MPA 07

Bil Iechyd y Cyhoedd (Isafbris am Alcohol) (Cymru)

Public Health (Minimum Price for Alcohol) (Wales) Bill

Ymateb gan Grŵp Ymchwil Alcohol Sheffield

Response from Sheffield Alcohol Research Group

Written submission to the Health, Social Care and Sport Committee on the Public Health (Minimum Price for Alcohol) (Wales) Bill.

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We wish to submit evidence in three areas: (1) the effects of alcohol price changes on alcohol consumption and related harm; (2) our analyses of the potential effects of minimum unit pricing in Wales; (3) other evidence relating to the effects of minimum unit pricing.

1. The effects of alcohol price changes on alcohol consumption and related harm

There is a large body of peer-reviewed evidence documenting the effectiveness of using alcohol price increases to reduce alcohol consumption and alcohol-related harm.[1] A systematic review of 112 studies in 2009 found that increases in alcohol prices, including those resulting from increased taxation, were consistently and significantly associated with falls in consumption.[2] This was the case for both total alcohol consumption and for individual beverage types (e.g. beer, wine and spirits). Similarly, both younger and older drinkers as well as heavy episodic (or binge) drinkers were responsive to price changes. An example finding is that, on average, across different times and places, a 10% increase in alcohol prices is associated with a 4.4% fall in consumption. Comparable findings have been obtained in at least three further systematic reviews of this literature.[3,4,5]

There is also a smaller, but still substantial, body of evidence assessing the impact of tax or price changes on alcohol-related harm. Although this evidence based has limitations, the studies consistently suggest that increases in taxation or pricing are followed by reductions in alcohol-related harm. This is true for both acute harms arising immediately after drinking and chronic harms arising from the cumulative effects of drinking over several years. A major review and meta-analysis of 50 studies from this literature in 2010 found that doubling US alcohol taxes would be associated with a 35% fall in alcohol-related mortality, an 11% fall in traffic crash deaths and smaller reductions in sexually transmitted diseases, violence and crime.[6]

2. The potential effects of minimum unit pricing in Wales

[1] Booth, A. et al. (2008) 'The Independent Review of the Effects of Alcohol Pricing and Promotion: Summary of Evidence to Accompany Report on Phase 1: Systematic Reviews', Project report prepared for the Department of Health.

[2] Wagenaar A. et al. (2009) 'Effects of beverage alcohol price and tax levels on drinking: a meta-analysis of 1003 estimates from 112 studies', *Addiction*, 104:179-90

[3] Gallet, C.A. (2007) 'The Demand for Alcohol: A meta-analysis of elasticities', *Australian Journal of Agricultural and Resource Economics*, 51(2):121-35

[4] Fogarty J. (2012) 'The nature of demand for alcohol: understanding elasticity', *British Food Journal*, 108(4):316-32

[5] Nelson J.P. (2013) 'Meta-analysis of alcohol price and income elasticities – with corrections for publication bias', *Health Economic Review*, 3(17)

[6] Wagenaar et al. (2010) 'Effects of Alcohol Tax and Price Policies on Morbidity and Mortality: A systematic review', *American Journal of Public Health*, 100(11):2270-8

In September 2014, the Welsh Government published the results of an independent analysis which they had commissioned from our research group to appraise the potential effects of introducing different alcohol pricing policies in Wales.[7] The analyses examined outcomes including alcohol consumption, spending and related revenue to the exchequer and retailers, alcohol-attributable mortality and morbidity, alcohol-related crime and workplace absence, and associated costs of the above harms to public services and individual drinkers.

The policies appraised were minimum unit prices (MUP) of between 35p and 70p in 5p increments, a general price increase of 10%, and a ban on selling alcohol below the cost of the duty and VAT payable. The analyses examined policy effects for moderate, increasing and high risk drinkers[8] and for drinkers who were and were not in poverty. An update to this report is almost complete and will be published by the Welsh Government in due course.

Methodology

The analyses were conducted using the Sheffield Alcohol Policy Model (SAPM), a decision-support tool which has informed policy-making in the UK and internationally.   Results from SAPM analyses have been published in the most prestigious scientific journals including the *Lancet*, *BMJ* and *Plos Medicine*.[9,10,11,12]

SAPM uses varied modelling techniques to combine data from a range of sources. Figure 1 shows how SAPM works sequentially to first estimate how the policy affects prices, then how those price changes affect consumption, spending and revenue, then how consumption changes affect levels of alcohol-related harm and, finally, how changes in levels of harm affect associated costs.

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[7] Meng Y. et al. (2014) 'Model-based appraisal of minimum unit pricing for alcohol in Wales: An adaptation of the Sheffield Alcohol Policy Model version 3', Sheffield: ScHARR, University of Sheffield.
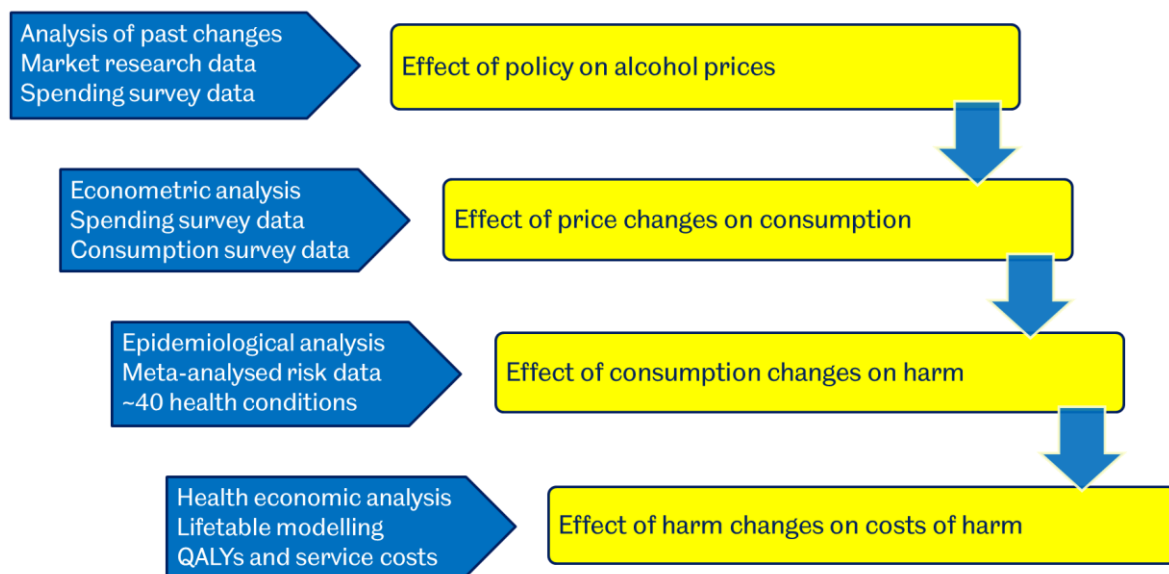
[8] Moderate drinkers are men/women who consume less than 21/14 units per week, hazardous drinkers are men/women consuming between 21/14 and 50/35 units per week, harmful drinkers are men/women consuming more than 50/35 units per week. In our forthcoming updated report, moderate drinkers will be defined as men or women who consume less than 14 units per week. This aligns with the updates to the UK Chief Medical Officers' low risk drinking guidelines.

[9] Purshouse, R. et al. (2011) 'Estimated effect of alcohol pricing policies on health and health economic outcomes in England: an epidemiological model', *The Lancet*, 375(9723):1355-64

[10] Holmes, J. et al. (2014) 'Effects of minimum unit pricing for alcohol on different income and socioeconomic groups: a modelling study', *The Lancet*, 383 (9929):1655-64

[11] Brennan, A. et al. (2014) 'Potential benefits of minimum unit pricing for alcohol versus a ban on below cost selling in England 2014: modelling study', *BMJ*, 349:g5452

[12] Meier P.S. et al. (2016) 'Estimated effects of different alcohol taxation and price policies on health inequalities: A mathematical modelling study', PLOS Medicine, 13 (2), e1001963

Analysis of past changes
Market research data
Spending survey data

Effect of policy on alcohol prices

Econometric analysis
Spending survey data
Consumption survey data

Effect of price changes on consumption

Epidemiological analysis
Meta-analysed risk data
~40 health conditions

Effect of consumption changes on harm

Health economic analysis
Lifetable modelling
QALYs and service costs

Effect of harm changes on costs of harm

Figure 1: Overview of how the Sheffield Alcohol Policy Model estimates the effects of alcohol pricing policies

The data underpinning the model are the most recent available and, where feasible, are specific to Wales. For example, to estimate the effects of pricing policies on alcohol consumption, we use Welsh market research data and data from the Welsh samples of two Britain-wide surveys: the General Lifestyle Survey and the Living Costs and Food Survey (the updated report will draw on newly available data from the National Survey for Wales). To estimate the effects of consumption changes on alcohol-related harm, we use the best-available international evidence detailing how risks of harm increase as alcohol consumption goes up. This evidence is combined with Welsh administrative data on rates of alcohol-attributable diseases and hospitalisations, crime and workplace absence. Costings for each alcohol-related harm come from UK Government data. Sensitivity analyses are used to explore how alternative modelling assumptions, data and analytic approaches affect the estimates of policy impacts. Full details of the modelling methods can be found in the project report.[13]

Results for the population

The estimated effects of introducing different levels of MUP in Wales on total alcohol consumption are shown in Figure 2 along with the effects of the two non-MUP policies. Effects on consumption are relatively small for MUPs below 45p per unit but increase steadily as the minimum price threshold increases above that level. The ban on sales below the cost of duty and VAT was introduced by the UK Government in 2014 but, due to its small anticipated impact, this should not substantially affect estimates of the effects of other policies.

Figure 2: Estimated effects of minimum unit pricing and other alcohol pricing policies in Wales

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[13] Meng Y. et al. (2014) 'Model-based appraisal of minimum unit pricing for alcohol in Wales: An adaptation of the Sheffield Alcohol Policy Model version 3', Sheffield: ScHARR, University of Sheffield.

Attention in public debate has focused on a MUP of 50p. Therefore, Table 1 presents estimated effects on alcohol-related harms and associated costs of introducing a 50p MUP in Wales. In each case, harm and cost reductions are estimated to be greater for higher minimum prices.

Table 1: Estimated effects of introducing a £0.50 minimum unit pricing in Wales

£0.50 minimum unit price		
Overall reduction in consumption	4.0%	
Annual health savings in year 20		
Deaths	53 (6.8%)	
Hospital admissions	1,400 (3.8%)	
First year reductions		
Deaths	21 (2.7%)	
Hospital admissions	1,200 (3.2%)	
Crimes	3,700 (4.6%)	
Days absent from work	10,000 (4.6%)	
Total cost reduction over 20 years (discounted)		
Health	Direct: £131m (4.8%)	QALYs: £489m (6.9%)
Crime	Direct + QALY: £248m (4.7%)	
Workplace absence	£14m (4.7%)	
Total	**£1.3bn (5.8%)**	
Revenue changes	**Off-trade**	**On-trade**
Retailers	+£25.0m (12.2%)	+£2.0m (0.3%)
Exchequer (Duty + VAT)	-£5.7m (2.0%)	-£0.0 (0.0%)

Table 1 also presents estimated impacts on retailers. Off-trade retailers (i.e. shops and supermarkets selling alcohol for consumption away from the premises) would see an increase in their revenue as MUP is not a tax and the extra revenue from higher priced alcohol is retained by retailers (excepting the additional VAT to be paid) and may be passed up the supply chain. On-trade retailers (i.e. pubs, restaurants, nightclubs and other venues selling alcohol for consumption on the premises) are estimated to see a small increase in revenue, potentially due to people moving their drinking away from the home. However, there is substantial uncertainty around this small change in on-trade revenue and it should not be given undue emphasis.

Finally, Table 1 presents estimated impacts on revenue to the exchequer. Revenue from off-trade and on-trade sales combined is estimated to decline by 1.0%. This change is much smaller than for retailers due to two counteracting changes: a fall in duty revenue due to less alcohol being sold and an increase in VAT revenue from the remaining sales being at higher prices.

Results for subgroups within the Welsh population

An important focus of our analysis is how the effects of MUP vary across the population. In general, MUP is effective in achieving targeted reductions in the consumption and harm experienced by high risk drinkers while having a smaller effect on other drinkers. This is true irrespective of whether drinkers are or are not in poverty.

For a 50p MUP, the amount of alcohol consumed per person per year is estimated to fall by 2.2% (6 units) among moderate drinkers, 2.0% (29 units) among increasing risk drinkers and 7.2% (293 units)

among high risk drinkers. Figure 2 shows that a similar pattern is seen for drinkers who are and are not in poverty. Alcohol is a significant contributor to health inequalities. For England, age-standardised alcohol-specific mortality rates were 3.3 times higher for women and 4.5 times higher for men when comparing the most deprived with the least deprived quintiles of the Index of Multiple Deprivation.[14] This inequality is partly due to there being more very high risk drinkers in low income groups but also because lower income groups appear to experience a greater risk of harm from each alcohol unit consumed compared to higher income counterparts. By targeting price increases on the alcohol consumed by low income high risk drinkers, MUP is expected to contribute to the reduction of health inequalities. Under a 50p MUP, alcohol-attributable mortality is estimated to fall by 9.9% among those in poverty and 5.6% among those not in poverty. Similarly, alcohol-attributable hospital admissions are estimated to fall by 6.6% among those in poverty and 3.0% among those not in poverty.
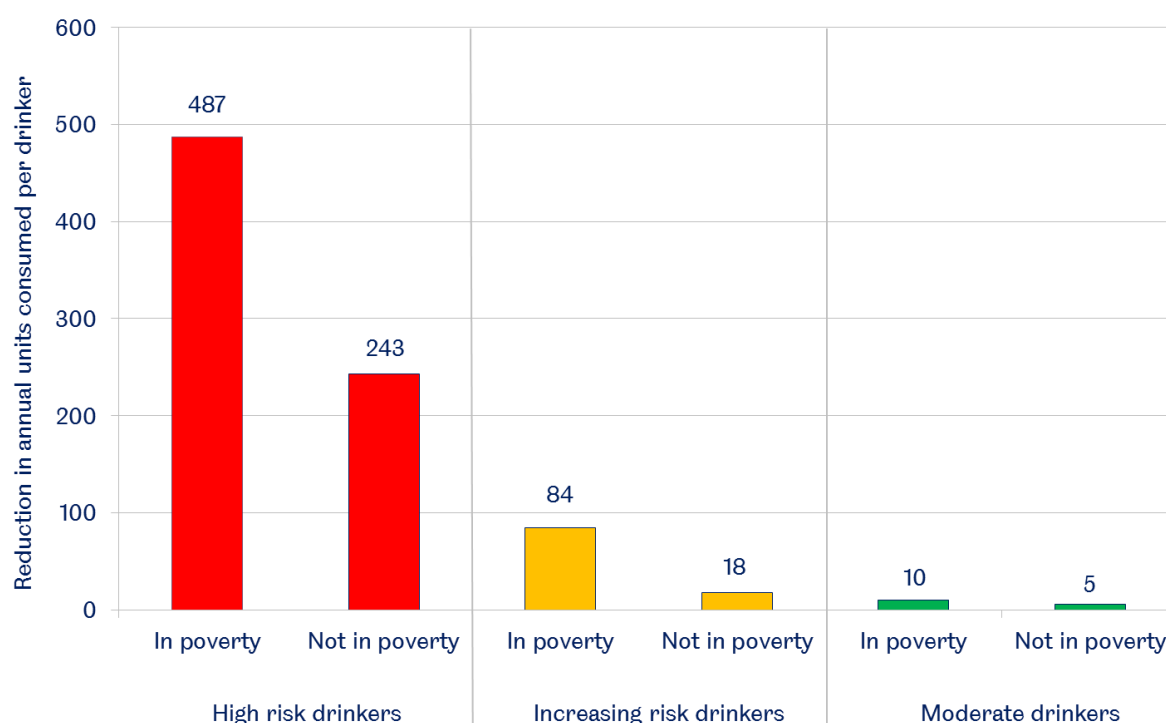

Figure 3: Estimated reduction in annual units of alcohol consumed by population subgroup from introducing a £0.50 minimum unit price in Wales

3. Other evidence relating to the effects of minimum unit pricing

Below we comment on evidence relating to the effects of increasing minimum prices for alcohol in Canada and the relative effectiveness of alcohol tax increases compared to MUP.

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[14] ONS (2017) 'Alcohol-specific deaths in the UK: registered in 2016', https://www.ons.gov.uk/peoplepopulationandcommunity/healthandsocialcare/causesofdeath/bulletins/alcoholrelateddeathsintheunitedkingdom/registeredin2016

Evidence from Canada

Several Canadian provinces have operated minimum pricing policies for alcohol (sometimes called social reference pricing) for many years.[15] These policies are not identical to MUP as they do not consistently link the minimum price threshold to the amount of alcohol in the product. Therefore, from a public health perspective, they can be considered a suboptimal implementation of minimum pricing when compared to the policies under consideration in Wales. Nonetheless, the basic mechanism of a setting a price threshold below which alcohol cannot be sold to consumers is the same and evidence from evaluations of the Canadian policies can be considered informative.

A series of studies by the University of Victoria in British Columbia have examined associations between changes in the value of the minimum price and a range of alcohol-related outcomes in two provinces, British Columbia and Saskatchewan. The key results of these evaluations are summarised in Table 2 and indicate that alcohol consumption and alcohol-related harm typically fall when minimum prices are raised. Additionally, a recent study in British Columbia provided further evidence that minimum price increases reduce health inequalities. That study found reductions in hospital admissions following a minimum price increase were largest in areas with lower average incomes.[16] The evaluation results also suggest that estimates from SAPM may be conservative as the falls in alcohol consumption and related harm are larger than those estimated in our Canadian adaptation of the model.[17]

Table 2: Estimated effects of increasing minimum prices by 10% from multiple Canadian studies

10% increase in minimum prices			
	British Columbia	**Saskatchewan**	
Reductions in alcohol consumption	3.4%[18]	8.4%[19]	
Reductions in alcohol-related health problems			
Deaths wholly attributable to alcohol	32%[20]	Not studied	
Alcohol-related hospital admissions	9%[21]		
Reductions in alcohol-related crime		**Men**	**Women**
Traffic violations	19%[22]	8%[23]	*
Violence or crimes against the person	9%[21]	*	*
Total crimes	9%[21]	Not studied	

*Non-significant effects found although, in some cases, delayed effects were identified

[15] Giesbrecht N. et al. (2016) 'Pricing of alcohol in Canada: A comparison of provincial policies and harm-reduction opportunities', *Drug and Alcohol Review*, 35(3):289-97

[16] Zhao J. et al. (2017) 'The impact of minimum alcohol pricing on alcohol attributable morbidity in regions of British Columbia, Canada with low, medium and high mean family income', *Addiction*, 112(11):1942-51

[17] Hill-McManus, D. et al. (2012) 'Model-based appraisal of alcohol minimum pricing in Ontario and British Columbia: A Canadian adaptation of the Sheffield Alcohol Policy Model Version 2'. Sheffield: ScHARR, University of Sheffield

[18] Stockwell T. et al. (2011) 'Does minimum pricing reduce alcohol consumption? The experience of a Canadian province?', *Addiction,* 107:912-20

[19] Stockwell T. et al. (2012) The raising of minimum alcohol prices in Saskatchewan, Canada: Impacts on consumption and implications for public health', *American Journal of Public Health*, 102(12)e103-10

[20] Zhao J. et al. (2013) 'The relationship between minimum alcohol prices, outlet densities and alcohol-attributable deaths in British Columbia, 2002-09', *Addiction*, 108(6):1059-69

[21] Stockwell T. et al. (2013) 'Minimum alcohol prices and outlet densities in British Columbia, Canada: estimated impacts on alcohol-attributable hospital admissions', *American Journal of Public Health*, 103(11):2014-20

[22] Stockwell T. et al. (2015) 'Relationships between minimum alcohol pricing and crime during the partial privatization of a Canadian government alcohol monopoly', *Journal of Studies on Alcohol and Drugs*, 76:628-34

[23] Stockwell T. et al. (2017) 'Assessing the impacts of Saskatchewan's minimum alcohol pricing regulations on alcohol-related crime', *Drug and Alcohol Review*, 36:492-501

MUP vs. alcohol taxation

The evidence above suggests MUP and alcohol tax increases are both effective policies for improving public health and should be considered as complementary options within a wider strategic approach to addressing alcohol-related harm. However, the policies are not identical. Whereas increasing alcohol taxes affects all products and all drinkers proportionate to the amount they drink, MUP targets price increases on the cheaper and higher strength products which are disproportionately purchased by those at greatest risk of harm from their drinking. This means improvements in public health can be achieved while having only a small impact on moderate drinkers.[24]

MUP has two other key advantages:

1. **Ensuring prices are increased:** Tax increases do not automatically lead to price increases as producers may adopt an alternative response such as absorbing the increased costs using their profits, passing it on to suppliers or passing it on to retailers who can cover the cost by increasing the price of other goods (e.g. food-stuffs). We have previously demonstrated that when alcohol taxes go up, leading supermarkets increase the price of cheap alcohol by less than would be expected and increase the price of expensive alcohol by more than would be expected.[25] This means those buying cheaper products, who tend to be heavier drinkers, are being subsidised by price increases on those buying more expensive products. Introducing an MUP would prevent such pricing strategies.
2. **Preventing trading down**: There is evidence that when alcohol prices go up, heavier drinkers switch to cheaper products to maintain their consumption.[26] MUP prevents this by prohibiting all sales below a specific threshold.

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[24] Holmes, J. et al. (2014) 'Effects of minimum unit pricing for alcohol on different income and socioeconomic groups: a modelling study', The Lancet, 383 (9929):1655-64
[25] Ally, A. et al. (2014) 'Alcohol tax pass-through across the product and price range: do retailers treat cheap alcohol differently?', Addiction, 109 (12), pp.1994-2002
[26] Gruenewald, PJ. et al. (2006) 'Alcohol prices, beverage quality, and the demand for alcohol: Quality substitutions and price elasticities', *Alcoholism: Clinical & Experimental Research*, 30(1): 96-105