



Modelling the comparative impacts of Minimum Unit Pricing and alcohol taxation increases in the Republic of Ireland

An adaptation of the Sheffield Alcohol Policy Model version 3

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2 EXECUTIVE SUMMARY

2.1 MAIN CONCLUSIONS

1. A €1 MUP would be an effective measure to reduce alcohol consumption among high risk drinkers, leading to significant reductions in alcohol-related harm including mortality, hospital admissions, crime and workplace absences associated with alcohol.
2. Low risk drinkers would experience only small impacts on their alcohol consumption and spending as a result of the introduction of a €1 MUP. This is because they tend to buy smaller amounts of the alcohol which would be subject to significant price increases following introduction of the policy.
3. Large duty increases of between 53% and 78% would be required to achieve the same reductions in alcohol consumption and alcohol-attributable deaths as a €1 MUP. These duty increases would have a greater impact on the consumption and spending of low risk drinkers than a €1 MUP.
4. The introduction of a €1 MUP is estimated to reduce the amount that high risk drinkers spend on alcohol, in contrast to duty increases which increase it. Larger duty increases lead to larger increases in spending on alcohol for all drinkers.

2.2 BACKGROUND TO THIS REPORT

This report was commissioned in 2016 by the Irish Government to inform debate and decision-making around the Public Health (Alcohol) Bill. It appraises and compares the potential impact of different alcohol pricing policy options and extends previous analyses by our team which were published in 2014 ¹ using the same modelling framework, the Sheffield Alcohol Policy Model.

The key differences to the analyses published in 2014 are:

- Additional analyses of key data inputs around alcohol purchasing, consumption and spending.
- Additional analyses identifying the level of tax increase required to achieve the same impacts as a €1 MUP.
- Minor updates to the methodology for modelling crime and a ban on below-cost selling.

The data inputs into the model are identical to those used in the 2014 report and any differences in results are due to the minor methodological adjustments.

2.3 RESEARCH QUESTIONS

1. What is the estimated impact of a €1 MUP and a ban on below-cost selling on alcohol consumption, spending, exchequer revenue, health, crime and workplace outcomes?
2. What increase in current alcohol duties would be required to achieve the same reduction in alcohol consumption among: a) all drinkers b) high risk drinkers only, as a €1 MUP.

3. How would the effect of these two duty increases differ across the population?
4. What increase in current alcohol duties would be required to achieve the same reduction in alcohol-attributable deaths among: a) all drinkers b) high risk drinkers only, as a €1 MUP.

2.4 SUMMARY OF MODEL FINDINGS

2.4.1 Patterns of drinking and expenditure

M1. Analysis of consumption patterns shows that 22% of Irish adults (aged 18+) do not drink, 56% drink at low risk levels, 16% drink at increasing risk levels and 5% drink at high risk levels.

M2. High risk drinkers comprise 5% of the population but account for 35% of all alcohol consumed and 29% of all spending on alcohol. Increasing risk drinkers comprise 16% of the population but account for 38% of alcohol consumed and 40% of alcohol spending.

M3. Very little of the alcohol directly affected by a €1 MUP is sold in the on-trade. 40.3% of alcohol is sold for less than €1 per unit of which 0.6% is sold in the on-trade and 39.7% is sold in the off-trade.

M4. On average, high risk drinkers pay the least for each unit of alcohol they consume, followed by increasing risk drinkers and then low risk drinkers, who pay the most. This is partly because high risk drinkers buy proportionately more beer, cider and off-trade alcohol. These product categories are all cheaper on average than wine, spirits and on-trade alcohol.

M5. Low risk drinkers buy only small amounts of the alcohol which would be directly affected by a €1 MUP. They buy an average of 79 units per year for less than €1 compared to 407 units for increasing risk drinkers and 1,531 units for high risk drinkers. Units bought for less than €1 comprise 34% of low risk drinkers annual consumption, 36% of increasing risk drinkers annual consumption and 47% of high risk drinkers annual consumption.

2.4.2 Effect of modelled policies on consumption and expenditure

M6. Implementing a €1 MUP is estimated to reduce alcohol consumption in Ireland by 8.8% or 55 units per drinker per year.

M7. Consumption reductions arising from a €1 MUP are estimated to be largest among high risk drinkers (15.1% or 494 units per drinker per year), followed by increasing risk drinkers (7.2% or 82 units per drinker per year) and low risk drinkers (3.1% or 7 units per drinker per year).

M8. Spending on alcohol would increase by 1.3% or €16 per drinker per year under a €1 MUP. High risk drinkers are estimated to reduce their spending by 2.1% or €107 per drinker per year. Increasing risk drinkers would increase their spending by 1.1% or €25 per drinker per year and low risk drinkers would increase their spending by 4.8% or €24 per drinker per year.

M9. Revenue to the exchequer from taxation levied on alcohol would fall by €36m or 2.7% following introduction of a €1 MUP. This comprises a €41m (8.5%) decline in revenue from off-trade alcohol sales and a €5m (0.5%) increase in revenue from on-trade alcohol sales.

M10. A ban on below-cost selling would lead to much smaller effects than a €1 MUP as very few products are sold for less than the tax payable on them and products that are sold below this threshold are sold for only a small amount less meaning price increases would be limited. Under a ban on below-cost selling, consumption is estimated to increase by 0.4% or 3 units per drinker per year and spending is estimated to increase by 0.6% or €7 per drinker per year.¹ Effects arising from this policy would be small in all drinker groups. For example, high risk drinkers are estimated to increase their consumption by 0.5% or 17 units per drinker per year.

2.4.3 Effects of modelled policies on alcohol-related harms

M11. Implementing a €1 MUP is estimated to lead to 197 or 15.5% fewer deaths and 5,900 or 10.0% fewer hospital admission due to alcohol each year.²

M12. The majority of the reduction in deaths and hospital admissions is accounted for by high risk drinkers (128 and 3,600 respectively). Smaller reductions are seen among increasing risk drinkers (57 and 1,700) and low risk drinkers (12 and 600). This concentration of harm reductions within the smaller drinker groups partly reflects the higher baseline rates of alcohol-related mortality and hospitalisation among heavier drinkers but also reflects the greater impact of the policy in these groups.

M13. Alcohol-related crime is estimated to fall by 7.7% or 1,500 offences per year under a €1 MUP. Unlike reductions in harms to health, this reduction in crime is relatively evenly distributed across high risk drinkers (490), increasing risk drinkers (560) and low risk drinkers (470).

M14. Workplace absences due to alcohol are estimated to fall by 10.4% or 116,000 days per year under a €1 MUP. As with alcohol-related crime, these reductions are relatively evenly distributed across higher risk (40,000), increasing risk (42,000) and low risk (33,000) drinkers.

M15. A ban on below-cost sales of alcohol would have little impact on alcohol-related harm. There would be an estimated 3 or 0.2% more deaths, 100 or 0.2% more hospital admissions, 100 or 0.4% more crimes and 7,000 or 0.6 more days absent from work per year under this policy.

2.4.4 Tax increases required to achieve the same effect as a €1 MUP

M16. To achieve the same reduction in alcohol consumption among all drinkers and high risk drinkers as a €1 MUP, alcohol taxation would need to increase by an estimated 61% and 78% respectively.

¹ A ban on below cost selling is estimated to affect only a tiny proportion of the off-trade spirits and, to a lesser extent, wine markets. Econometric evidence suggests that both on- and off-trade beer are substitutes for off-trade spirits¹² and as beer makes up a much greater proportion of overall consumption in Ireland, the net effect of this substitution is a small estimated overall increase in mean consumption.

² A time lag of up to 20 years is typically observed between changes in alcohol consumption and changes in alcohol-related harms to health. This means that changes in alcohol-related harm following implementation of a policy accrue gradually over time. Our modelling accounts for this and the harm reductions presented all relate to the full effect of the policy which is seen in year 20 and each year thereafter.

M17. To achieve the same reduction in alcohol-attributable deaths among all drinkers and high risk drinkers as a €1 MUP, alcohol taxation would need to increase by an estimated 53% and 66% respectively.

M18. These large tax increases would, for some products, lead to price increases of a similar scale to those seen under a €1 MUP. However, whereas tax increases affect all products, price increases under MUP are small or absent for many products and, instead, are targeted on the cheaper and higher strength products which are disproportionately purchased by heavier drinkers. For example, few on-trade prices would increase under MUP while prices rises on wine and spirits would, on average, be lower under MUP than those seen under the tax increases discussed above.

M19. Low risk drinkers would be affected more by the above tax increases when compared to a €1 MUP. Alcohol consumption among low risk drinkers is estimated to fall by 1.4% under a €1 MUP, and by 2.5%, 2.9%, 3.2% and 3.8% for tax increases of 53%, 61%, 66% and 78% respectively.

M20. The above tax increases would also lead to increases in alcohol spending in all groups. Under a €1 MUP, spending on alcohol is estimated to increase by an average of 1.3% with increases of 4.8% among low risk drinkers and decreases of 2.1% in high risk drinkers. In contrast, alcohol spending is estimated to increase by 6.4%, 7.2%, 7.6% and 8.6% among all drinkers under tax increases of 53%, 61%, 66% and 78% respectively. For low risk drinkers, the equivalent figures are 7.9%, 9.0%, 9.6% and 11.1% and for high risk drinkers the increases are estimated to be 5.1%, 5.6%, 5.8% and 6.3%.

M21. Revenue to the exchequer would be higher under the above tax increases when compared to a €1 MUP. Revenue would fall by an estimated €36m under a €1 MUP but is estimated to rise by €9m, €8m, €7m and €3m for tax increases of 53%, 61%, 66% and 78% respectively.

3 INTRODUCTION

3.1 BACKGROUND

The Sheffield Alcohol Policy Model (SAPM) is a highly influential policy appraisal tool which provides estimates of the impact of a wide range of alcohol policies on a broad spectrum of outcomes and the extent to which these impacts vary across different groups in the population. Successive versions of SAPM have been developed over the past decade by the Sheffield Alcohol Research Group (SARG) at the University of Sheffield and these have been used and adapted across numerous countries, including England, Scotland, Canada and Italy ²⁻⁵.

In 2013 SARG were commissioned by the Irish government to adapt SAPM version 3 (SAPM3) to the Republic of Ireland in order to appraise the potential impact of a range of Minimum Unit Price (MUP) policies and restrictions on below-cost selling and promotions ¹. In 2016 a further analysis was commissioned comparing the estimated impact of a €1 MUP to a range of increases in the current alcohol duty regime in Ireland. The current report presents the results of this work.

3.2 RESEARCH QUESTIONS ADDRESSED

1. Using revised data from the National Alcohol Diary Survey (NADS), what is the estimated impact of a €1 MUP and a ban on below-cost selling (defined as selling alcohol for below the cost of duty plus VAT alone) on alcohol consumption, spending, exchequer revenue, health, crime and workplace outcomes?
2. What percentage increase in current alcohol duties would be required to achieve the same reduction in alcohol consumption among: a) all drinkers b) high risk drinkers only, as a €1 MUP.
3. How would the effect of these two duty rises differ across the population?
4. What percentage increase in current alcohol duties would be required to achieve the same reduction in alcohol-attributable deaths among: a) all drinkers b) high risk drinkers only, as a €1 MUP.
5. How would the effect of these two duty rises differ across the population?

4 METHODS

A detailed description of the methods used in SAPM3 to appraise the impact of MUP policies and a ban on below-cost selling can be found in our previous report to the Irish government ¹. We therefore provide here a brief overview of these methods and a detailed illustration of the way in which SAPM3 models the impact of taxation policies.

4.1 OVERVIEW OF SAPM3

The aim of SAPM3 is to appraise pricing policy options via cost-benefit analyses. The aims have been broken down into a linked series of policy impacts to be modelled:

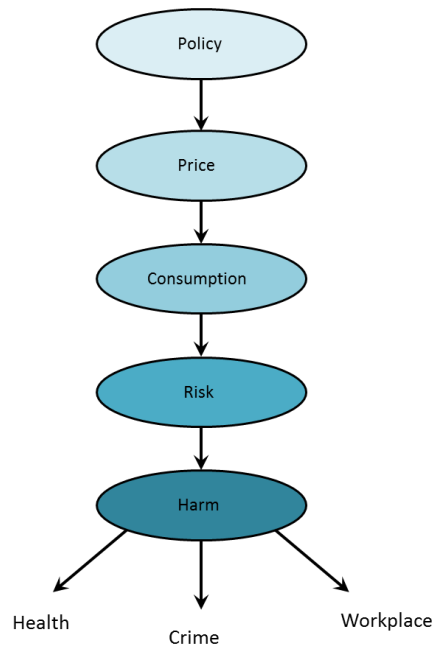
- The effect of the policy on the distribution of prices for different types of alcohol
- The effect of changes in price distributions on patterns of both on-trade and off-trade alcohol consumption
- The effect of changes in alcohol consumption patterns on revenue for the exchequer
- The effect of changes in alcohol consumption patterns on consumer spending on alcohol
- The effect of changes in alcohol consumption patterns on levels of alcohol-related health harms
- The effect of changes in alcohol consumption patterns on levels of crime
- The effect of changes in alcohol consumption patterns on levels of workplace absenteeism.

To estimate these effects, two connected models have been built:

1. A model of the relationship between alcohol prices and alcohol consumption which accounts for the relationship between: average weekly alcohol consumption, the patterns in which that alcohol is drunk and how these are distributed within the population considering gender, age, income and consumption level.
2. A model of the relationship between: (1) both average level and patterns of alcohol consumption, and (2) harms related to health, crime and workplace absenteeism and the costs associated with these harms.

Figure 4.1 illustrates this conceptual framework.

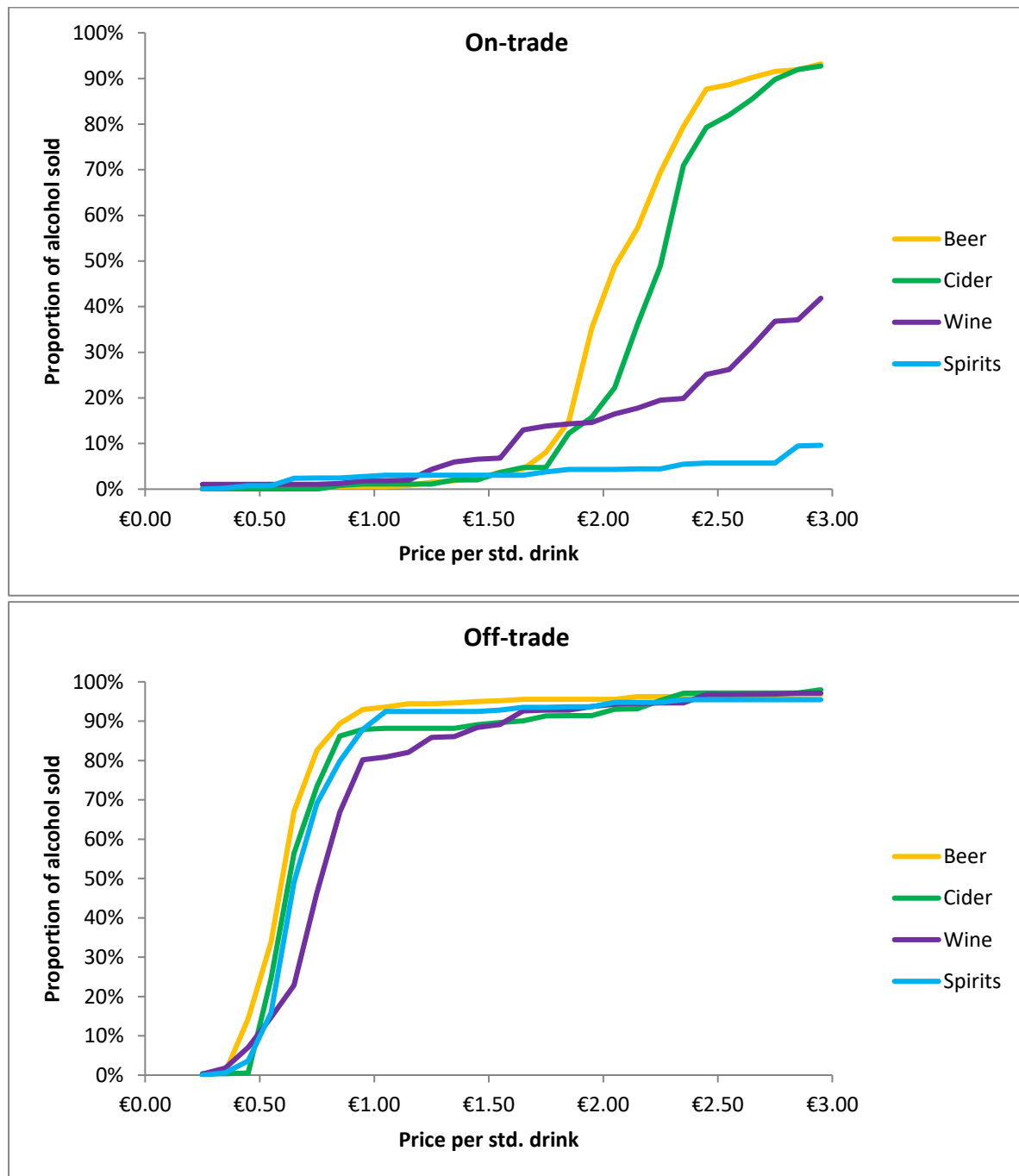
Figure 4.1: High-level conceptual framework of SAPM3



4.2 REVISED PRICING DATA

In 2016 Ipsos MRBI notified the Health Research Board (HRB) that there were some errors in the way in which prices for some wine purchases had been calculated in the 2013 National Alcohol Diary Survey (NADS). Upon being provided with the revised data by HRB we established that these errors affected only derived variables which were not used in previous SAPM analyses for Ireland and did not, therefore, affect their validity. For reference the final price distributions based on NADS data adjusted using market research data from the Nielsen Company are illustrated in Figure 4.2.

Figure 4.2: Final on- and off-trade price distributions used in SAPM3 (2013 prices)



4.3 MODELLING THE IMPACT OF TAX CHANGES ON PRICE

In order to estimate the impact of taxation policies on alcohol consumption it is first necessary to estimate the effect of the policy on the beverage-specific price distributions illustrated in Figure 4.2. This is done by adjusting the transaction level data from the NADS diary as follows:

4.3.1 Modelling the current alcohol taxation structure

The duty rates used in SAPM3 are based on the latest (effective October 2016) rates set by Revenue ⁶. Whilst most beverage types have differential rates of duty based on their alcohol content, the vast majority of products sold within each type are concentrated within a single band, i.e. above 2.8% Alcohol By Volume (ABV) for beer, 2.8%-6.0% ABV for cider and 5.5%-15% for wine. Using the rates from these dominant bands we estimate the average duty paid per standard drink (10g of ethanol). As cider and wine are taxed based on the volume of product, not the volume of ethanol, we assume ABVs of 4.5% and 12.5% respectively. This allows us to estimate the estimated duty per standard drink (both before and after considering the VAT on this duty) for each beverage type, as illustrated in Table 4.1.

Table 4.1: Actual and modelled baseline duty rates for Ireland

Beverage type		Alcoholic strength (ABV)	Applicable duty rate (effective October 2016)	Assumed average ABV	Estimated average duty rate (cents per std. drink)	Estimated tax per std. drink (duty + VAT on duty)
Beer		0.5%-1.2%	Exempt	n/a	€0.29	€0.35
		1.2%-2.8%	€11.27 per hectolitre per cent of ethanol			
		2.8%+	€22.55 per hectolitre per cent of ethanol			
Cider (incl. perry)	Still	1.2%-2.8%	€47.23 per hectolitre of product	4.5%	€0.27	€0.33
		2.8%-6.0%	€94.46 per hectolitre of product			
		6.0%-8.5%	€218.44 per hectolitre of product			
		8.5%+	€309.84 per hectolitre of product			
	Sparkling	1.2%-2.8%	€47.23 per hectolitre of product			
		2.8%-6.0%	€94.46 per hectolitre of product			
		6.0%-8.5%	€218.44 per hectolitre of product			
		8.5%+	€619.70 per hectolitre of product			
Wine	Still	1.2%-5.5%	€141.57 per hectolitre of product	12.5%	€0.43	€0.53
		5.5%-15%	€424.84 per hectolitre of product			
		15%+	€616.45 per hectolitre of product			
	Sparkling	1.2%-5.5%	€141.57 per hectolitre of product			
		5.5%+	€849.68 per hectolitre of product			
Spirits & spirit-based RTDs		All	€42.57 per litre of ethanol	n/a	€0.54	€0.66

4.3.2 Modelling the impact of changing duty rates

For the analysis in this report we estimate the impact of a flat percentage increase in current alcohol duties (i.e. all duty rates are increased by the same relative amount). If we call this increase $x\%$ then, for each beverage type i , we can express the change in price per standard drink as:

$$\delta_i^* = \delta_i \times x\% \times (1 + VAT)$$

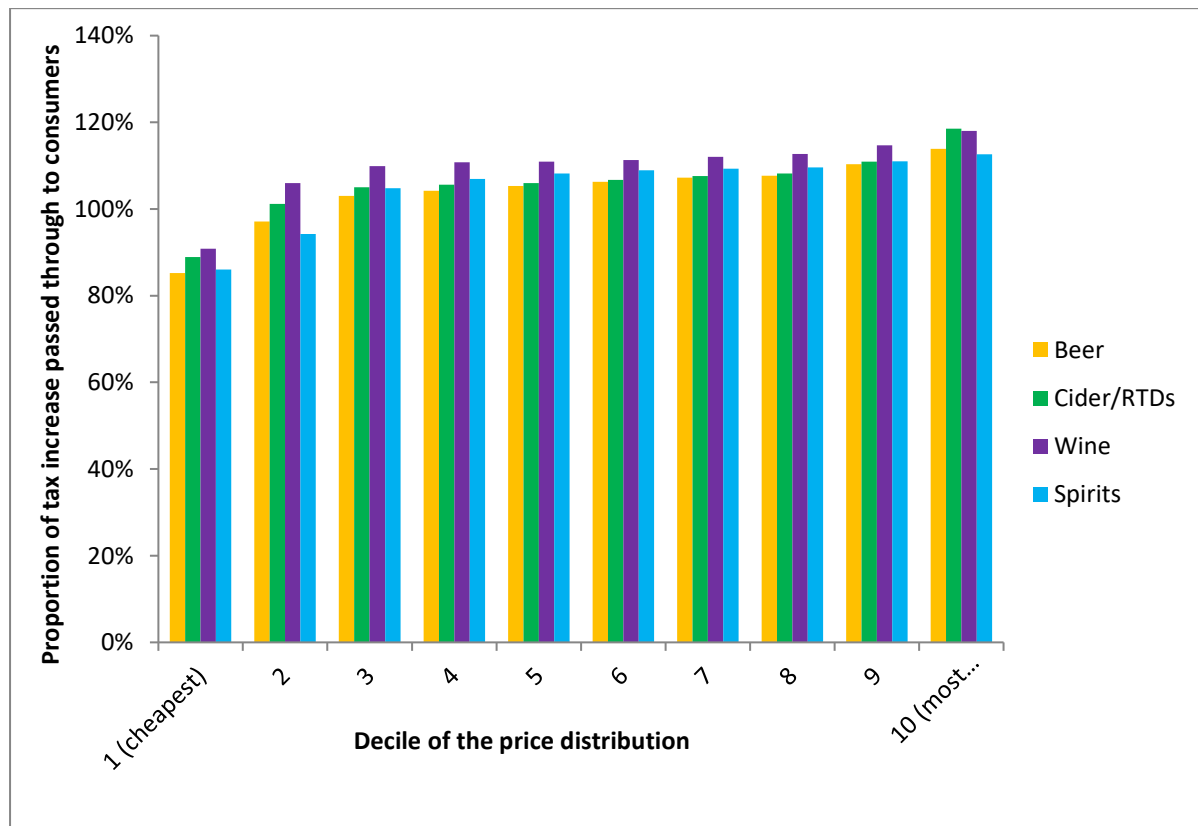
Where δ_i^* is the change in price per standard drink, δ_i is the baseline duty per standard drink and VAT is the VAT rate.

This beverage-specific increase in price is applied to all purchase transactions in the NADS data.

4.3.3 Modelling tax passthrough

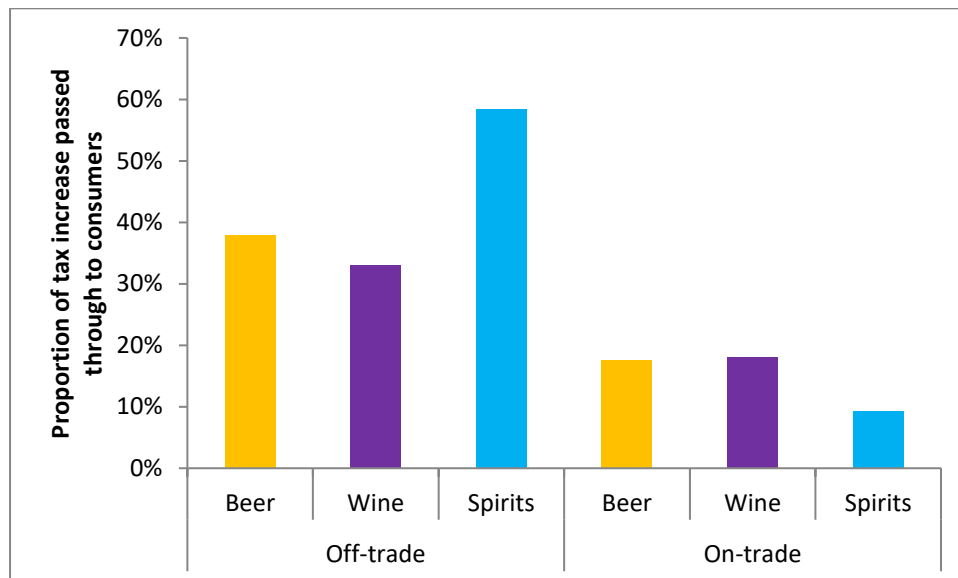
Several previous studies have illustrated that the extent to which changes in alcohol duty and VAT are passed through to consumers varies by purchase location (i.e. pubs and bars or supermarkets and off-licences), beverage type and baseline price. We identified two recent such studies which are relevant to the Irish context. The first, from Ally et al. looked only at off-trade purchases (i.e. where alcohol is bought for consumption off the premises, such as in supermarkets) in England between 2008-2011 and found that when tax increases the price of cheaper products is under-shifted (i.e. the price increase is lower than would be expected given the tax increase) while more expensive products are over-shifted (i.e. the price increase is greater than the increase in tax)⁷. This gradient is observed across all beverage types. It is also notable that beer and spirits see lower rates of pass-through across the entire price distribution than wine. These rates are illustrated in Figure 4.3.

Figure 4.3: Off-trade tax passthrough rates taken from Ally et al. 2014 (Table S1)



A second study, published by RAND Europe, looked at the impact of tax changes on the prices of lager, stout, wine, whiskey and brandy in both on- and off-trades in Ireland between 1993-2010⁸. The authors found that on average prices were under-shifted in response to tax changes, with prices increased by only 33%-67% of what would be expected in the off-trade and 0%-18% in the on-trade. These figures, aggregated by beverage category using sales volume data from the Nielsen Company for 2013, are illustrated in Figure 4.4.

Figure 4.4: Passthrough rates estimated from Rabinovich et al. 2012



Whilst the RAND study uses Irish data and covers both on- and off-trade, the observed price changes in the data used were generally small compared to the level of change expected in the present analyses. It may not be plausible that a retailer facing a 50% increase in alcohol duty rates would opt to absorb the vast majority of this price increase as suggested by the RAND estimates. Further, these figures do not account for variation across the pricing spectrum, which is a key influence on the differential impact of pricing policies within the population. We therefore use the results of Ally et al. throughout this report and test the impact of applying the RAND figures instead in a sensitivity analysis.

This evidence is incorporated in SAPM3 by first sifting through off-trade transaction level prices for each beverage type (i) and determining the price per unit band, on the price distribution, at which the beverage price falls in. Thereafter, a post duty increase per unit price (p_i^*) is calculated by summing the baseline per unit price (p_i) of beverage i and the product of duty plus VAT per unit increase (δ_i^*) and corresponding passthrough rate:

$$p_i^* = p_i + \delta_i^* \times (\text{passthrough rate})$$

For instance, if the baseline price of beer sold in the off-trade is in the lowest decile of prices per unit then a pass-through rate of 0.852 would be applied to any duty increase. As this study did not cover on-trade price changes we assume a passthrough rate of 1 for all products.

4.4 EQUIVALISATION OF POLICIES

A key objective of this analysis is to establish the level taxation increases which are required in order to achieve equivalent outcomes, across a range of measures, as a €1 MUP policy. This process involves first modelling the impact of a €1 MUP and establishing the changes in the specific outcomes of interest. For the present analysis these outcomes are:

- 1) The change in mean alcohol consumption of the population
- 2) The change in mean alcohol consumption of high risk drinkers[‡]
- 3) The change in annual alcohol-attributable deaths in the population
- 4) The change in annual alcohol-attributable deaths in high risk drinkers

For each outcome an iterative process is adopted in which successive duty rises are modelled using the methodology described in Section 4.3 until the level of duty rise is identified which produces the same effect as a €1 MUP (with an acceptable margin of error of <0.05 units or deaths/year). This is identical to the approach adopted in similar recent analyses for England⁹ and Scotland³.

[‡] As previously, we define low risk drinkers as those consuming no more than 16.8/11.2 std. drinks per week for men and women respectively. Increasing risk drinkers are those drinking above these levels, but no more than 40/28 std. drinks per week respectively, and high risk drinkers are those consuming above these levels.

5 RESULTS

SAPM3 produces estimates of the impact of a wide range of policies on a broad range of outcomes. The synthesis of data used in the model also provides insights into the baseline (i.e. current) consumption and spending patterns across the population as well as the distribution of alcohol-related harm. These findings are presented here, followed by model results in 3 main sections:

- 1) Estimated impacts of a €1 MUP policy and a ban on below-cost selling (defined as selling below the cost of duty + VAT on that duty)[§]
- 2) Estimation of the taxation increases required to achieve the same reductions in average consumption and annual alcohol-attributable mortality for both the whole population and high risk drinkers only, and the estimated differences in the scale and distribution of impacts of these policies across all model outcomes
- 3) Results of the sensitivity analysis using alternative tax passthrough rates.

For all policies examined we present the impact on alcohol consumption, spending, exchequer revenue, alcohol-attributable mortality and hospital admissions, alcohol-related crime and workplace absence, and examine the extent to which these impacts vary by drinker groups.

5.1 BASELINE DATA

5.1.1 Alcohol consumption and spending

Table 5.1 presents the baseline distribution of the population between drinker groups, alongside the mean consumption and spending of drinkers. This is illustrated in Figure 5.1, which shows the breakdown of all alcohol consumed, and all spending on alcohol, by drinker group. This highlights that high risk drinkers, who account for 5% of the overall population, and 7% of all drinkers, consume 29% of all alcohol drunk, and account for 22% of the total value of alcohol purchases.

Table 5.1: Baseline alcohol consumption and spending by drinker group

	All drinkers	Low risk	Increasing risk	High risk
Drinker population	2,766,183	1,999,240	582,424	184,520
% of all drinkers	100.0%	72.3%	21.1%	6.7%
Baseline consumption per drinker per year (std. drinks)	628	236	1,140	3,260
Baseline spending per drinker per year	€1,175	€508	€2,218	€5,120

[§] While, as outlined in Section 4.2, changes to the NADS data have not affected the model results, minor updates have been made to both the crime component of the model and the way in which we model the ban on below-cost selling. The results presented in this section are therefore similar, but not identical to the equivalent results in our previous report.

Figure 5.1: Distribution of population, total alcohol consumption and total spending on alcohol across drinker groups

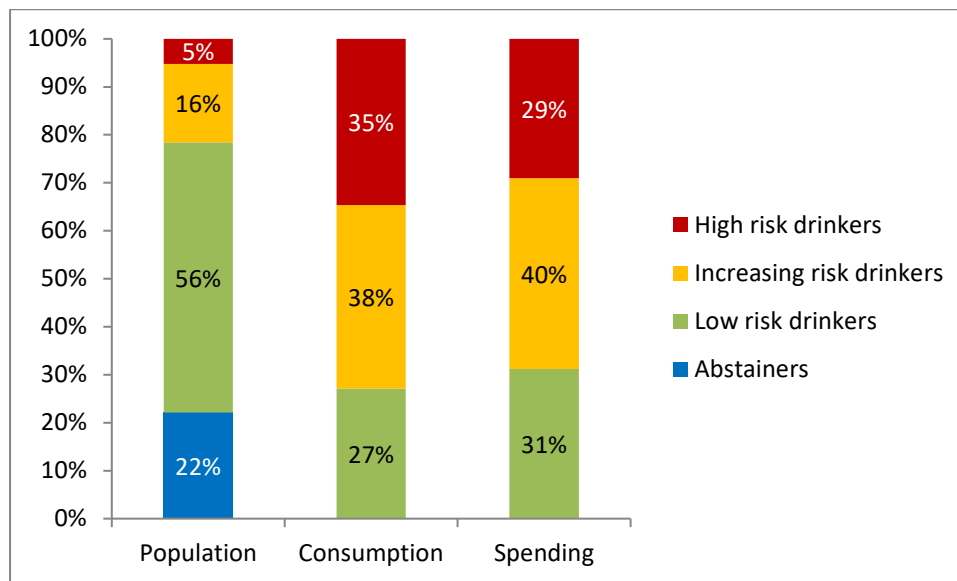


Figure 5.2 and Figure 5.3 illustrate findings from the NADS data showing the breakdown of alcohol consumed by beverage type and channel (on- vs. off-trade). The variations shown here are key to understanding the differences in impact of MUP and taxation policies across different beverage types and channels. Figure 5.2 shows that, for all drinker groups, beer is the dominant beverage in Ireland, followed by wine. Heavier drinkers consume a greater proportion of their alcohol intake as beer (57%) and cider (14%) compared to low risk drinkers (47% and 9% respectively), and a smaller proportion as wine and spirits (15% and 13% respectively, compared to 26% and 17% for low risk drinkers).

Figure 5.2: Beverage preferences by drinker group

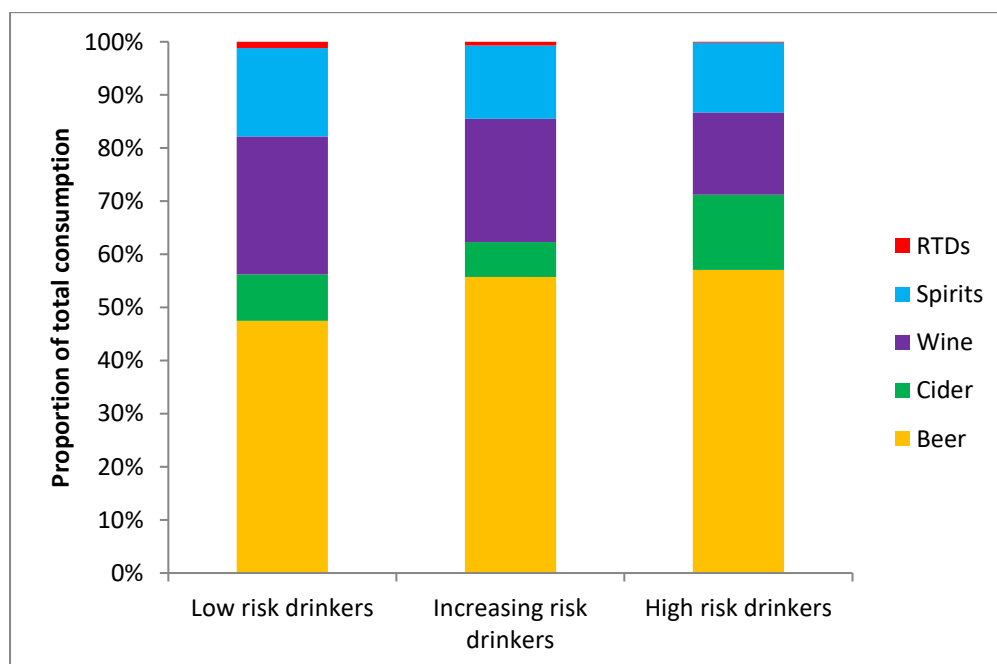


Figure 5.3 shows that low and increasing risk drinkers consume the majority of their alcohol in the on-trade (58% and 57% respectively), while high risk drinkers have a slight preference for the off-trade (53%).

Figure 5.3: Drinking location by drinker group

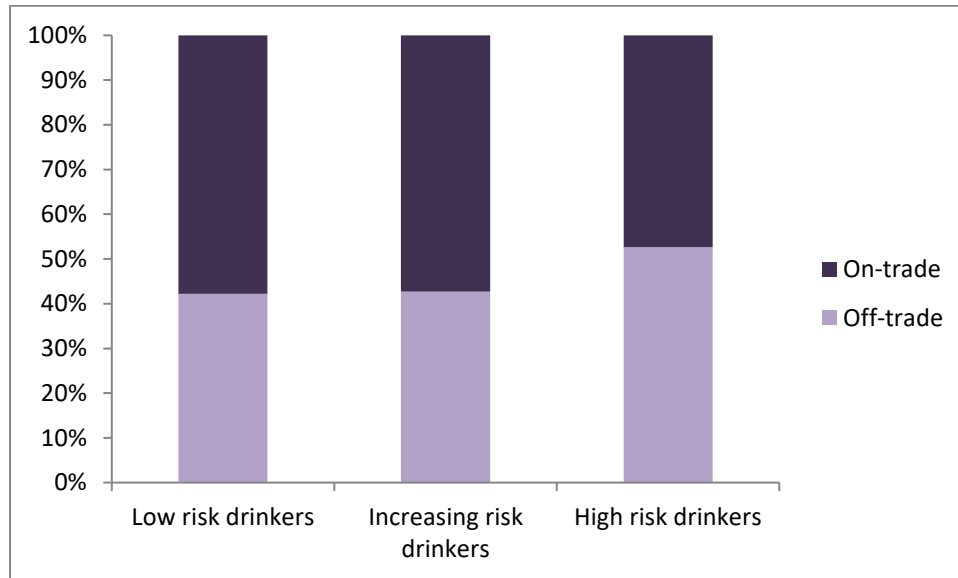


Figure 5.4 presents the variation in average prices paid across beverage types and drinker groups. This illustrates that heavier drinkers pay less per unit for their alcohol across all beverage types, with the steepest gradient observed for wine. This variation in prices is a combination of the fact that high risk drinkers consume a slightly greater proportion of their alcohol in the off-trade, where prices are typically lower, and the fact that they chose cheaper products on average within each sector.

Figure 5.4: Mean prices paid by beverage type and drinker group

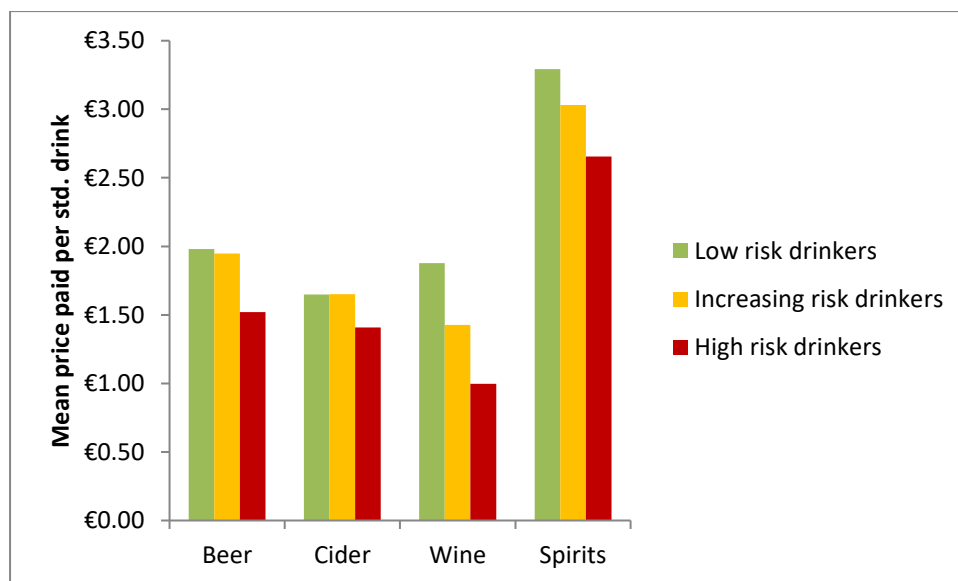


Figure 5.5 shows the overall breakdown of alcohol consumption across the 10 beverage and channel categories, separating out purchases made at below €1 per std. drink. This highlights that almost no

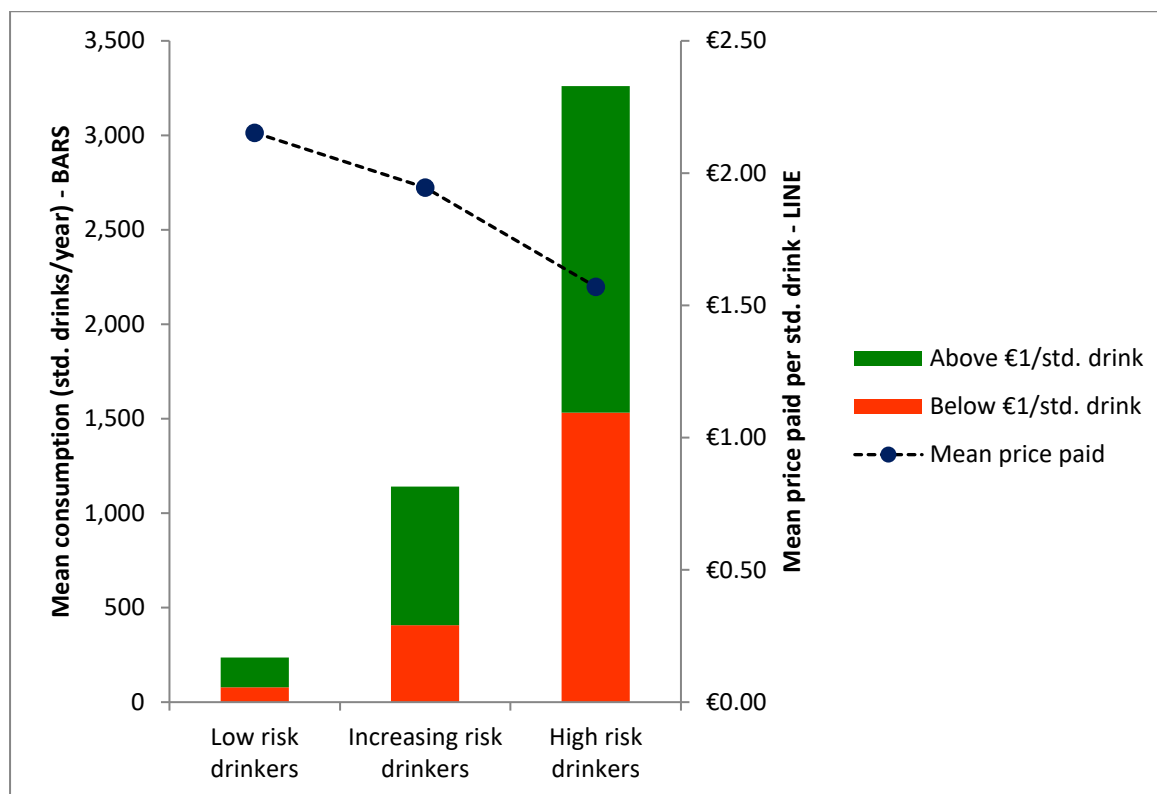
alcohol in the on-trade is sold below €1 per std. drink, while the greatest number of units bought at below €1 per std. drink are purchased as beer and wine in the off-trade.

Figure 5.5: Distribution of all alcohol consumed by beverage type and channel, including purchasing below €1 per std. drink



The final graph in this section, Figure 5.6, shows how purchasing prices vary by drinker group. For each group it shows mean alcohol consumption (the bars), and the proportion of each group's consumption which is alcohol bought for below €1 per std. drink (the orange section of each bar). The graph also shows the mean price paid across all alcohol for each group (the blue lines). This highlights that high risk drinkers purchase a greater proportion (47%) and a much greater absolute volume (1532 std. drinks per year) of their alcohol for below €1 per std. drink than low risk drinkers (34% and 79 std. drinks per year). As a result they pay significantly less (€1.57 vs. €2.15) for each std. drink they buy.

Figure 5.6: Mean consumption, units purchased below €1 per std. drink and mean prices paid by drinker group



5.1.2 Alcohol-related harm

Table 5.2 separates out and presents the total number of deaths and hospital admissions per year at baseline which are estimated to be alcohol-attributable, i.e. only those which would not have occurred if the entire population abstained from drinking. This shows that cancer is the biggest single cause of alcohol-attributable deaths, followed by liver disease. It also shows that the contended protective effects of alcohol on cardiovascular diseases and diabetes (which we take on face value, although they are much debated and disputed^{10,11}) also prevent a substantial number of deaths (seen as negative numbers in the table). A slightly different pattern is observed for hospital admissions, with mental and behavioural disorders due to alcohol (including alcohol dependence) being the single largest cause of alcohol-attributable admissions, followed by cancers and hypertension. The relative protective effects are smaller than for mortality, however a significant number of admissions are estimate to be averted, particularly for diabetes. These patterns, excluding protective conditions, are illustrated in Figure 5.7.

Table 5.2: Estimated baseline annual deaths and hospital admissions which are attributable to alcohol

	Annual alcohol-attributable deaths	Annual alcohol-attributable hospital admissions
Liver disease	405	4,095
Mental and behavioural disorders due to use of alcohol	184	15,715
Alcohol poisoning	183	630
Other wholly alcohol-attributable conditions	14	941
Cancers	499	14,620
Hypertension	48	12,950
Stroke	52	1,221
Other cardiovascular conditions	-485	-1,056
Diabetes (type II)	-29	-3,484
Other chronic conditions	26	4,091
Road traffic accidents	100	1,798
Falls	72	4,368
Other injuries	200	3,073

Figure 5.7: Breakdown of estimated baseline annual alcohol-attributable deaths and hospital admissions by cause (excluding protective conditions)

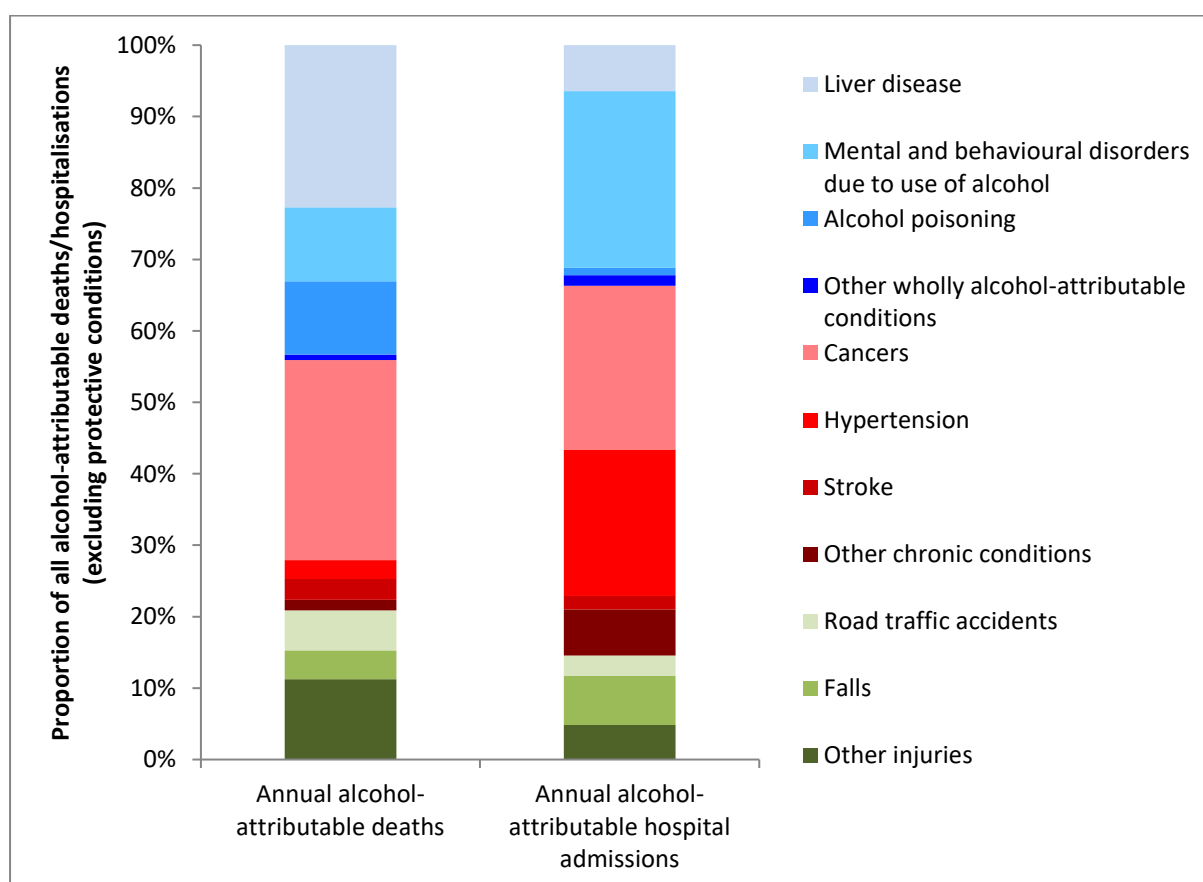


Table 5.3 presents the overall baseline annual alcohol-attributable mortality and hospital admission rates by drinker group; showing the steep gradients in harm, with heavier drinkers suffering more harm as a result of their drinking.

Table 5.3: Baseline alcohol-attributable death and hospital admission rates by drinker group

	Baseline deaths per 100,000 drinkers per year	Baseline hospital admissions per 100,000 drinkers per year
All drinkers	46	2,131
Low risk drinkers	-3	402
Increasing risk drinkers	85	4,016
High risk drinkers	454	14,918

5.2 MODELLED IMPACTS OF A €1 MUP AND A BAN ON BELOW-COST SELLING

5.2.1 Estimated effects on consumption, spending and exchequer revenue

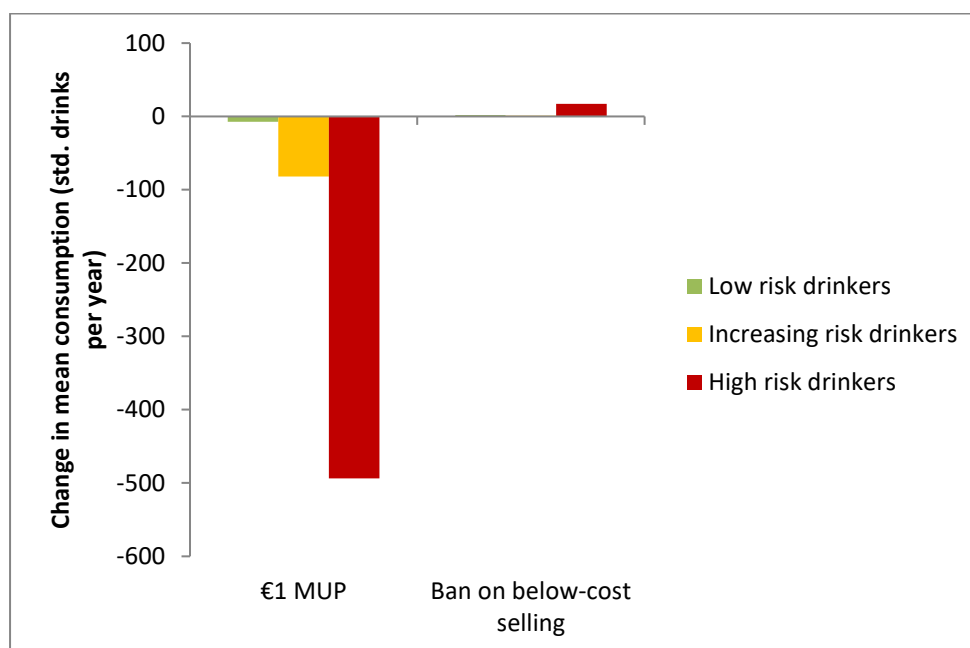
The modelled impact of a €1 MUP and a ban on the sale of alcohol for below the cost of duty plus VAT alone on alcohol consumption are shown in Table 5.4 and illustrated in Figure 5.8. These results show that a €1 MUP has an extremely targeted impact on drinking, with low risk drinkers largely unaffected (-7 std. drinks per year, roughly equivalent to 3.5 pints of beer or a bottle of wine) while high risk drinkers are estimated to reduce their consumption substantially (-494 std. drinks, roughly equivalent to 22 bottles of vodka a year or 1.4 bottles of wine a week). In contrast, a ban on below-cost selling is estimated to have an extremely small impact on consumption, with drinking actually estimated to increase slightly as a result of substitution effects**.

Table 5.4: Estimated impact of price policies on alcohol consumption by drinker group

	Baseline consumption (std. drinks per drinker per year)	Absolute change		Relative change	
		€1 MUP	Ban on below-cost selling	€1 MUP	Ban on below-cost selling
All drinkers	628	-55	3	-8.8%	0.4%
Low risk drinkers	236	-7	2	-3.1%	0.7%
Increasing risk drinkers	1,140	-82	1	-7.2%	0.1%
High risk drinkers	3,260	-494	17	-15.1%	0.5%

** A ban on below cost selling is estimated to affect only a tiny proportion of the off-trade spirits and, to a lesser extent, wine markets. Econometric evidence suggests that both on- and off-trade beer are substitutes for off-trade spirits¹² and as beer makes up a much greater proportion of overall consumption in Ireland, the net effect of this substitution is a small estimated overall increase in mean consumption.

Figure 5.8: Absolute change in alcohol consumption by drinker group

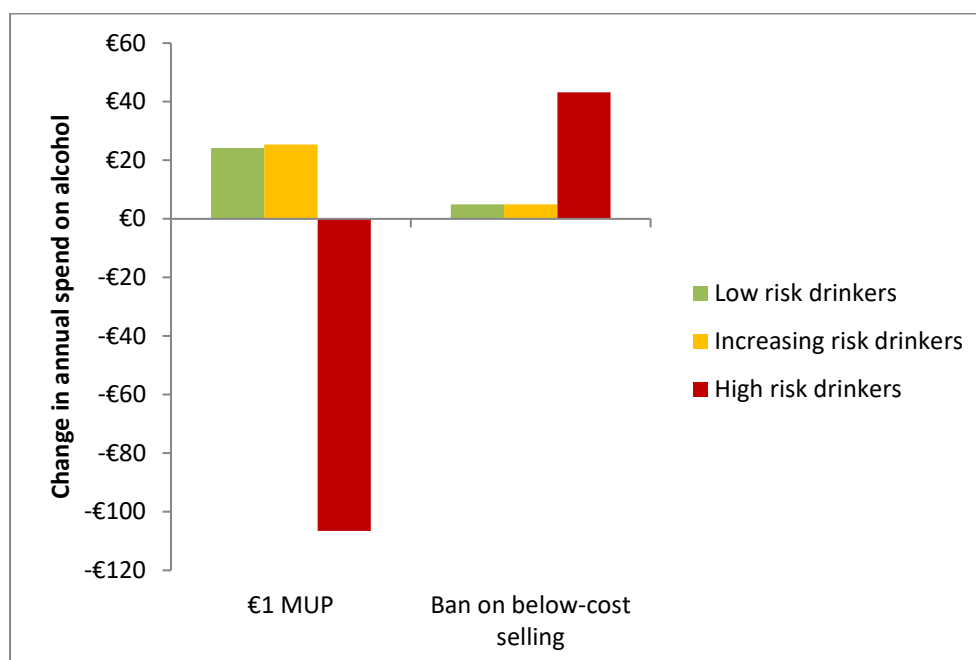


Estimates of the impact of a €1 MUP and a ban on below-cost selling are presented in Table 5.5 and illustrated in Figure 5.9. These show that, for a €1 MUP, the effects on spending are estimated to be modest, with low risk drinkers spending an additional €24 per year on alcohol, while high risk drinkers reduce their spending by €107. The effects of a ban on below-cost selling are again small, amounting to an increase of no more than 1% in annual spending on alcohol.

Table 5.5: Estimated impact of price policies on spending on alcohol by drinker group

	Baseline spending (per drinker per year)	Absolute change		Relative change	
		€1 MUP	Ban on below-cost selling	€1 MUP	Ban on below-cost selling
All drinkers	€1,175	€16	€7	1.3%	0.6%
Low risk drinkers	€508	€24	€5	4.8%	1.0%
Increasing risk drinkers	€2,218	€25	€5	1.1%	0.2%
High risk drinkers	€5,120	-€107	€43	-2.1%	0.8%

Figure 5.9: Absolute change in spending on alcohol by drinker group

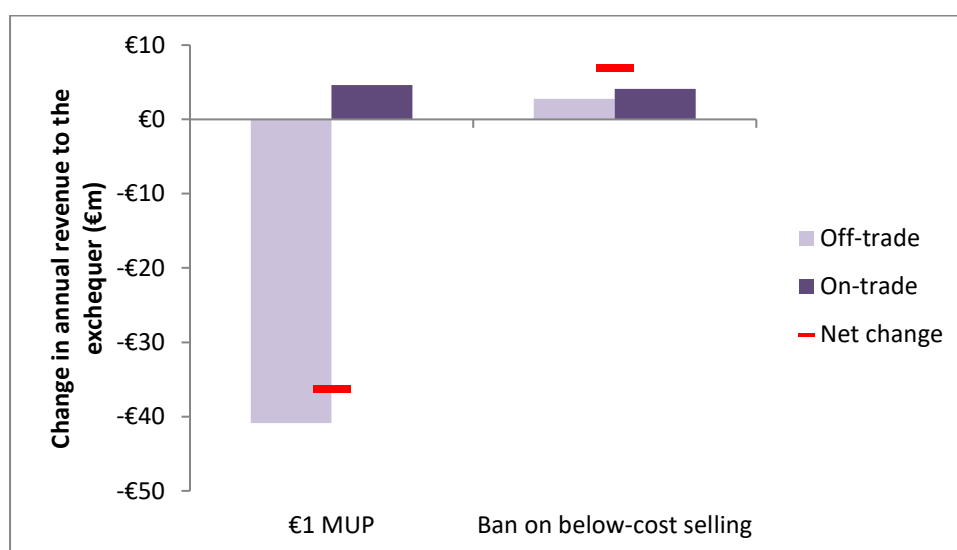


The modelled impact of a €1 MUP and ban on below-cost selling on alcohol tax revenue to the exchequer are presented in Table 5.6 and Figure 5.10. These show a similar increase in on-trade duty receipts under both policies of around €4m, but a very different picture in off-trade receipts. A €1 MUP is estimated to reduce the duty take for off-trade alcohol by €41m, giving a net reduction of €36m. In contrast a ban on below-cost selling is estimate to marginally increase on-trade revenue as a result of the small increase in consumption, leading to a net increase of €7m in duty receipts.

Table 5.6: Estimated changes in annual exchequer revenue by channel

	Baseline annual revenue (€ millions)	Absolute change (€ millions)		Relative change	
		€1 MUP	Ban on below- cost selling	€1 MUP	Ban on below- cost selling
Off-trade	€480	-€40.9	€2.8	-8.5%	0.6%
On-trade	€882	€4.6	€4.1	0.5%	0.5%
Total	€1,362	-€36.3	€6.9	-2.7%	0.5%

Figure 5.10: Absolute changes in annual excise revenue by channel



5.2.2 Estimated effects on health, crime and workplace harms

The estimated impacts of a €1 MUP policy and a ban on below-cost selling on alcohol-attributable mortality are illustrated in Table 5.7. As there are significant differences in the sizes of the 3 drinker groups, a more informative comparison of the relative impact of each policy across the groups is given by the alcohol-attributable death rates. These are shown, per 100,000 drinkers, in Table 5.8 and illustrated in Figure 5.11. These figures provide further evidence of the highly targeted nature of a €1 MUP policy, with 65% of the estimated total reduction in annual alcohol-attributable deaths coming in the high risk drinker group, who comprise only 5% of the adult population. Among low risk drinkers, alcohol-attributable deaths per 100,000 drinkers are estimated to reduce by 1 per year, compared to 69 per year among high risk drinkers. A ban on below-cost selling is estimated to have almost no effect on alcohol-attributable mortality.

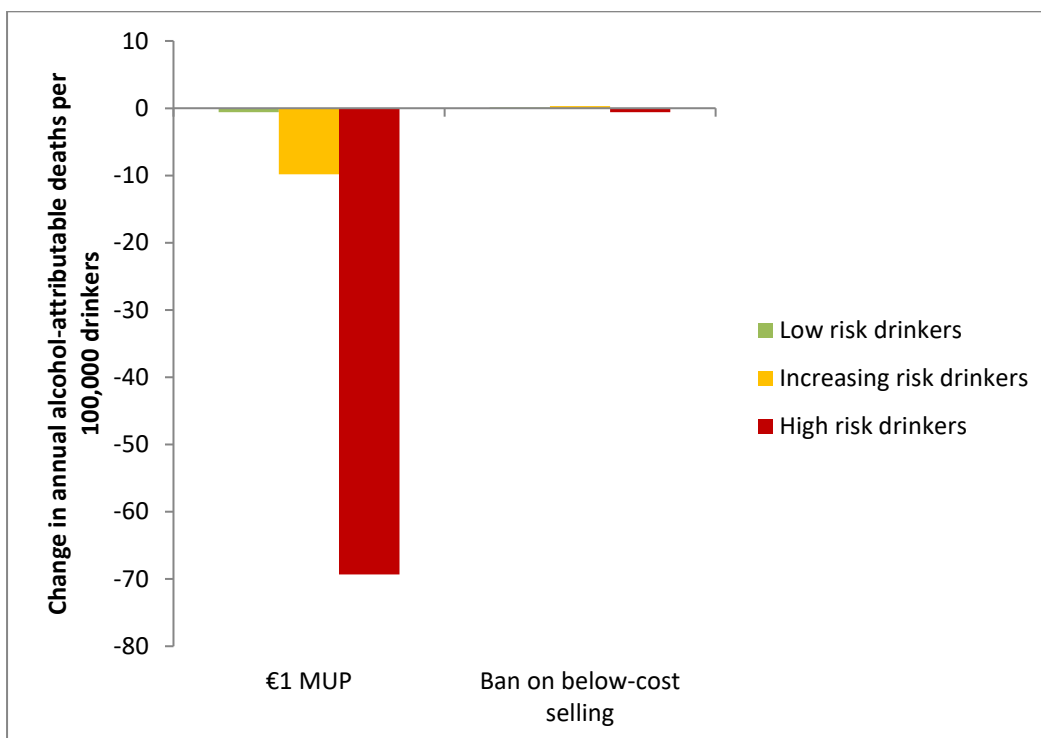
Table 5.7: Estimated changes in annual alcohol-attributable deaths by drinker group

	Baseline annual alcohol-attributable deaths	Absolute change		Relative change	
		€1 MUP	Ban on below-cost selling	€1 MUP	Ban on below-cost selling
All drinkers	1,270	-197	3	-15.5%	0.2%
Low risk drinkers	63	-12	2	18.8%	-3.5%
Increasing risk drinkers	496	-57	2	-11.5%	0.4%
High risk drinkers	837	-128	-1	-15.3%	-0.1%

Table 5.8: Estimated changes in annual alcohol-attributable death rates by drinker group

	Baseline annual alcohol-attributable deaths per 100,000 drinkers	Absolute change		Relative change	
		€1 MUP	Ban on below-cost selling	€1 MUP	Ban on below-cost selling
All drinkers	46	-7	0	-15.5%	0.2%
Low risk drinkers	-3	-1	0	18.8%	-3.5%
Increasing risk drinkers	85	-10	0	-11.5%	0.4%
High risk drinkers	454	-69	-1	-15.3%	-0.1%

Figure 5.11: Absolute changes in alcohol-attributable mortality by drinker group



Equivalent model results showing the estimated impact on hospital admissions are shown in Table 5.9, Table 5.10 and Figure 5.12. These show very similar patterns to the effects on mortality, with 62% of the estimated 5,878 fewer alcohol-attributable admissions each year under a €1 MUP coming in the high risk drinker group. Among low risk drinkers the annual rate of alcohol-attributable admissions per 100,000 drinkers is estimated to reduce by 28, compared to 1,964 among high risk drinkers. Again the impact of a ban on below-cost selling is small.

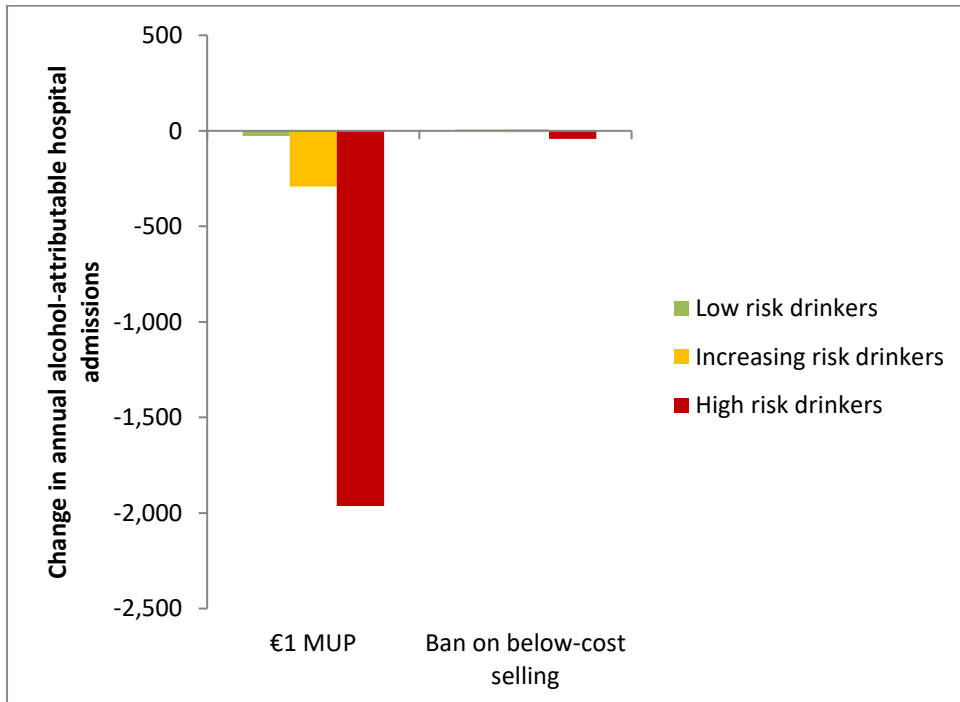
Table 5.9: Estimated changes in alcohol-attributable hospital admissions by drinker group

	Baseline annual alcohol-attributable hospital admissions	Absolute change		Relative change	
		€1 MUP	Ban on below-cost selling	€1 MUP	Ban on below-cost selling
All drinkers	58,961	-5,878	117	-10.0%	0.2%
Low risk drinkers	8,042	-553	142	-6.9%	1.8%
Increasing risk drinkers	23,392	-1,702	53	-7.3%	0.2%
High risk drinkers	27,527	-3,623	-77	-13.2%	-0.3%

Table 5.10: Absolute changes in alcohol-attributable hospital admission rates by drinker group

	Baseline annual alcohol-attributable hospital admissions per 100,000 drinkers	Absolute change		Relative change	
		€1 MUP	Ban on below-cost selling	€1 MUP	Ban on below-cost selling
All drinkers	2,131	-212	4	-10.0%	0.2%
Low risk drinkers	402	-28	7	-6.9%	1.8%
Increasing risk drinkers	4,016	-292	9	-7.3%	0.2%
High risk drinkers	14,918	-1,964	-42	-13.2%	-0.3%

Figure 5.12: Absolute changes in alcohol-attributable hospital admission rates by drinker group

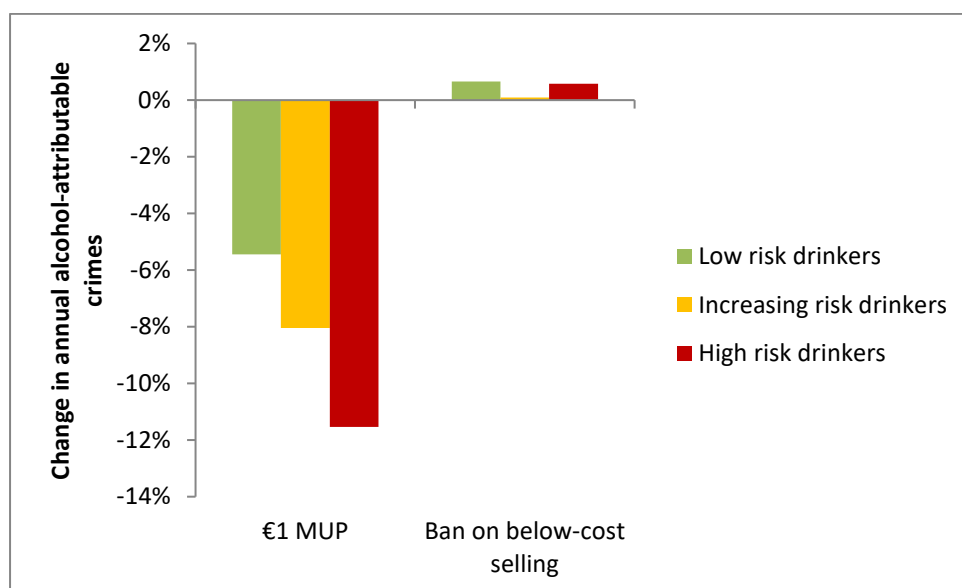


Modelled estimates of the impact of a €1 MUP and a ban on below-cost selling on annual alcohol-related criminal offences are shown in Table 5.11 and illustrated in Figure 5.13. Owing to a lack of robust evidence we do not assume a differential baseline crime rate between drinker groups, just a differential rate of alcohol-attribution for those crimes. As a result, the gradient in effect across the drinker spectrum is much less clear than for mortality and hospital admissions, where we do have clear evidence of differential baseline harm. The absolute reduction in offences under a €1 MUP is estimated to be similar, around 500 per year, in all 3 drinker groups, although the difference in size of the groups means that the relative effect does vary, from a 5.4% reduction in low risk drinkers to an 11.5% reduction in high risk drinkers. Once again the impact of a ban on below-cost selling is estimated to be small.

Table 5.11: Estimated changes in annual alcohol-related crimes by drinker group

	Baseline annual alcohol-attributable crimes	Absolute change		Relative change	
		€1 MUP	Ban on below-cost selling	€1 MUP	Ban on below-cost selling
All drinkers	19,778	-1,518	87	-7.7%	0.4%
Low risk drinkers	8,564	-467	57	-5.4%	0.7%
Increasing risk drinkers	6,951	-559	6	-8.0%	0.1%
High risk drinkers	4,263	-492	25	-11.5%	0.6%

Figure 5.13: Relative changes in annual alcohol-related crime volumes by drinker group

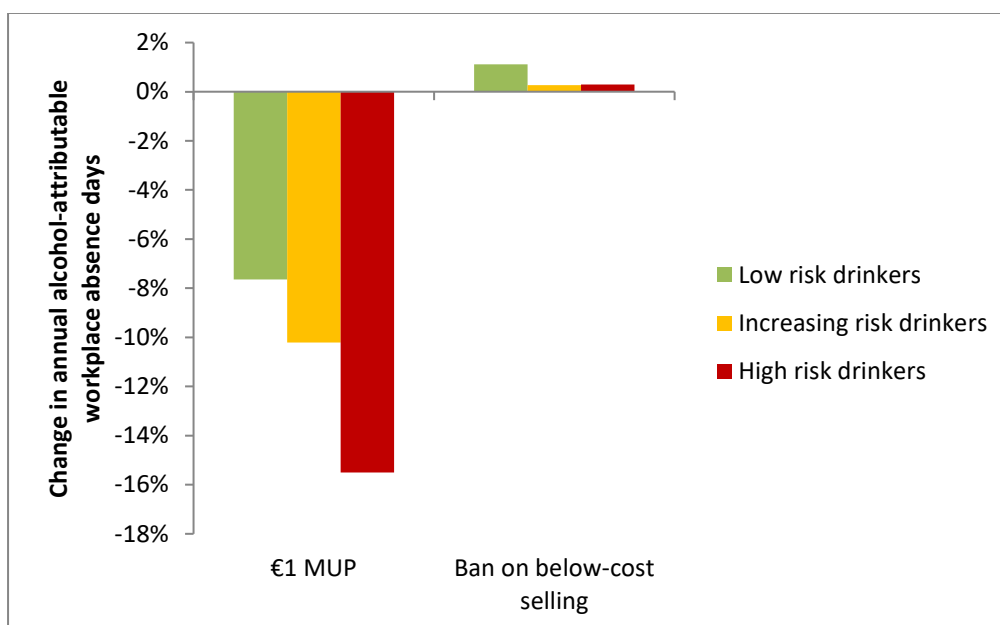


Finally, Table 5.12 and Figure 5.14 present estimates of the effects of a €1 MUP policy and a ban on below cost selling on alcohol-attributable workplace absence. These show a very similar picture to the estimates for crime, with a significant gradient in the relative effects of the policy across drinker groups, from a 7.6% reduction in days lost per year among low-risk drinkers to a 15.5% reduction in high risk drinkers.

Table 5.12: Estimated changes in annual workplace absence due to alcohol by drinker group

	Baseline annual alcohol-attributable workplace days absent (1,000s)	Absolute change		Relative change	
		€1 MUP	Ban on below-cost selling	€1 MUP	Ban on below-cost selling
All drinkers	1,107	-116	7	-10.4%	0.6%
Low risk drinkers	434	-33	5	-7.6%	1.1%
Increasing risk drinkers	414	-42	1	-10.2%	0.3%
High risk drinkers	258	-40	1	-15.5%	0.3%

Figure 5.14: Relative changes in workplace absence due to alcohol by drinker group



5.3 MODELLED IMPACTS OF TAXATION POLICIES EQUIVALENT TO A €1 MUP

5.3.1 Equivalisation of duty increases

The results presented in Section 5.2 illustrate the estimated level of impact of a €1 MUP on various outcome measures in Ireland. In this section we illustrate the level of increase in alcohol duty which would be required to achieve these same impacts across 4 separate measures:

- 1) The change in average consumption of all drinkers
- 2) The change in average consumption of high risk drinkers
- 3) The change in annual alcohol-attributable deaths in all drinkers at full effect (i.e. after 20 years from policy implementation when the full health impacts of the policy have been achieved)
- 4) The change in annual alcohol-attributable deaths in high risk drinkers at full effect

As outlined in Section 4.3.2, duty increases are modelled as a flat percentage increase in current rates. Table 5.13 presents the results of the equivalisation process, showing the estimated reduction in consumption and alcohol-attributable mortality at full effect in all drinker groups, with coloured cells representing the equivalised pairs. The respective increases in taxation to identify the 4 aims listed above are identified as follows:

- 1) 52.71% - hence 53%
- 2) 61.28% - hence 61%
- 3) 66.20% - hence 66%
- 4) 78.38% - hence 78%

Table 5.13: Equivalisation of impacts of duty increases with a €1 MUP

		Baseline	€1 MUP	53% duty rise	61% duty rise	66% duty rise	78% duty rise
Alcohol consumption (std. drinks per year)	All drinkers	628	-55	-47	-55	-60	-73
	Low risk drinkers	236	-7	-12	-15	-16	-19
	Increasing risk drinkers	1,140	-82	-79	-93	-101	-122
	High risk drinkers	3,260	-494	-321	-377	-410	-494
Annual alcohol-attributable deaths	All drinkers	1,270	-197	-197	-231	-251	-299
	Low risk drinkers	-63	-12	-21	-24	-26	-31
	Increasing risk drinkers	496	-57	-77	-89	-97	-115
	High risk drinkers	837	-128	-100	-118	-128	-153

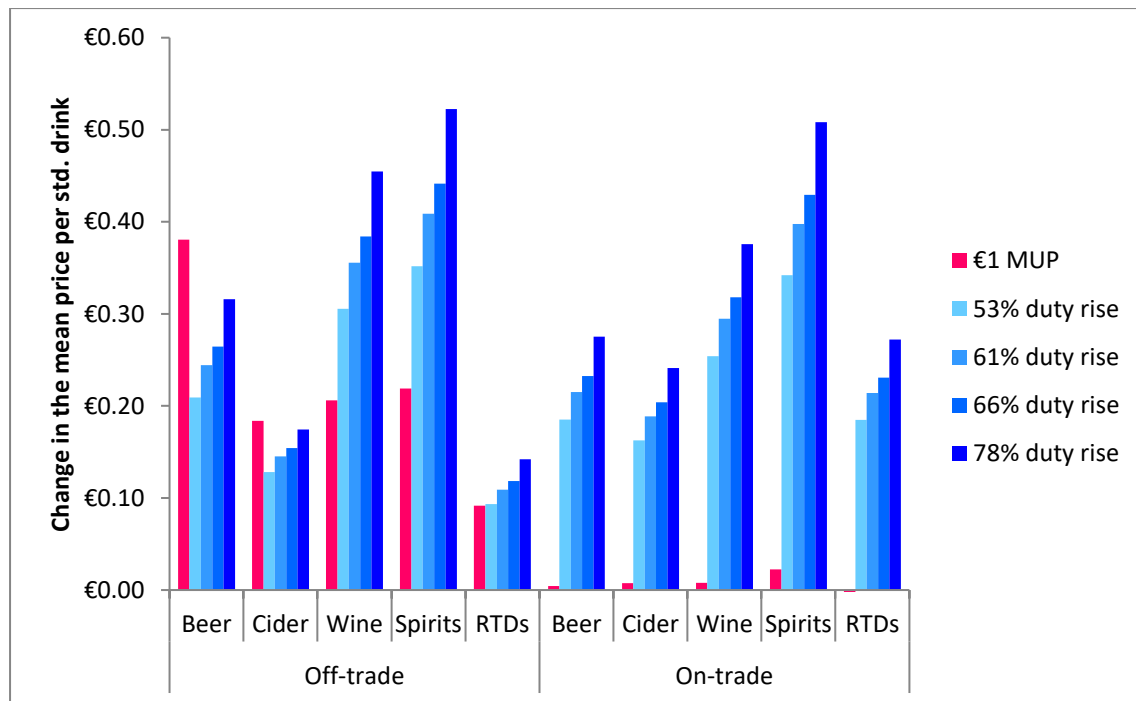
5.3.2 Comparative effects of MUP and duty policies on price

The equivalisation process ensures that the identified increases in duty produce the same effect as a €1 MUP policy on the specific outcome measure used in the equivalisation process, however this does not guarantee that the effect will be the same across all outcomes. Previous similar studies have found significant distributional differences in the spread of impacts across the population^{3,9}. These differences arise due to the different ways in which an MUP policy and a duty increase change the prices of alcohol. An MUP policy affects only the prices of alcohol currently sold below the selected threshold (i.e. €1 per std. drink)^{††}, while an increase in duty affects the price of all alcohol, whatever the pre-intervention price. These differences were illustrated to some extent in Figure 5.5, which showed that almost no on-trade products would be affected by a €1 MUP. Figure 5.15 illustrates this key difference in greater detail, showing that a €1 MUP would have a greater impact on the price of off-trade beer and cider than any of the modelled duty increases. In contrast the duty increases on the scale modelled here are estimated to lead to greater increases in the prices of off-trade wines and spirits, and also to significantly increase prices in the on-trade, unlike a €1 MUP. Note, however, that this does not illustrate the full picture, as this only shows the change in average

^{††} We assume in our modelling that the prices of products currently sold above €1 per std. drink will not change following the implementation of the policy as there is no legal reason for them to do so. In practice, were an MUP to be implemented, manufacturers and retailers may increase the prices of such products. This would have the effect of increasing the effectiveness of the policy and mean that a larger duty increase would be required to achieve the same effect.

price, not the change in the distribution of prices within each category. This will differ between the two policy approaches partly due to the different mechanisms of action described above, but also as a result of the differential tax passthrough discussed in Section 4.3.3. This also obscures the fact that a €1 MUP is more effective at removing the very cheapest alcohol from the market, as alcohol is likely to still be available for below €1 per std. drink under even large duty increases, unlike a €1 MUP.

Figure 5.15: Estimated changes in average prices paid by beverage type and channel under MUP and duty increase policies



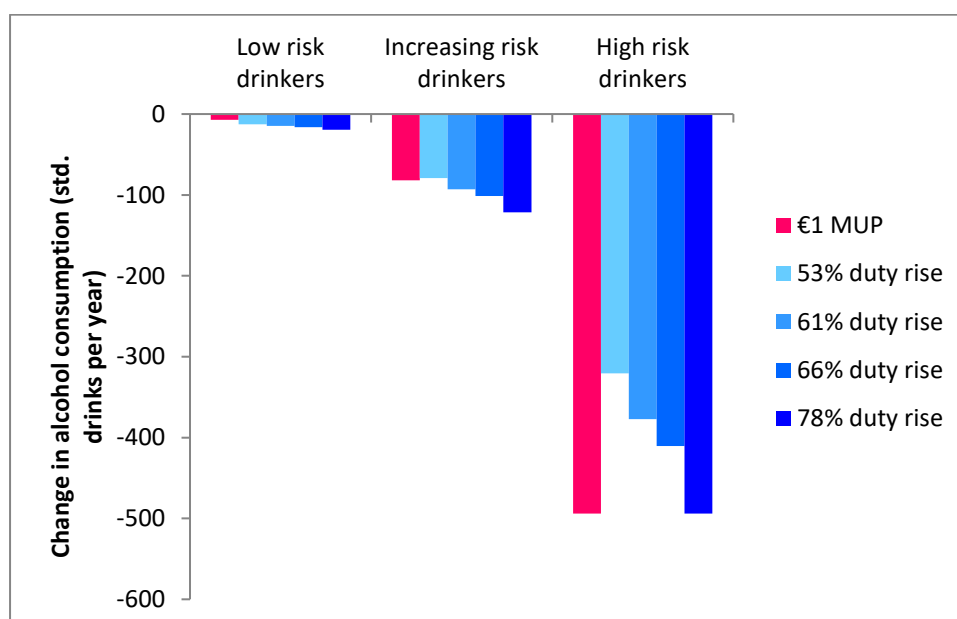
5.3.3 Comparative estimated impact of MUP and duty policies on consumption, spending and exchequer revenue

Detailed relative and absolute estimates of the comparative impact of a €1 MUP and all 4 modelled taxation policies on alcohol consumption are shown in Table 5.14 and Figure 5.16. These results show that a €1 MUP has a substantially lower impact on the drinking of low risk drinkers than any of the modelled duty rises (-7 std. drinks per year compared to -12 to -19), but that the largest of the modelled duty rises is required to achieve the same effect on the consumption of high risk drinkers.

Table 5.14: Estimated impacts of taxation and MUP policies on consumption by drinker group

	Baseline consumption (std. drinks per year)	€1 MUP	53% duty rise	61% duty rise	66% duty rise	78% duty rise
Absolute change						
All drinkers	1,175	-55	-47	-55	-60	-73
Low risk drinkers	508	-7	-12	-15	-16	-19
Increasing risk drinkers	2,218	-82	-79	-93	-101	-122
High risk drinkers	5,120	-494	-321	-377	-410	-494
Relative change						
All drinkers		-4.7%	-4.0%	-4.7%	-5.1%	-6.2%
Low risk drinkers		-1.4%	-2.5%	-2.9%	-3.2%	-3.8%
Increasing risk drinkers		-3.7%	-3.6%	-4.2%	-4.6%	-5.5%
High risk drinkers		-9.6%	-6.3%	-7.4%	-8.0%	-9.6%

Figure 5.16: Absolute changes in consumption under taxation and MUP policies by drinker group

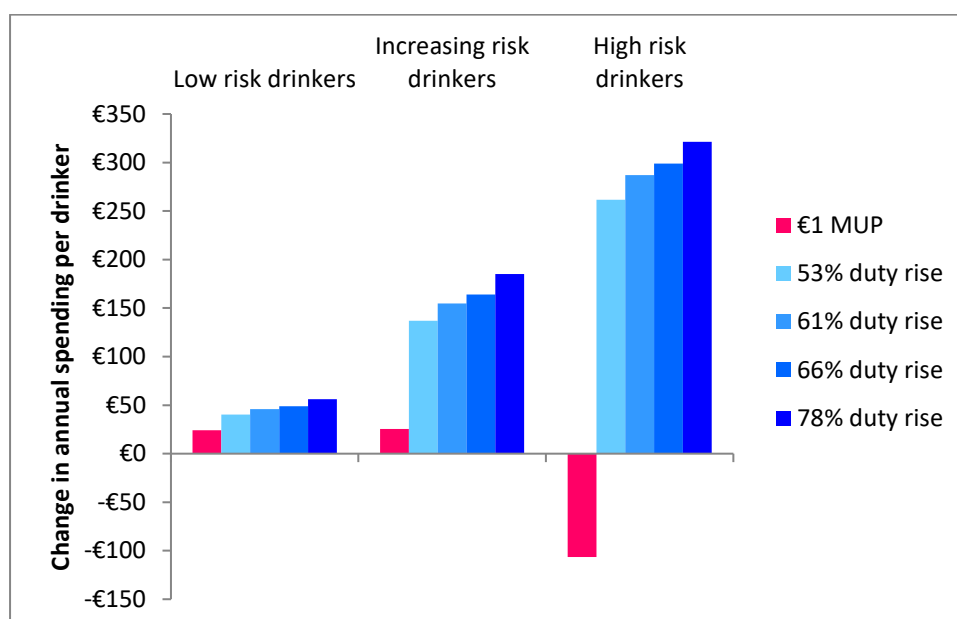


The estimated comparative effects of taxation and MUP policies are shown in Table 5.15 and Figure 5.17. These show a very different pattern to the impacts on consumption, with a €1 MUP resulting in a much smaller increase in spending on alcohol than any of the modelled duty rises among all drinker groups. Most notably, an MUP policy is estimated to *reduce* the spending of high risk drinkers by €107 per year, while increasing duty *increases* it by €262-€321 per year.

Table 5.15: Estimated impacts of taxation and MUP policies on spending by drinker group

	Baseline spending per year	€1 MUP	53% duty rise	61% duty rise	66% duty rise	78% duty rise
Absolute change						
All drinkers	€1,175	€16	€75	€85	€90	€101
Low risk drinkers	€508	€24	€40	€46	€49	€56
Increasing risk drinkers	€2,218	€25	€137	€155	€164	€185
High risk drinkers	€5,120	-€107	€262	€287	€299	€321
Relative change						
All drinkers		1.3%	6.4%	7.2%	7.6%	8.6%
Low risk drinkers		4.8%	7.9%	9.0%	9.6%	11.1%
Increasing risk drinkers		1.1%	6.2%	7.0%	7.4%	8.4%
High risk drinkers		-2.1%	5.1%	5.6%	5.8%	6.3%

Figure 5.17: Absolute changes in spending under taxation and MUP policies by drinker group

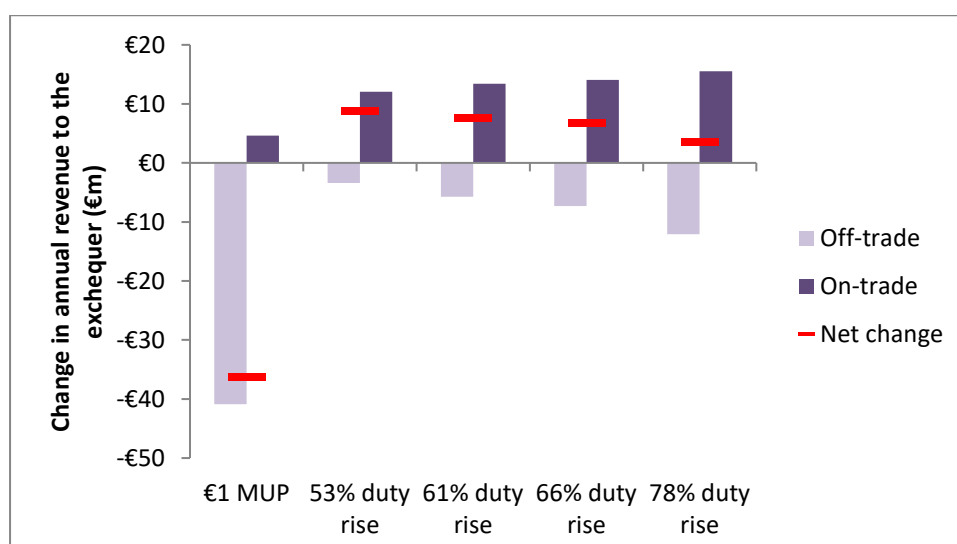


Estimates of the impact of a €1 MUP and the modelled duty rises on duty receipts are presented in Table 5.16 and Figure 5.18. Again these show a very different picture between the two policy approaches, with increases in duty rates estimated to reduce duty receipts from the off-trade while increasing them from the on-trade, with a net increase in revenue of €3-€9million. This is in contrast to a €1 MUP where a significant proportion of the €16 per person net increase in spending on alcohol goes to the retailers and producers rather than the exchequer, who are estimated to see their duty take fall by €36million.

Table 5.16: Estimated changes in annual exchequer revenue under MUP and taxation policies by channel

	Baseline annual revenue (€ millions)	€1 MUP	53% duty rise	61% duty rise	66% duty rise	78% duty rise
Absolute change						
On-trade	€480	-€41	-€3	-€6	-€7	-€12
Off-trade	€882	€5	€12	€13	€14	€16
Total	€1,362	-€36	€9	€8	€7	€3
Relative change						
On-trade		-8.5%	-0.7%	-1.2%	-1.5%	-2.5%
Off-trade		0.5%	1.4%	1.5%	1.6%	1.8%
Total		-2.7%	0.6%	0.6%	0.5%	0.3%

Figure 5.18: Absolute changes in exchequer revenue under taxation and MUP policies



5.3.4 Comparative estimated impacts of MUP and duty policies on health, crime and workplace harms

Modelled estimates of the comparative impacts of MUP and duty policies on absolute numbers of deaths due to alcohol are shown in Table 5.17, while Table 5.18 and Figure 5.19 present the impacts on mortality rates, after adjusting for the relative population sizes of the 3 drinker groups. These show a similar pattern to the effects of the policies on consumption: the reductions under an MUP policy are more concentrated in high risk drinkers than duty increases. For example, 65% of the deaths averted under a €1 MUP policy are in high risk drinkers, while under a 53% duty rise, which leads to the same absolute reduction in deaths, only 51% of all deaths averted are in this group.

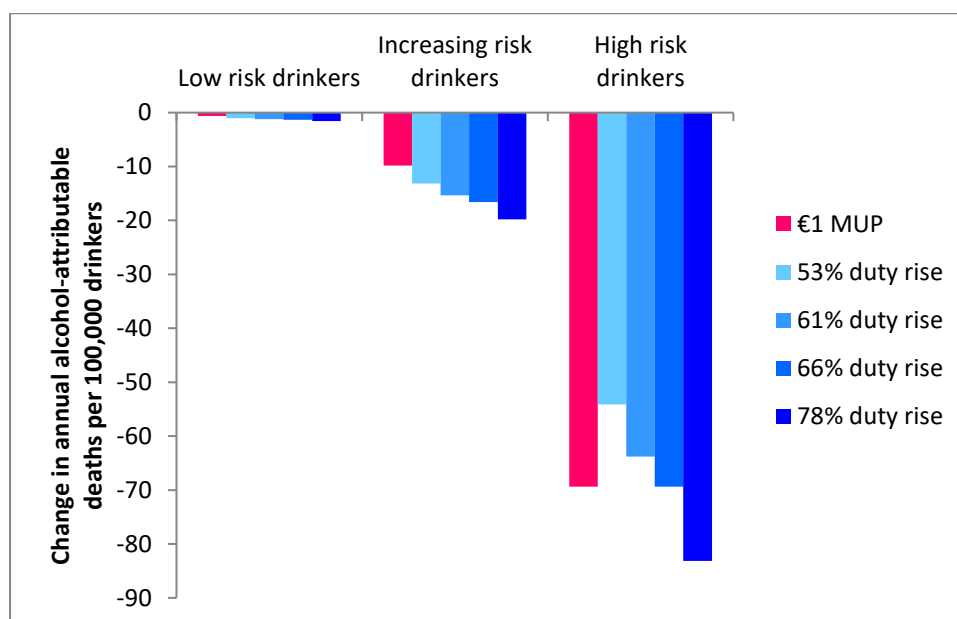
Table 5.17: Estimated impacts of taxation and MUP policies on alcohol-attributable deaths by drinker group

	Baseline annual alcohol-attributable deaths	€1 MUP	53% duty rise	61% duty rise	66% duty rise	78% duty rise
Absolute change						
All drinkers	1,270	-197	-197	-231	-251	-299
Low risk drinkers	-63	-12	-21	-24	-26	-31
Increasing risk drinkers	496	-57	-77	-89	-97	-115
High risk drinkers	837	-128	-100	-118	-128	-153
Relative change						
All drinkers		-15.5%	-15.5%	-18.2%	-19.7%	-23.6%
Low risk drinkers		18.8%	32.6%	38.1%	41.2%	49.0%
Increasing risk drinkers		-11.5%	-15.4%	-18.0%	-19.5%	-23.2%
High risk drinkers		-15.3%	-11.9%	-14.1%	-15.3%	-18.3%

Table 5.18: Estimated impacts of taxation and MUP policies on alcohol-attributable mortality rates by drinker group

	Baseline annual alcohol-attributable deaths per 100,000 drinkers	€1 MUP	53% duty rise	61% duty rise	66% duty rise	78% duty rise
Absolute change						
All drinkers	46	-7	-7	-8	-9	-11
Low risk drinkers	-3	-1	-1	-1	-1	-2
Increasing risk drinkers	85	-10	-13	-15	-17	-20
High risk drinkers	454	-69	-54	-64	-69	-83
Relative change						
All drinkers		-15.5%	-15.5%	-18.2%	-19.7%	-23.6%
Low risk drinkers		18.8%	32.6%	38.1%	41.2%	49.0%
Increasing risk drinkers		-11.5%	-15.4%	-18.0%	-19.5%	-23.2%
High risk drinkers		-15.3%	-11.9%	-14.1%	-15.3%	-18.3%

Figure 5.19: Changes in alcohol-attributable mortality rates by drinker group under MUP and taxation policies



Equivalent estimates of impact for hospital admissions are presented in Table 5.19, Table 5.20 and Figure 5.20, showing a very similar pattern to the results for alcohol-attributable mortality. A €1 MUP is more targeted at reducing harm in high risk drinkers, even though increases in duty of the scale modelled here may lead to greater absolute reductions in alcohol-attributable admissions in the population.

Table 5.19: Estimated impacts of taxation and MUP policies on alcohol-attributable hospital admissions by drinker group

	Baseline annual alcohol-attributable hospital admissions	€1 MUP	53% duty rise	61% duty rise	66% duty rise	78% duty rise
Absolute change						
All drinkers	58,961	-5,878	-6,186	-7,263	-7,887	-9,438
Low risk drinkers	8,042	-553	-1,133	-1,330	-1,444	-1,729
Increasing risk drinkers	23,392	-1,702	-2,203	-2,583	-2,803	-3,357
High risk drinkers	27,527	-3,623	-2,850	-3,350	-3,640	-4,352
Relative change						
All drinkers		-10.0%	-10.5%	-12.3%	-13.4%	-16.0%
Low risk drinkers		-6.9%	-14.1%	-16.5%	-18.0%	-21.5%
Increasing risk drinkers		-7.3%	-9.4%	-11.0%	-12.0%	-14.3%
High risk drinkers		-13.2%	-10.4%	-12.2%	-13.2%	-15.8%

Table 5.20: Estimated impacts of taxation and MUP policies on alcohol-attributable hospital admission rates by drinker group

	Baseline annual alcohol-attributable hospital admissions per 100,000 drinkers	€1 MUP	53% duty rise	61% duty rise	66% duty rise	78% duty rise
Absolute change						
All drinkers	2,131	-212	-224	-263	-285	-341
Low risk drinkers	402	-28	-57	-67	-72	-86
Increasing risk drinkers	4,016	-292	-378	-443	-481	-576
High risk drinkers	14,918	-1,964	-1,544	-1,816	-1,973	-2,359
Relative change						
All drinkers		-10.0%	-10.5%	-12.3%	-13.4%	-16.0%
Low risk drinkers		-6.9%	-14.1%	-16.5%	-18.0%	-21.5%
Increasing risk drinkers		-7.3%	-9.4%	-11.0%	-12.0%	-14.3%
High risk drinkers		-13.2%	-10.4%	-12.2%	-13.2%	-15.8%

Figure 5.20: Changes in alcohol-attributable hospital admission rates by drinker group under MUP and taxation policies

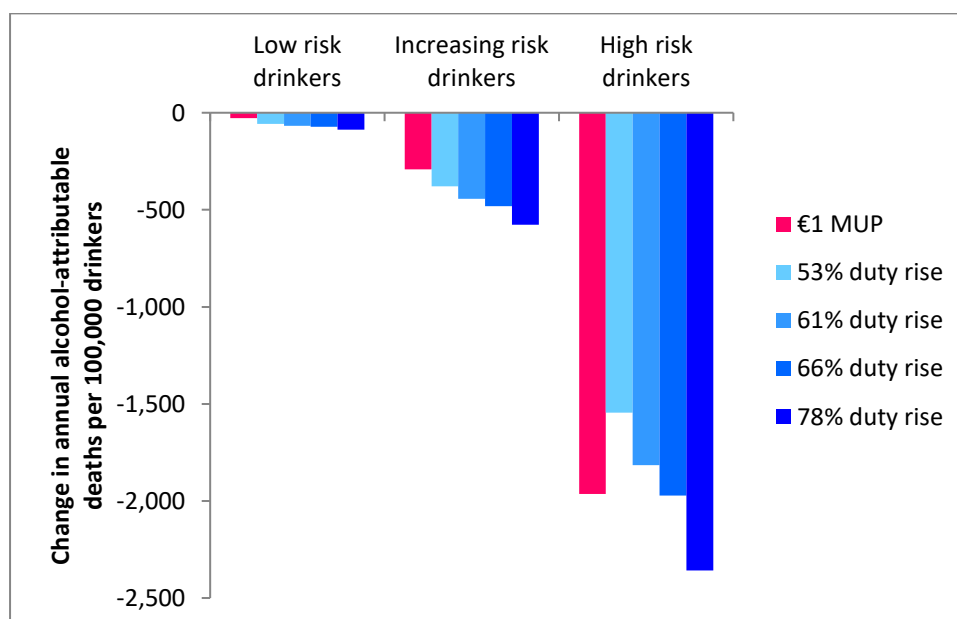
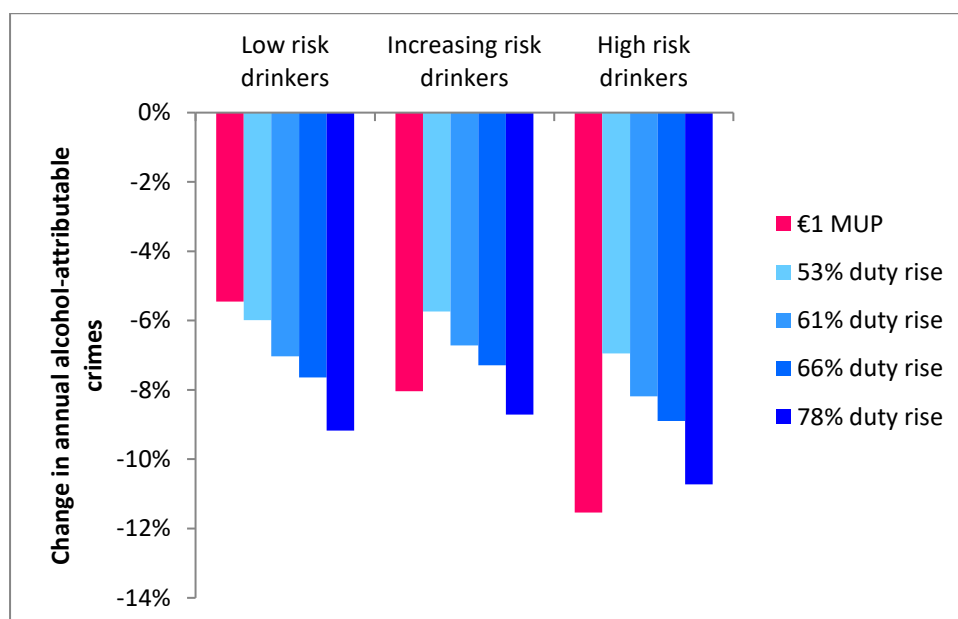


Table 5.21 presents detailed estimates of the comparative impacts of a €1 MUP policy and modelled duty increases on alcohol-attributable crimes, illustrated in Figure 5.21. Again the MUP approach is estimated to be more targeted, with a €1 MUP leading to greater relative and absolute reductions in crime in high risk drinkers than any of the modelled duty policies.

Table 5.21: Estimated impacts of taxation and MUP policies on alcohol-attributable crimes by drinker group

	Baseline annual alcohol-attributable crimes	€1 MUP	53% duty rise	61% duty rise	66% duty rise	78% duty rise
Absolute change						
All drinkers	19,778	-1,518	-1,208	-1,418	-1,540	-1,849
Low risk drinkers	8,564	-467	-513	-602	-654	-786
Increasing risk drinkers	6,951	-559	-399	-467	-506	-606
High risk drinkers	4,263	-492	-296	-349	-379	-457
Relative change						
All drinkers		-7.7%	-6.1%	-7.2%	-7.8%	-9.3%
Low risk drinkers		-5.4%	-6.0%	-7.0%	-7.6%	-9.2%
Increasing risk drinkers		-8.0%	-5.7%	-6.7%	-7.3%	-8.7%
High risk drinkers		-11.5%	-6.9%	-8.2%	-8.9%	-10.7%

Figure 5.21: Changes in alcohol-attributable offences by drinker group under MUP and taxation policies

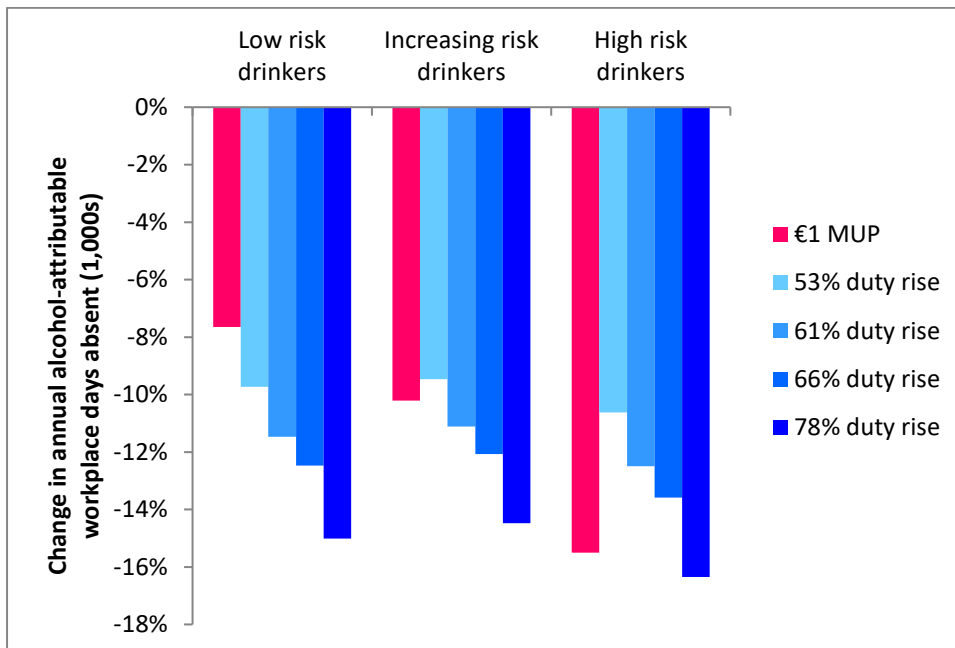


Finally, Table 5.22 and Figure 5.22 illustrate the modelled impact on workplace absence due to alcohol of a €1 MUP and duty increase policies. Again the effects are more concentrated in high risk drinkers under a €1 MUP policy than as a result of increasing duty rates.

Table 5.22: Estimated impacts of taxation and MUP policies on alcohol-attributable workplace days absent by drinker group

	Baseline annual alcohol-attributable workplace days absent (1,000s)	€1 MUP	53% duty rise	61% duty rise	66% duty rise	78% duty rise
Absolute change						
All drinkers	1,107	-116	-109	-128	-139	-167
Low risk drinkers	434	-33	-42	-50	-54	-65
Increasing risk drinkers	414	-42	-39	-46	-50	-60
High risk drinkers	258	-40	-27	-32	-35	-42
Relative change						
All drinkers		-10.4%	-9.8%	-11.6%	-12.6%	-15.1%
Low risk drinkers		-7.6%	-9.7%	-11.5%	-12.5%	-15.0%
Increasing risk drinkers		-10.2%	-9.5%	-11.1%	-12.1%	-14.5%
High risk drinkers		-15.5%	-10.6%	-12.5%	-13.6%	-16.4%

Figure 5.22: Changes in alcohol-attributable workplace days absent by drinker group under MUP and taxation policies



5.4 SENSITIVITY ANALYSIS

As discussed in Section 4.3.3, we considered 2 alternative potential sources of evidence for the extent to which changes in alcohol taxation are passed on to consumers. For our base case we used data from Ally et al. which showed the differential passthrough rates across the price distribution for off-trade products only ⁷. Here we present the impact of using alternative evidence from RAND Europe which estimated passthrough rates by beverage type for both the on- and off-trades ⁸. Table

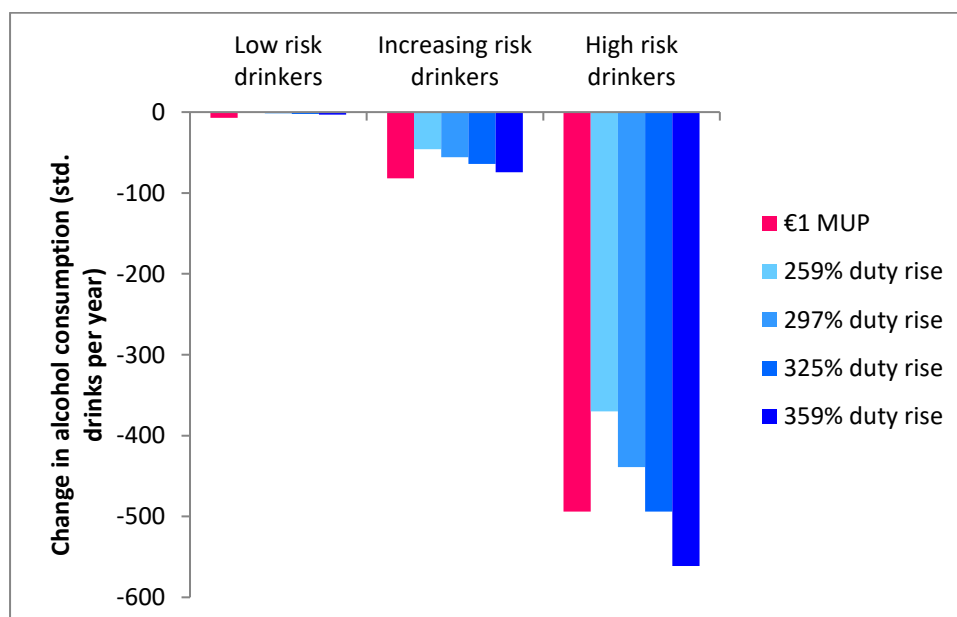
5.23 shows the results of this sensitivity analysis, illustrating that much larger increases in taxation are required to achieve the same effect using the RAND Europe passthrough rates. This is due to the fact that the mean passthrough rates found by Ally et al. were much higher than those found by RAND Europe (around 100% on average compared to 0-58% depending on beverage type) and as a result a much larger increase in duty is required to achieve the same change in the actual prices faced by consumers using the RAND Europe rates. The magnitude of these findings support the use of the Ally et al. figures in this report as it may be hard to imagine that a retailer facing a quadrupling of spirits duty, for example, would pass on only 9% of that increase to their customers.

Table 5.23: Equivalised duty rates under alternative tax passthrough assumptions

		Duty increase required to match effect of €1 MUP	
		Ally et al.	RAND Europe
Reduction in consumption	All drinkers	61%	359%
	High risk drinkers	78%	325%
Reduction in alcohol-attributable deaths	All drinkers	53%	297%
	High risk drinkers	66%	259%

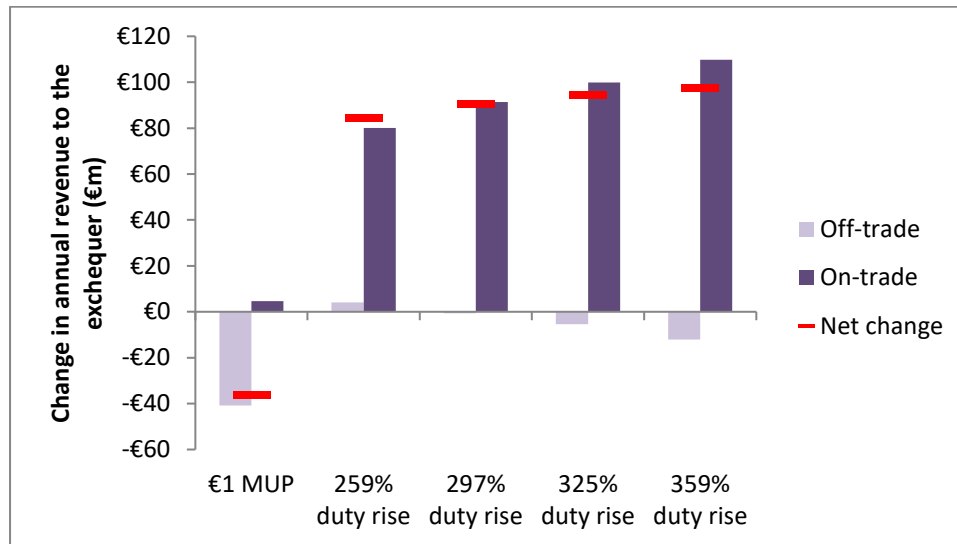
Whilst the magnitude of duty rises required to achieve the same impact in this sensitivity analysis may be extremely large, the overall pattern of effects is very similar to the base case analysis. We therefore present only an illustrative sample of the results here. Figure 5.23 shows the estimated impact of the equivalised duty rises on alcohol consumption, showing a similar pattern to the base case estimates in Figure 5.16, although the modelled duty policies are marginally more targeted in the sensitivity analysis.

Figure 5.23: Changes in alcohol consumption by drinker group under MUP and taxation policies using alternative passthrough rates



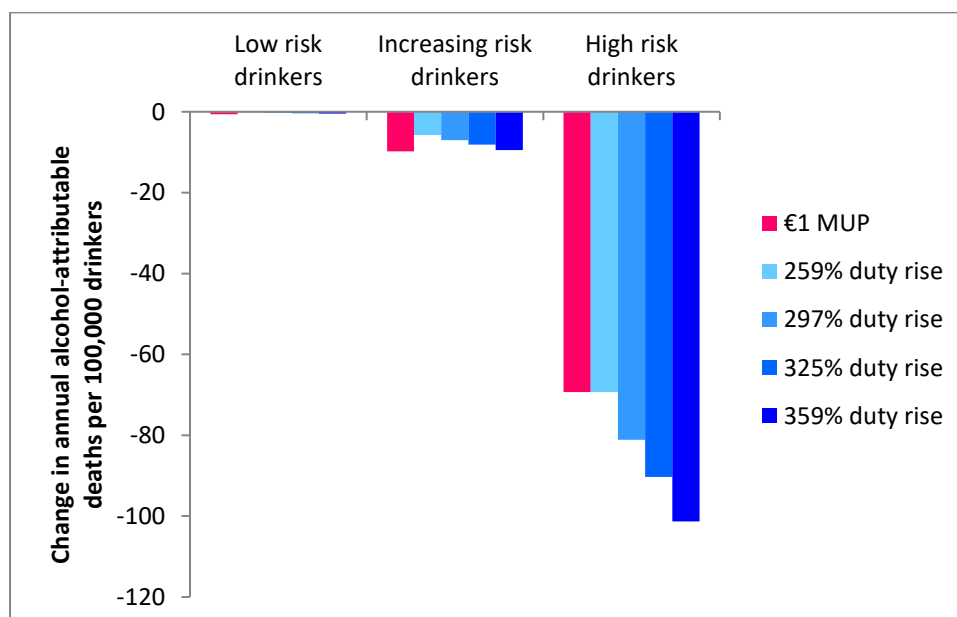
The biggest difference from the base case is in the estimated impact on exchequer revenues, as illustrated in Figure 5.24. As may be expected when modelling large tax increases of which only a small proportion is passed on to consumers, on-trade duty receipts are estimated to increase significantly.

Figure 5.24: Changes in exchequer revenue by channel under MUP and taxation policies using alternative passthrough rates



Finally, Figure 5.25 illustrates the impact of a €1 MUP and equivalised duty policies on alcohol-related mortality rates, again showing duty policies are estimated to be more targeted at high risk drinkers than in the base case.

Figure 5.25: Changes in alcohol-attributable mortality rates under MUP and taxation policies using alternative passthrough rates



6 SUMMARY OF RESULTS AND DISCUSSION

6.1 SUMMARY OF KEY FINDINGS

The analyses presented in this report suggest that a €1 MUP is an effective approach to reducing alcohol consumption and alcohol-related harm. Alcohol consumption in Ireland is estimated to fall by 8.8% or 55 standard drinks per person per year following implementation of the policy. This would lead to an estimated 197 fewer alcohol-attributable deaths, 5,878 fewer hospital admissions, 1,518 fewer criminal offences and 116,000 fewer days work lost per year.

MUP is also a well-targeted policy with the largest reductions in drinking seen among high risk drinkers. These targeted effects occur because a €1 MUP imposes large price increases on lower priced alcohol which is disproportionately purchased by the heaviest drinkers. Low risk drinkers would experience only small impacts on their alcohol consumption, equivalent to a bottle of wine a year, and their spending on alcohol would increase by just €24 per year. This is because they tend to buy alcohol which would be subject to smaller increases in price following the introduction of this policy.

To achieve the same reduction in average alcohol consumption as a €1 MUP, a 61% increase in current alcohol duty rates would be required. Although still effective in reducing alcohol-related harm, a 61% duty increase is less well-targeted when compared to a €1 MUP, leading to greater harm reductions in low and increasing risk drinkers and lesser reductions among high risk drinkers across all modelled health, crime and workplace outcomes.

Impacts on consumer spending also differ importantly between a €1 MUP and a 61% duty increase. While spending changes under a €1 MUP would be modest across all drinker groups, with high risk drinkers estimated to reduce their spend on alcohol overall, the effects of a 61% duty increase on spending are more substantial across all groups, with the largest increases (€287 per year) in high risk drinkers.

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