which provides the basis for the constant and slope of linear functions of relative or absolute risks for all wholly attributable conditions. Given that all of these conditions are directly linked to alcohol consumption (for example alcoholic liver disease, or alcohol poisoning), it seems reasonable that a linear relationship is assumed between consumption and the relative or absolute risk of harm, apart from at low levels of consumption. In addition, the NWPHO report appears to be one of the most up-to-date and comprehensive studies in this field.

Overall, in the case of health harms, the Sheffield study appears to have used a comprehensive and appropriate approach to measuring the link between consumption and harm.

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\(^{10}\) A meta-analysis of alcohol consumption and the risk of 15 diseases, Corrao et al, 2003

4.2.2.2 Crime Harms

The evidence base used to calculate the impact of changes in alcohol consumption on crime is considerably lower than that used to calculate health harms.

The Sheffield team have utilised survey data presented by The Offending Crime and Justice Survey (OCJS) for 2005\(^\text{12}\). This includes two questions on offences relating to alcohol: The first question asks if the offender was under the influence of alcohol at the time of the offence, and the second asks the offender what, in their opinion, were the reasons why they committed the offence – using a multiple choice list of responses including alcohol use.

Not surprisingly, the first question yields a higher relationship between alcohol and crime than the second, as by definition the second question assumes that the offender has answered ‘yes’ to the first question. The Sheffield team have used the second question to estimate the relationship between consumption and crime – in their view this is a conservative estimate as it yields a lower estimate than the first question. The Home Office update to Cabinet Office costings for alcohol-related crime used results from the first question\(^\text{13}\).

Despite the Sheffield team’s assertion that their approach is conservative, we have some concerns about how the relationship between consumption and propensity to commit crime have been derived.

Firstly, the fact that an offender claims that alcohol consumption was a primary reason for committing an offence does not seem to be cast iron evidence that the crime was actually committed because of alcohol consumption, as some respondents may wish to blame their behaviour on being drunk rather than take full responsibility for their actions. However, this may be balanced by the probability that some respondents may not wish to attribute their offences to alcohol.

Secondly, the Sheffield team have used two possible survey responses to calculate the attribution of alcohol as a reason for committing crime – firstly that the respondent was under the influence of alcohol only, and secondly that the respondent was ‘under the influence of alcohol and other drugs’. In some cases the addition of the ‘under the influence of alcohol and other drugs’ response more than doubles the assumed influence of alcohol on the propensity to commit crime. As we can see from Figure 5.2 overleaf, in the case of males aged between 16-25 the violent crime figures are more than doubled by the ‘alcohol and other drugs’ category, whilst for females of the same age category the violent crime figures are increased by a factor of ten and more. In summary, the introduction of other drugs into the equation must surely lead to an overestimate of the impact of reducing alcohol consumption.

Finally, using this rather unconvincing data, the Sheffield team have extrapolated linear functions of relative risk of committing different types of crime, split by age group and


gender, relative to the maximum daily amount of alcohol consumed in a given week. Not only are we not convinced by the input data that has gone into these functions, it is also clear that there is little or no evidence to support the shape of these functions.

**Figure 4.2:** Reproduction of Table 20 from Sheffield Phase B report – attribution of alcohol as a reason for committing crime

<table>
<thead>
<tr>
<th>Crime</th>
<th>Males Under 16</th>
<th>Females Under 16</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reason for committed crime</td>
<td>Reason for committed crime</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Under the influence of alcohol only</td>
</tr>
<tr>
<td>Violent disorder</td>
<td>271</td>
<td>0.0%</td>
</tr>
<tr>
<td>Wounding</td>
<td>118</td>
<td>0.0%</td>
</tr>
<tr>
<td>Assault without injury</td>
<td>153</td>
<td>0.0%</td>
</tr>
<tr>
<td>Vehicle related thefts</td>
<td>32</td>
<td>0.0%</td>
</tr>
<tr>
<td>Burglary, robbery, other theft</td>
<td>214</td>
<td>0.0%</td>
</tr>
<tr>
<td>Criminal damage</td>
<td>69</td>
<td>1.8%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Crime</th>
<th>Males 16-25</th>
<th>Females 16-25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reason for committed crime</td>
<td>Reason for committed crime</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Under the influence of alcohol only</td>
</tr>
<tr>
<td>Violent disorder</td>
<td>267</td>
<td>5.5%</td>
</tr>
<tr>
<td>Wounding</td>
<td>132</td>
<td>2.3%</td>
</tr>
<tr>
<td>Assault without injury</td>
<td>135</td>
<td>8.9%</td>
</tr>
<tr>
<td>Vehicle related thefts</td>
<td>32</td>
<td>5.3%</td>
</tr>
<tr>
<td>Burglary, robbery, other theft</td>
<td>163</td>
<td>1.4%</td>
</tr>
<tr>
<td>Criminal damage</td>
<td>70</td>
<td>24.0%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Crime</th>
<th>Males 16-25</th>
<th>Females 16-25</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Reason for committed crime</td>
<td>Reason for committed crime</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>Under the influence of alcohol only</td>
</tr>
<tr>
<td>Violent disorder</td>
<td>163</td>
<td>1.1%</td>
</tr>
<tr>
<td>Wounding</td>
<td>88</td>
<td>0.0%</td>
</tr>
<tr>
<td>Assault without injury</td>
<td>75</td>
<td>2.2%</td>
</tr>
<tr>
<td>Vehicle related thefts</td>
<td>10</td>
<td>51.4%</td>
</tr>
<tr>
<td>Burglary, robbery, other theft</td>
<td>134</td>
<td>0.9%</td>
</tr>
<tr>
<td>Criminal damage</td>
<td>20</td>
<td>4.0%</td>
</tr>
</tbody>
</table>

AAF for each crime category from the OCJS (2005) was then mapped the closest offence (Appendix 11).
Intuitively, it must be the case that increased levels of alcohol consumption increase the risk of committing a crime. However, there must be a point at which the relative risk starts to diminish. For example, whilst it may be the case that someone that has consumed ten pints of beer in a single session is twice as likely to commit a crime than someone that has consumed five pints, does it necessarily follow that someone that has consumed fifteen pints is three times as likely to commit a crime? We must remember that the evidence base for the risk functions used by the University of Sheffield is based upon a survey which asks whether the respondent was (a) under the influence of alcohol, and (b) whether they think that being under the influence of alcohol was a factor in their crime.

4.2.2.3 Workplace harms

Workplace harms are divided into the probability and impact of absence from work due to alcohol consumption, and the probability and impact of unemployment due to alcohol consumption.

In both cases, the evidence base utilised to derive relative risks are light. As the report highlights, ‘few studies have reported on the association between excessive drinking and unemployment’. The results relating to this analysis must therefore be treated with a degree of caution.

In the case of unemployment, the Sheffield team have only assumed that harmful drinkers are susceptible to unemployment as a result of their drinking levels, and the relative risk of unemployment varies with the extent of this harmful drinking. This seems to be a sensible assumption. However, in calculating the potential benefit of individuals coming back into employment due to reduced alcohol consumption, the Sheffield team has utilised average salary levels to calculate these potential benefits. This may lead to an overstatement of the benefit as there is much evidence that high levels of alcohol consumption are more prevalent amongst low income groups.
4.3 The outputs of the Sheffield model

The University of Sheffield Phase B report presents results on the impact of a number of different pricing policies including minimum pricing, general price increases, and bans on various discounting measures taken in the on-trade and off-trade.

The model forecasts the impact of these policies on the alcohol consumption levels of the various groups covered by the study – moderate, hazardous and harmful drinkers, along with specific target age groups. Using these results, the model then forecasts the impact of reductions in alcohol consumption on reducing the various health, crime and workplace harms covered by the study. Included in this is a financial valuation of these changes.

The Sheffield price-consumption model produces results that are inconsistent with the evidence base

Whilst the results of the modelling exercise are generally internally consistent, they do not appear to be consistent with the evidence presented earlier in the study. In particular, the model consistently produces results that suggest that hazardous and harmful drinkers are more responsive to changes in the price of alcohol than moderate drinkers – not only in terms of switching between alcohol products but also at an aggregate level.

4.3.1 General price increases

This is most apparent when we consider the results of the modelling of ‘general price increases’. Here, there should not be any significant impacts from switching between alcohol products as the assumption is that all types of alcoholic beverage would go up in price by roughly the same percentage. Given this, we would expect hazardous and harmful drinkers to exhibit smaller relative changes in alcohol consumption than moderate drinkers, for a given price change, based upon the evidence presented in Chapter 2 of this report.

Figure 4.3 shows the implied relationship between price and consumption based upon the Sheffield modelling. It should be noted that for each category of drinker, this graph is based upon three observations – a 1 per cent, 10 per cent and 25 per cent general price increase. However, for each category of drinker the results show an exactly linear relationship between average price changes and consumption. We can therefore be confident that the relationships we have implied below are an accurate representation of the Sheffield model.
We can clearly see here that the Sheffield modelling shows a greater responsiveness to overall price changes amongst heavier drinkers, a direct contradiction of the evidence presented which shows that hazardous and harmful drinkers are least responsive to price changes overall. In addition, the modelling seems to imply a smaller than expected response to price for moderate drinkers. The implied price elasticities are shown in the table below.

Table 4.1: Implied elasticities from Sheffield Modelling

<table>
<thead>
<tr>
<th>Type of drinker</th>
<th>Implied elasticity</th>
<th>Expected elasticity (based upon Sheffield and Wagenaar et al)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderate</td>
<td>-0.33</td>
<td>-0.47 to -0.62</td>
</tr>
<tr>
<td>Hazardous</td>
<td>-0.47</td>
<td>-0.21 to -0.28</td>
</tr>
<tr>
<td>Harmful</td>
<td>-0.46</td>
<td>-0.21 to -0.28</td>
</tr>
</tbody>
</table>

Based upon this, it appears that the Sheffield modelling may over-estimate the responsiveness of hazardous and harmful drinkers to changes in price by a factor of two or

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14 Based upon results in tables 39, 40 and 41 of University of Sheffield Phase B report
more. In addition, it may significantly underestimate the responsiveness of moderate drinkers to price changes.

### 4.3.2 Minimum price increases

The issues we observed above appear to be repeated in the Sheffield team’s modelling of the impact of minimum price changes. Based upon the results presented in Tables 40-42 of the Phase B report, we have been able to estimate the implied average price changes as a result of minimum pricing, along with the modelled average change in alcohol consumption for moderate, hazardous and harmful drinkers.

The following charts show the model’s predicted changes in consumption for moderate, hazardous and harmful drinkers based upon minimum pricing levels of 15 pence per unit to 70 pence per unit. As we can see, the impact on average price levels is highest for harmful drinkers and lowest for moderate drinkers – this is consistent with the finding that heavier drinkers tend to consume cheaper alcohol products per unit of alcohol, and tend to consume a larger proportion of their alcohol from the off trade. However, even once this is taken into account, we still see a much stronger relationship between changes in price and consumption levels for hazardous and harmful drinkers than we do moderate drinkers. In addition, the overall level of responsiveness of hazardous and harmful drinkers to price changes is much greater than we would expect given the evidence base on price elasticities, including that presented by the University of Sheffield.

Figure 4.4: Impact of minimum pricing on average prices and consumption levels of moderate drinkers, based upon University of Sheffield report

![Graph showing the relationship between change in price and change in consumption for moderate drinkers](image)

\[ y = -0.4754x \]

\[ R^2 = 0.991 \]

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15 Based upon results in tables 39, 40 and 41 of University of Sheffield Phase B report
Figure 4.5: Impact of minimum pricing on average prices and consumption levels of hazardous drinkers, based upon University of Sheffield report\textsuperscript{16}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure4_5.png}
\caption{Impact of minimum pricing on average prices and consumption levels of hazardous drinkers, based upon University of Sheffield report.}
\end{figure}

\begin{equation}
y = -0.5017x \\
R^2 = 0.9837
\end{equation}

Figure 4.6: Impact of minimum pricing on average prices and consumption levels of harmful drinkers, based upon University of Sheffield report\textsuperscript{17}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure4_6.png}
\caption{Impact of minimum pricing on average prices and consumption levels of harmful drinkers, based upon University of Sheffield report.}
\end{figure}

\begin{equation}
y = -0.5436x \\
R^2 = 0.9965
\end{equation}

\textsuperscript{16} Based upon results in tables 39, 40 and 41 of University of Sheffield Phase B report

\textsuperscript{17} Based upon results in tables 39, 40 and 41 of University of Sheffield Phase B report
4.3.3 Sheffield Model outputs - conclusions

Based upon our analysis here, the University of Sheffield’s price-consumption model appears to overestimate the potential impact of price changes on consumption levels of hazardous and harmful drinkers – we estimate that the results are out by a factor of two. The implications of this are that the resultant modelled estimates of reductions in health, crime and workplace harms – the benefits of increased alcohol prices – are also over-estimated by a similar order of magnitude.

It is on this basis that we have produced revised estimates of the impact of minimum pricing in the following chapters.
5 Impact of minimum pricing on the individual consumer

5.1 Chapter summary

In this chapter we consider the potential impact of the introduction of minimum pricing on individual alcohol consumers, as opposed to the wider societal impacts caused by excessive drinking such as crime and increased costs to the NHS. Individual consumers are primarily concerned with the price of alcohol, the benefits they derive from drinking alcohol and the personal health impacts of alcohol consumption.

In this chapter we consider what are the potential costs and benefits to individual consumers of the introduction of minimum pricing, how these should be measured, and then we estimate the economic case for minimum pricing for moderate, hazardous and harmful drinkers.

The key findings presented in this chapter are as follows:

- If minimum pricing is introduced, consumers not only lose out through having to pay more for alcohol products, there is also a welfare loss to consumers through lost enjoyment of alcohol products.

- If minimum pricing at 50 pence per unit was introduced across Great Britain consumers would end up paying almost £1.8 billion per year more for alcohol products – the equivalent of £68 per household per year.

- Consumers would also lose out by the equivalent of an additional £1.8 billion per year in lost utility (satisfaction from drinking).

- The value of benefits of improved health and job prospects for individuals would be only £0.8 billion per year.

- This means that the net impact of minimum pricing on individual consumers sums to a loss of around £2.2 billion per year.

5.2 What do we mean by the individual consumer?

Any policy which impacts both on the individual consumer of a product, and the effects that consumption of the product has on wider society as a whole should be considered from the point of view of both the individual consumer, and from a wider social perspective.

In the case of alcohol consumption and minimum pricing, the aim of the policy is to both reduce the harm that alcohol consumption directly does to individuals in terms of their personal health and resultant quality of life, and in terms of their job prospects. The policy also seeks to address the wider consequences of individuals’ alcohol consumption in terms of their propensity to commit crimes, the costs of treating them on the NHS, and the impacts of their absence from work on business productivity. Here, we consider the potential benefits of minimum pricing to individuals, and weigh them up against the costs to the...
individual consumer who would have to pay more for alcohol products. In the following chapter, we separately consider the benefits to wider society.

The following table describes the potential benefits and costs of minimum pricing from the individual consumer’s perspective.

<table>
<thead>
<tr>
<th>Benefits of Minimum Pricing</th>
<th>Costs of Minimum Pricing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health improvements / reduced risk of death</td>
<td>Increased expenditure</td>
</tr>
<tr>
<td>Higher wages</td>
<td>Lower utility from consumption</td>
</tr>
<tr>
<td>Lower unemployment</td>
<td></td>
</tr>
</tbody>
</table>

The University of Sheffield report provides valuations of most of the potential benefits of minimum pricing from the individual consumer’s perspective, and indeed estimates the potential increased expenditure faced by consumers, however it does not consider the economic costs to consumers in terms of reduced utility. In addition, as stated in the previous chapter the evidence suggests that the University of Sheffield modelling overstates the potential benefits, therefore we provide alternative valuations in this chapter.

5.3 How can we measure the costs and benefits to individuals?

5.3.1 Benefits of minimum pricing to the individual

The University of Sheffield report provides the basis of our forecasts of benefits to individual consumers of minimum pricing.

Health improvements / reduced risk of death

The Sheffield team have modelled the private health benefits of reduced alcohol consumption using ‘QALYs’ (Quality Adjusted Life Years). This is a well established method in health economics of valuing the benefits of specific health interventions. A QALY is a year of life adjusted for its quality or its value. A year in perfect health is considered equal to 1.0 QALY. The value of a year in ill health would be discounted. For example, a year bedridden might have a value equal to 0.5 QALY. QALYs by definition also take account of premature death.

QALYs are very much a personal measure of health, and can therefore be used in the context of the individual consumer.
Higher wages / lower unemployment

The Sheffield team have modelled the impact of reduced alcohol consumption on reduced unemployment. This can be seen as an individual benefit more than a societal benefit.

The Sheffield team also model the impact of reduced alcohol consumption on absence from work – we would see this as being a societal benefit, as absence from work reduces business productivity and directly impacts on company performance and work colleagues, probably more than the individual themselves. We therefore consider absence from work in the following chapter on costs/benefits to wider society.

5.3.2 Costs of minimum pricing to the individual

Increased expenditure on alcohol products

As a result of minimum pricing, consumers would end up spending more overall on alcohol products, as overall demand for alcohol is inelastic to price. The Sheffield report provides estimates of the increased expenditure by consumers as a result of minimum pricing, and we have utilised these as a basis for our calculations.

Lower utility from consumption

In economics, utility is defined a measure of the relative satisfaction from, or desirability of, consumption of various goods and services. In the case of alcohol consumption, utility is the enjoyment that people derive from drinking alcohol products.

The potential loss of personal utility from reduced alcohol consumption as a result of minimum pricing is one of the key potential costs of minimum pricing that is not covered within the University of Sheffield study, and is an entirely legitimate element of the cost-benefit equation. Indeed, the Phase B report acknowledges that the valuation of ‘drinkers pleasure’ is an area of further research. In this study we attempt to place a value on this lost utility due to increased prices.

In measuring utility we start from a very simple concept: consumers will only pay for a good or service if they think it is worth at least as much as the price of that good or service. For example, if someone pays £3.50 for a bottle of beer, this means that the enjoyment of this beer is worth at least £3.50 to this individual. Otherwise they would not be willing to pay.

Price elasticity of demand allows us to calculate utility across the full range of prices and consumption, as it helps us to understand how much consumers are collectively willing to consume at each price level. For example, a price elasticity of demand of -0.5 tells us that consumption would fall by 5 per cent given a 10 per cent price rise. This means that at the initial price level, 95 per cent of custom would have been prepared to pay at least 10 per cent more than the initial price level.

Figure 5.1 overleaf illustrates this using a demand curve. The demand curve measures the level of demand for a good or service at each price level. The slope of the curve is determined by price elasticity of demand, or how responsive demand is to changes in price.
It is not normally possible for producers to price discriminate within a given market – they cannot charge individual consumers on the basis of how much they are willing to pay – producers instead have to charge an average price. This means that most consumers pay less for a good or service than they would actually be willing to pay, meaning that they get some additional utility above and beyond the actual price. This additional utility is known as the consumer surplus, and the total utility is the sum of the price paid plus the consumer surplus for all consumers.

Figure 5.1: Demand curve with illustration of consumer surplus and total utility

However, the measurement of utility for alcohol products is slightly more complex than for regular products, because of the side effects, and the potentially irrational behaviour associated with excess consumption.

In economic theory, we assume that all consumers are rational. The ‘rational consumer’ takes account of all of the personal benefits and costs in their consumption decision.

In the case of alcohol consumption, this would mean that the consumer would not only take account of the pleasure they gain from drinking alcohol, but also the costs, which would include:

- Hangover
- Poor work performance
- Negative health effects
This means that the completely rational consumer factors in all of these potential negative side effects of alcohol consumption in weighing up whether they are willing to pay for the product. **By this rationale, the enjoyment element of alcohol consumption is actually greater than overall utility for the rational consumer.** In simple terms, consumers would be willing to pay more for alcohol products if there were no significant negative side effects associated with alcohol consumption.

Figure 5.2 illustrates this in the context of the demand curve and total utility.

**Figure 5.2: Demand curve with illustration of consumer surplus and total utility**

Here we can see that if only the enjoyment of alcohol was taken into account, the consumer surplus above and beyond the purchase price would be significantly higher. Indeed, producers and retailers could without doubt charge higher prices for their product. However, the overall utility of alcohol is dampened by the short-term and long-term negative consequences of excessive consumption, and the rational consumer would take this into account in their consumption decision.

In reality, there is no such thing as a completely ‘rational’ consumer, as the completely rational consumer is assumed to have perfect information about all aspects of their consumption decisions, including the short-term and long term implications of their decisions. It is, however, entirely reasonable to assume that most drinkers do factor in at least some of the potential side effects of drinking in their consumption decisions.

In order to properly recognise this, we would need to consider how much consumers would be willing to pay for alcoholic beverages if there were no negative short-term or long-term negative side-effects. In the absence of such information, we need to use an approximation of consumers’ perceptions of the negative side effects of drinking. Given that the valuation of QALYs provides us with a basis for measuring the negative personal side effects of
drinking in terms of health impacts, it also seems reasonable to assume that this can be used as a basis for measuring consumers’ perceptions and potential valuation of negative side effects.

For the purposes of this study, we have assumed that:

- Moderate drinkers are rational i.e. aware of the short-term and long-term impacts of drinking and factor this into their consumption decision

- Hazardous drinkers are ‘semi rational’ i.e. aware of the short-term and long-term impacts of drinking, but are unaware that their consumption levels are more dangerous than moderate drinking

- Harmful drinkers are irrational i.e. are unable to evaluate the harmful impacts of drinking and cannot take this into account in their consumption decision

The outcome of this for an economic appraisal is that to some extent personal health gains from reduced consumption are already taken into account by consumers in their consumption decisions, and should therefore be cancelled out.

### 5.4 How will minimum pricing affect alcohol consumption?

As discussed in the previous chapter, the University of Sheffield Phase B report provides forecasts of the impact of different levels of minimum alcohol pricing on both the average price faced by different types of drinkers, and also forecasts the impacts on consumption levels.

Our analysis presented in chapter 4 suggests that the Sheffield modelling over-estimates the impact of changes in price on consumption by hazardous and harmful drinkers, and under-estimates the impact on moderate drinkers. The charts below present both the Sheffield modelled forecasts of price changes and impacts on consumption levels as a result of various minimum price levels (Sheffield modelling in the charts below), and revised estimates based upon the evidence presented in chapters 2 and 4 of this report (Sheffield elasticities in the charts below). Note that these revised forecasts are consistent with the evidence on price elasticities presented in the Sheffield Phase B report.
Figure 5.3: Estimated change in price / consumption at different minimum price levels (moderate drinkers)

Figure 5.4: Estimated change in price / consumption at different minimum price levels (hazardous drinkers)
It can be seen that minimum pricing is likely to have the desired effect of increasing the prices faced by harmful drinkers the most, as on average harmful drinkers consume cheaper alcohol products and consume a higher proportion of their alcohol from the off-trade, compared with hazardous and moderate drinkers. Hazardous drinkers would also face higher price rises than moderate drinkers for the same reasons.

However, the charts also show the extent to which the University of Sheffield model appears to overstate the impact of price changes on consumption levels of hazardous and harmful drinkers. For example, a 50 pence per unit minimum price is forecast to increase the average price faced by harmful drinkers by 19.7 per cent. The Sheffield modelling suggests that this will result in a reduction in harmful drinkers’ consumption levels of 10.3 per cent. However, based upon the evidence presented in the Sheffield report, we would only expect such price changes to reduce harmful drinkers’ consumption levels by 5.2 per cent, or around 3.6 units per week on average.

On the other hand, moderate drinkers would face an average price increase of 8.4 per cent. The Sheffield modelling suggests that this will reduce consumption by just 3.5 per cent, whilst the evidence suggests that the reduction in consumption would be more like 5.0 per cent.

Therefore whilst minimum pricing would have the effect of targeting heavier drinkers due to their preference for cheaper, stronger alcohol products, it is likely to have a similar proportionate effect on moderate and harmful drinkers in terms of consumption levels. The charts also show that the impact on hazardous drinkers’ consumption levels is likely to be minimal.
5.5 Economic impact of minimum pricing on individual consumers

Using the University of Sheffield estimates of the monetised impact of various levels of minimum pricing on consumer expenditure, personal health impacts (QALYs) and impact on unemployment, and combining these with our forecasts of impacts on consumers’ utility, we are able to estimate the private consumer ‘balance sheet’ with regard to minimum pricing. Given that the evidence suggests that the University of Sheffield have overstated the impact of price changes on consumption levels of hazardous and harmful drinkers, we also present adjusted estimates based upon this.

Here we present estimates for the impact on moderate, hazardous and harmful drinkers for minimum pricing levels of 40 pence per unit and 50 pence per unit, both at a Great Britain wide level, and also for Scotland only. The charts below are based upon the University of Sheffield results adjusted to take into account the evidence on the relationship between price and consumption. We also present a full set of results in tabular form at the end of this chapter, including both the University of Sheffield modelled estimates, and adjusted results.

Figures 5.6 and 5.7 show the impact of minimum pricing on moderate drinkers. It can be seen that if a minimum price of 50 pence per unit was implemented across Great Britain, moderate drinkers are likely to spend an additional £172 million per year more on alcohol products. We also estimate that lost utility (lost enjoyment) from reducing average consumption by around five per cent for moderate drinkers would constitute an economic loss of around £590 million per annum for moderate drinkers. We estimate that health benefits would be worth just over £290 million per year for moderate drinkers, meaning a net economic loss of just under £470 million per year.

Figure 5.6: Economic impact of minimum pricing on the private consumer, moderate drinkers, Great Britain (£million per annum)
Figures 5.8 and 5.9 show the impact of minimum pricing on hazardous drinkers. It can be seen that the forecast value of private health benefits to hazardous drinkers is likely to be massively outweighed by significant increases in expenditure on alcohol, as well as reductions in utility from reduced consumption. We estimate that if minimum pricing of 50 pence per unit was implemented across Great Britain, hazardous drinkers, who consume around 28 units per week on average, would spend an additional £800 million per year on alcohol products – around £118 per person.
Figure 5.8: Economic impact of minimum pricing on the private consumer, hazardous drinkers, Great Britain (£million per annum)

Figure 5.9: Economic impact of minimum pricing on the private consumer, hazardous drinkers, Scotland (£million per annum)

Figures 5.10 and 5.11 show the forecast annual impact of minimum pricing on harmful drinkers for Great Britain and Scotland.
Minimum Alcohol Pricing: A targeted measure?

Figure 5.10: Economic impact of minimum pricing on the private consumer, harmful drinkers, Great Britain (£million per annum)

Figure 5.11: Economic impact of minimum pricing on the private consumer, harmful drinkers, Scotland (£million per annum)
It can be seen that even for harmful drinkers, the increased costs in terms of additional expenditure on alcohol products is unlikely to be compensated by improved health and employment prospects. However, it could be argued that the reduced ‘utility’ from reduced alcohol consumption, along with increased expenditure should be excluded altogether from the balance sheet in the case of harmful drinkers, given that in many cases their alcohol consumption is likely to be irrational.

Taking into account the potential impact of minimum pricing on all drinkers, we can see that from the average individual drinker’s perspective, minimum pricing does not make sense. Figure 5.12 shows that if minimum pricing at 50 pence per unit was introduced across Great Britain:

- Consumers would end up paying almost £1.8 billion per year more for alcohol products – the equivalent of £68 per household per year
- Consumers would also lose out by the equivalent of an additional £1.2 billion per year in lost utility (satisfaction from drinking)
- The value of benefits of improved health and job prospects for individuals would be only £0.8 billion per year
- This means that the net impact of minimum pricing on individual consumers sums to a loss of around £2.2 billion per year
Figure 5.12: Economic impact of minimum pricing on the private consumer, all drinkers, Great Britain (£million per annum)

Figure 5.13: Economic impact of minimum pricing on the private consumer, all drinkers, Scotland (£million per annum)
Tables 5.1 and 5.2 provide detailed estimates of impact of minimum pricing on individual consumers, the first based upon our adjustments to the University of Sheffield model outputs, and the second directly based upon the University of Sheffield estimates.

What is most interesting about these results is that they demonstrate that even if we base our assessment directly on the University of Sheffield modelling, the net impact of minimum pricing on individual consumers appears to be strongly negative. The following chapter considers whether the potential benefits to wider society outweigh the net costs to individuals.

Table 5.1: Detailed financial valuation of impact of pricing on individual consumers, Great Britain, based upon evidence-based adjustments to Sheffield modelling (£million, discounted value over 10 years)

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<tr>
<th>Minimum price</th>
<th>Additional expenditure</th>
<th>Utility (drinkers' pleasure)</th>
<th>Health QALYs</th>
<th>Unemployment</th>
<th>Net impact</th>
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Table 5.2: Detailed forecasts of financial valuation of impact of pricing on individual consumers, Great Britain, directly based upon Sheffield modelling (£million, discounted value over 10 years)

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6 Impact of Minimum Alcohol Pricing on wider society

6.1 Chapter summary

Beyond improving individuals’ health prospects, life expectancy and employment prospects through reducing alcohol consumption, the other key rationale for the introduction of minimum pricing is to reduce the impact of excessive alcohol consumption on wider society.

Therefore, beyond the private health and employment impacts of alcohol consumption considered in the previous section, we must also consider the societal impacts, most notably:

- Crime, costs of policing and criminal justice system
- Costs of NHS provision of healthcare
- Wider productivity impacts (eg. Absence from work)

The University of Sheffield study provides detailed estimates of savings to wider society which could be yielded as a result of minimum alcohol pricing. However as with the impacts on individual consumers outlined in the previous section, these estimates are subject to adjustment based upon the evidence that the University of Sheffield modelling appears to over-estimate the relationship between price and consumption for heavier drinkers. In this chapter we present these estimates.

The key findings presented within this chapter are as follows:

- The potential benefits to wider society are minimal compared with the costs to private consumers outlined in the previous section
- It is estimated that in financial terms, the benefits to wider society from the introduction of minimum pricing would be between £200 million - £320 million per year under a 50 pence per unit regime, if implemented across Great Britain

6.2 Savings to wider society from minimum pricing

6.2.1 Healthcare costs

If alcohol consumption levels are reduced we are likely to see reductions in costs to the NHS, as we would see lower levels of alcohol related disease and intoxication, and fewer injuries caused by excessive alcohol consumption.

The following charts show projections of the annual savings to National Health Services across Great Britain, and the Scottish National Health Service as a result of the introduction of minimum pricing at 40 or 50 pence per unit.
Figure 6.1 shows the potential savings to the NHS across Great Britain. It can be seen that if 50 pence per unit minimum alcohol pricing were to be introduced, the University of Sheffield modelling implies that we could expect a saving of around £160 million per annum. If these figures are adjusted to take account of evidence on the relationship between price and consumption, this saving falls to around £100 million per annum. These figures amount to around 0.1 per cent of the total NHS budget for Great Britain. In Figure 6.2 we see the equivalent valuations for Scotland – the adjusted estimates suggest that NHS Scotland would save just £9 million per year if minimum pricing at 50 pence per unit was introduced, and just £3.5 million per year under a 40 pence per unit regime.

Figure 6.1: Financial valuation of savings to NHS as a result of minimum pricing, Great Britain (£million per annum)

Figure 6.2: Financial valuation of savings to NHS as a result of minimum pricing, Scotland (£million per annum)
6.2.2 Crime, policing and criminal justice costs

The University of Sheffield report provides estimates of both the cost savings to the police and criminal justice services through reduced levels of crime, and also financial valuations of reductions in costs to members of society from reduced crime levels.

We first consider the valuation of cost savings to police and criminal justice services. If alcohol consumption is reduced then we are likely to see less crime, which would lead to savings for the police and criminal justice services.

Figure 6.3 shows the potential savings to these services across Great Britain. It can be seen that if 50 pence per unit minimum pricing is introduced, the University of Sheffield modelling implies a cost saving of around £55 million per year. If this is adjusted to take account of evidence on the relationship between price and consumption, this saving falls to around £32 million per annum. In Figure 6.4 we see the equivalent valuations for Scotland.

**Figure 6.3: Financial valuation of savings to police and criminal justice system as a result of minimum pricing, Great Britain (£million per annum)**
We now consider the impact of reduced costs of crime for members of society that are affected by crime. Examples of such crime would include property crimes or violent crimes which not only incur costs to the police and criminal justice services, but also directly to the victims of such crimes. It follows that reduced alcohol consumption will reduce these costs to wider society.

Figures 6.5 and 6.6 show financial valuations of these potential savings if minimum pricing was introduced across Great Britain or Scotland only. It can be seen that the University of Sheffield model estimates that these savings would be worth around £75 million per annum if minimum pricing of 50 pence per unit were applied across Great Britain.
Figure 6.5: Financial valuation of savings from reduced victims of crime as a result of minimum pricing, Great Britain (£million per annum)

Figure 6.6: Financial valuation of savings from reduced victims of crime as a result of minimum pricing, Scotland (£million per annum)

6.2.3 Overall savings to wider to society

The following charts summarise the total estimated annual savings to wider society under 40 pence per unit and 50 pence per unit minimum pricing regimes. These include all of the savings outlined in this chapter, plus savings from reduced absence from work due to excessive alcohol consumption.
Figure 6.7 shows the projected savings if minimum pricing was introduced across Great Britain. It can be seen that the University of Sheffield modelling implies annual savings to society of around £320 million, whilst the adjusted estimates imply annual savings of around £200 million under a 50 pence per unit regime. These benefits are very small when compared with the costs to individuals of around £2 billion per annum estimated in the previous chapter.

Figure 6.7: Financial valuation of savings to wider society from minimum pricing, Great Britain (£ million per annum)

Figure 6.8: Financial valuation of savings to wider society from minimum pricing, Scotland (£ million per annum)
The following tables show the University of Sheffield’s detailed estimates of the benefits to wider society from minimum pricing over a 10 year period, along with adjusted estimates based upon the evidence on the relationship between price and consumption. As discussed on the previous page, these potential benefits appear relatively small when compared with the cost to individuals of this policy.

Table 6.1: Detailed table of financial valuation of savings to wider society from various minimum pricing levels, Great Britain (£million, discounted value over 10 years)

<table>
<thead>
<tr>
<th>Minimum price/unit</th>
<th>NHS Healthcare costs</th>
<th>Crime costs</th>
<th>Costs to victims of crime</th>
<th>Absence from work</th>
<th>Total savings</th>
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Table 6.2: Detailed table of financial valuation of savings to wider society from various minimum pricing levels, Scotland (£million, discounted value over 10 years)

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<th>Minimum price/unit</th>
<th>NHS Healthcare costs</th>
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<th>Absence from work</th>
<th>Total savings</th>
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7 Impact of Minimum Alcohol Pricing on firms

7.1 Chapter summary

In this chapter we present an overview of the impact that minimum pricing might have on firms and on competitiveness within the marketplace. It has not been possible to determine exactly what the reaction of different parts of the industry (e.g. alcohol producers, retailers etc.) would be to minimum pricing. However, this chapter does include estimates of the impact on firms’ overall profitability levels, and a qualitative assessment of the potential impact on different segments of the market.

The key findings presented within this chapter are as follows:

- Minimum pricing is anti-competitive. It is likely to exaggerate market failures and may lead to sub-optimal market structures
- Given that demand is price inelastic, minimum pricing is likely to lead to higher profits for many firms, which would not otherwise have been possible under normal competitive circumstances
- If minimum pricing at 50 pence per unit is implemented across Great Britain, supplier profitability would be boosted by around £1.8 – £2.2 billion per year

7.2 Competitive impacts of minimum pricing

As seen in previous chapters, alcohol consumers are generally inelastic to price changes, which means that under current conditions competition within the market acts to prevent firms from pushing up prices further to increase profit levels.

Given that demand is price inelastic, minimum pricing is likely to lead to higher profits for many firms, which would not otherwise have been possible under normal competitive circumstances.

Minimum pricing is likely to exaggerate market failures and may lead to sub-optimal market structures. In effect, minimum pricing legislation forces firms to price as if they were in a cartel.

In addition to promoting cartel style profits, minimum pricing is also likely to lead to a reduction in the number of alcohol producers and brands available to consumers, as such price levels would ‘crowd out’ producers at the lower end of the market.

If minimum pricing was introduced merely as a regulation rather than as a tax, it may actually lead to the more powerful alcohol producers lobbying for increases in the minimum price. There appears to be evidence (http://www.cbc.ca/canada/ottawa/story/2009/01/19/beer-pricing.html) that this has occurred in Canada where leaked correspondence between the Ontario Finance Minister and the chairman of the Liquor Control Board of Ontario revealed that ‘industry requests’ were
made to the government to raise minimum price levels, and that the government supported these requests.

### 7.3 Impact on firms’ profitability

Overall, the impact of minimum pricing is to increase the average price paid by consumers for alcohol products, and to reduce consumption levels as a result. Because overall demand for alcohol is price inelastic, the percentage increase in price is likely to be greater than the percentage reduction in demand. This means that overall revenues are likely to increase, whilst overall costs are likely to decrease due to reduced consumption levels. Profits for the industry would therefore rise.

Here we make a tentative estimate of the likely level of increased profit for the alcohol industry. Note that this is an aggregate estimate of increased profits for all elements of the industry – retailers, distributors and producers. Given that we have not had access to detailed information on the cost base for firms involved in the alcohol industry, we have had to make high level assumptions in order to estimate increased profits:

- ‘Fixed cost’ element of alcohol production is 50 per cent of total costs
- Variable costs vary with an elasticity of 0.5, ie. a 10 per cent fall in production increases unit costs by approximately 5 per cent

Based upon these assumptions, and our forecasts of increased consumer expenditure presented in chapter 5, we have estimated the increased level of profitability that would be seen by firms as a result of minimum pricing.

Minimum pricing is likely to substantially increase firms profits at the expense of consumers. We estimate that if minimum pricing at 50 pence per unit were to be implemented across Great Britain, supplier profitability would be boosted by around £1.8 – £2.2 billion per year, based upon the adjusted forecasts of changes in consumption as a result of price increases. If we take the University of Sheffield modelled forecasts directly, these estimates fall to £1.2 - £1.8 billion per annum.

Note that it is not possible to predict whether these additional profits would accrue to retailers or alcohol producers. The following chart illustrates the range of additional profitability that we would expect as a result of the introduction of minimum pricing in Great Britain.
Figure 7.1: Change in firms’ profitability with minimum pricing across Great Britain (£ million per annum)

7.4 Potential impact on jobs at alcohol producers and their suppliers

Because minimum pricing would lead to lower demand for alcohol, there would be some inevitable knock-on effects on jobs at both alcohol producers and also their suppliers.

We estimate that the total number of jobs ‘at risk’ as a result of minimum pricing - ie. those jobs which are directly linked to the level of production of alcohol products – is around 67,000 across Great Britain. On this basis, if minimum pricing at 50 pence per unit was introduced throughout Great Britain we would estimate that 2,800 jobs would be lost at alcohol producers and their suppliers.
8 Overall assessment

8.1 Chapter summary

In this chapter we present the net ‘Great Britain plc’ and ‘Scotland plc’ case for minimum pricing. This takes account of the economic impact on individuals, on wider society and on firms.

The key findings presented in this chapter are as follows:

- The economic case for minimum pricing in Great Britain looks weak, once we take into account the costs to individuals as well as benefits to individuals and wider society
- Benefits to wider society are relatively small compared with costs to consumers
- Only by taking into account the potentially significant increases in supplier profits does the economic case get close to being positive

8.2 Minimum pricing – the economic case

Figures 8.1 and 8.2 below show our estimates of the net economic case of the introduction of minimum pricing across Great Britain at £0.40 and £0.50 per unit. Figure 8.1 is based upon the adjusted University of Sheffield estimates, taking into account the evidence on the relationship between price and consumption. Figure 8.2 is based directly upon the University of Sheffield modelled impacts on price, consumption and harm.

Note that these charts assume that 80 per cent of firms’ profits from alcohol sales remain within Great Britain.

We can see from these two charts that the economic case for the introduction of minimum pricing appears to be at best marginal. In our view, the University of Sheffield modelling overestimates the impact of price changes on hazardous and harmful drinkers, and therefore the case presented in figure 8.1 is the more appropriate assessment. However, even if we base our findings directly upon the University of Sheffield modelling, the case for minimum pricing still appears to be incredibly weak from an economic perspective. The only reason that the case is anywhere near positive is that minimum pricing is likely to lead to significant additional profits for firms. Given the actual objectives of the policy (to reduce alcohol related harms to individuals and wider society) the fact that supplier profits appear to be propping the economic case up should not provide any real comfort to policy-makers.

Figures 8.3 and 8.4 show the same results for Scotland, and tell a similar story. There does not appear to be an economic case for the introduction of minimum pricing in Scotland.
Figure 8.1: Summary of economic impact of minimum pricing in Great Britain based upon adjusted University of Sheffield estimates (£million, discounted value over 10 years)

Figure 8.2: Summary of economic impact of minimum pricing in Great Britain based upon University of Sheffield estimates (£million, discounted value over 10 years)
Figure 8.3: Summary of economic impact of minimum pricing in Scotland based upon adjusted University of Sheffield estimates (£million, discounted value over 10 years)

Figure 8.4: Summary of economic impact of minimum pricing in Scotland based upon University of Sheffield estimates (£million, discounted value over 10 years)
The following tables show the estimated economic case for the introduction of minimum pricing in Great Britain at minimum pricing levels between £0.30 per unit and £0.70 per unit. Table 8.1 is based upon the adjusted University of Sheffield estimates, taking into account the evidence on the relationship between price and consumption. Table 8.2 is based directly upon the University of Sheffield modelled impacts on price, consumption and harm.

Table 8.1: Summary of economic impact of minimum pricing in Great Britain based upon adjusted University of Sheffield estimates (£million, discounted value over 10 years)

<table>
<thead>
<tr>
<th>Minimum price (£/unit)</th>
<th>Individuals</th>
<th>Producers</th>
<th>Wider society</th>
<th>Net economic impact</th>
</tr>
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Table 8.2: Summary of economic impact of minimum pricing in Great Britain based upon University of Sheffield estimates (£million, discounted value over 10 years)

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<th>Minimum price (£/unit)</th>
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<th>Wider society</th>
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