

Agenda – Health, Social Care and Sport Committee

Meeting Venue:	For further information contact:
Committee Room 3 – Senedd	Claire Morris
Meeting date: 29 November 2017	Committee Clerk
Members pre-meeting: 09.15	0300 200 6355
Meeting time: 09.30	SeneddHealth@assembly.wales

Informal pre-meeting (09.15 – 09.30)

- 1 Introductions, apologies, substitutions and declarations of interest**
- 2 Public Health (Minimum Price for Alcohol) (Wales) Bill – evidence session 4 – Sheffield Alcohol Research Group, Sheffield University**
(09.30 – 10.30) (Pages 1 – 19)
John Holmes, Senior Research Fellow, Sheffield Alcohol Research Group
Colin Angus, Research Fellow, Sheffield Alcohol Research Group

Break (10.30 – 10.35)

- 3 Public Health (Minimum Price for Alcohol) (Wales) Bill – evidence session 5 – Institute of Economic Affairs**
(10.35 – 11.20) (Pages 20 – 22)
Chris Snowdon, Head of Lifestyle Economics, Institute of Economic Affairs
- 4 Paper(s) to note**
 - 4.1 Welsh Government budget 2018–19 – letter from the Cabinet Secretary for Finance to the Chair of the Finance Committee**

(Pages 23 – 24)



- 4.2 Scrutiny of the Welsh Government Draft Budget 2018–19 – Response from the Cabinet Secretary for Economy and Transport**
(Pages 25 – 28)
- 4.3 Letter from the External Affairs and Additional Legislation Committee to the Cabinet Secretary for Finance regarding the Common UK policy frameworks "deep dive" exercises**
(Pages 29 – 31)
- 4.4 Public Health (Minimum Price for Alcohol) (Wales) Bill – Letter from Professor Jon Nelson in relation to the Public Health (Minimum Price for Alcohol) (Wales) Bill**
(Pages 32 – 48)
- 5 Motion under Standing Order 17.42 to resolve to exclude the public from the remainder of the meeting**

Break (11.20 – 11.30)

- 6 Public Health (Minimum Price for Alcohol) (Wales) Bill – consideration of evidence**
(11.30 – 11.45)
- 7 Scrutiny of the Welsh Government Draft Budget 2018–19 – consideration of draft report**
(11.45 – 12.15)

Document is Restricted

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

***Sheffield Alcohol Research Group, School of Health and Related Research (SchARR), University of
Sheffield***

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

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

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

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 drinkers⁸ 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.

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

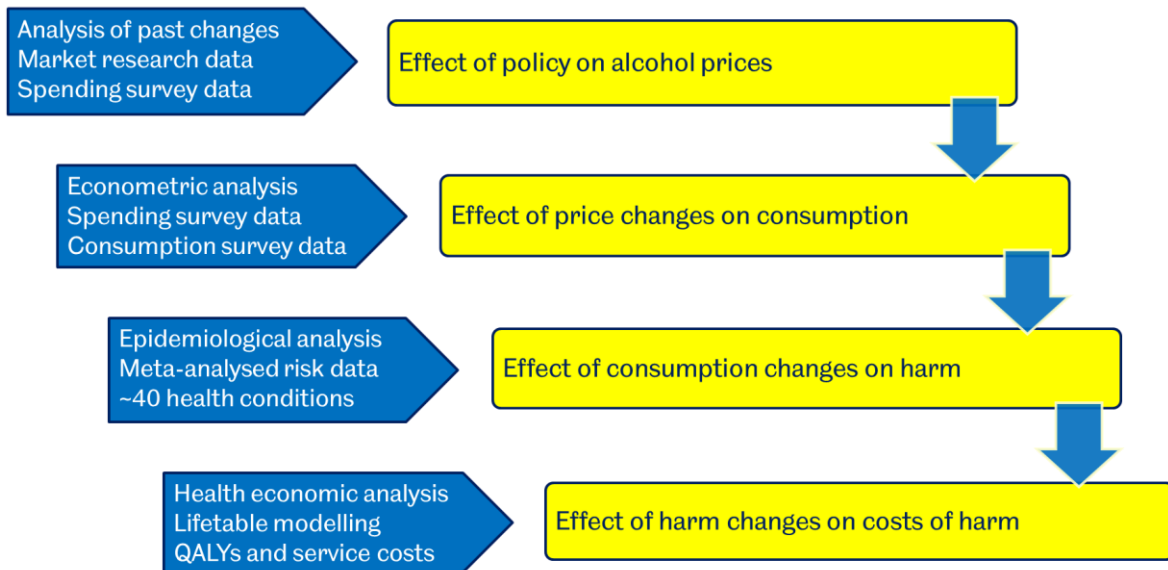


Figure 1: Overview of how the Sheffield Alcohol Policy Model estimates the effects of alcohol pricing policies

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.

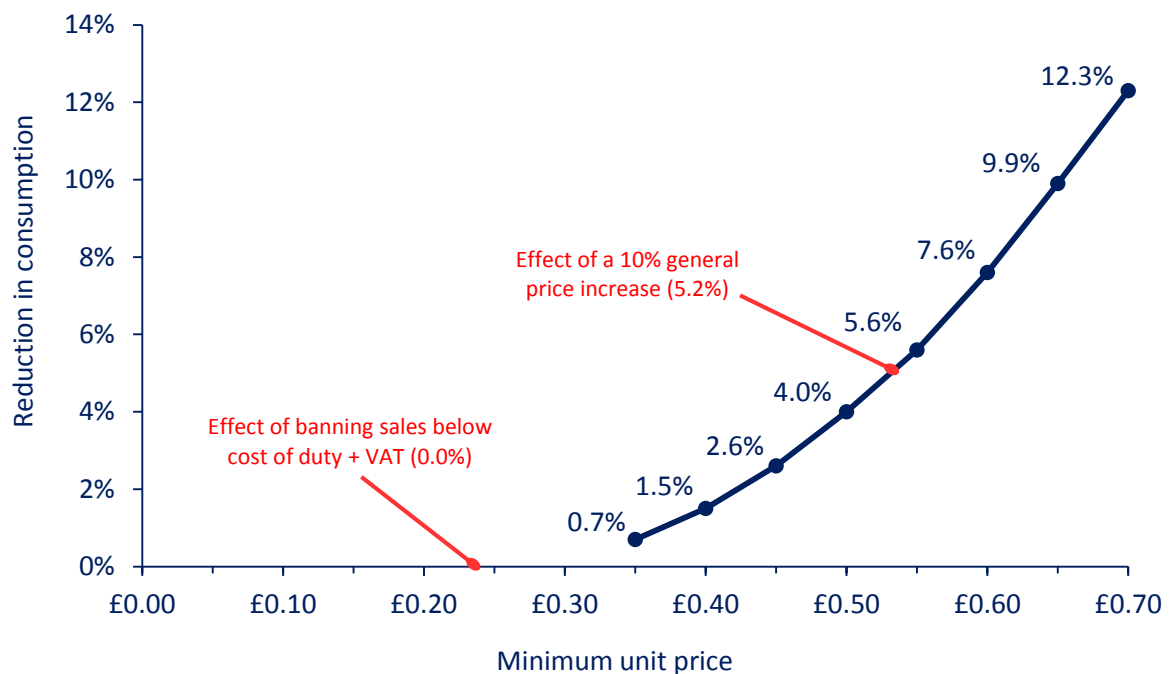


Figure 2: Estimated effects of minimum unit pricing and other alcohol pricing policies in Wales

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.

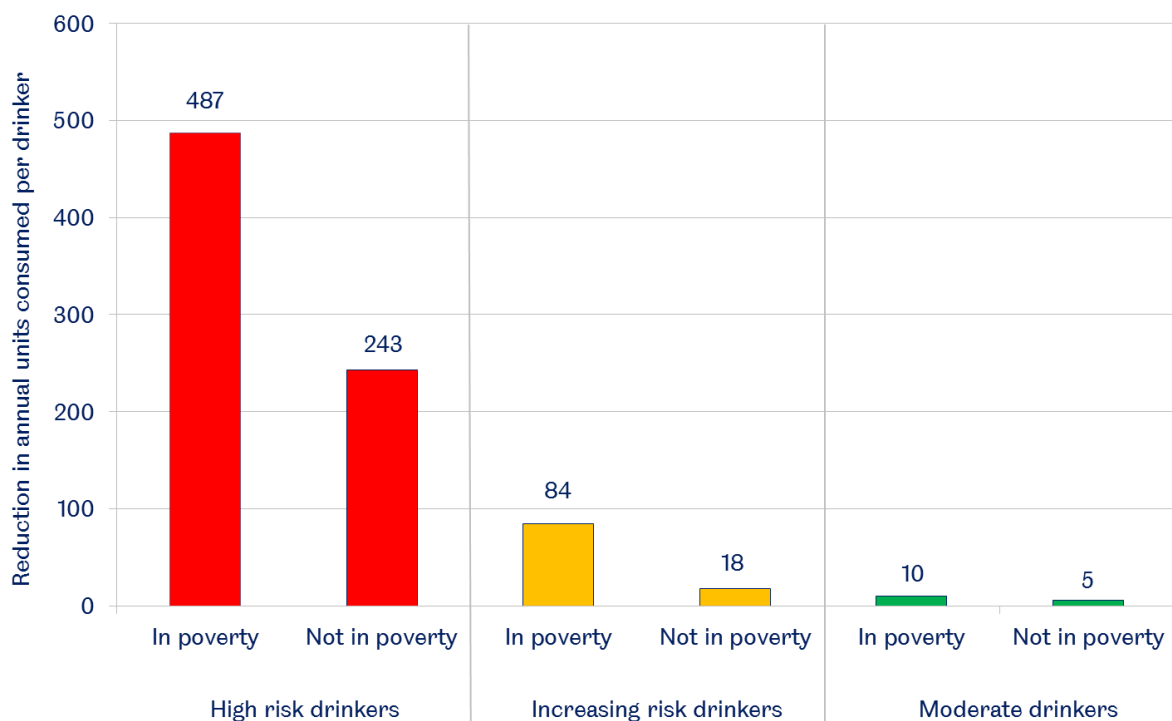


Figure 3: Estimated reduction in annual units of alcohol consumed by population subgroup from introducing a £0.50 minimum unit price in Wales

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.

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.

Contact:

Dr John Holmes, Senior Research Fellow, SCHARR, University of Sheffield

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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, P.J. 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

Written evidence from Christopher Snowdon, Institute of Economic Affairs

The evidence in favour of minimum pricing comes almost exclusively from theoretical modelling from the Sheffield Alcohol Research Group (SARG) based at Sheffield University. SARG has been repeatedly commissioned by governments to update and revise their findings, but nobody - to my knowledge - has been commissioned to replicate their research or verify their results.

In the view of statisticians I have spoken to, it would be impossible for an independent researcher to replicate the findings because the underlying assumptions are not always made clear. Insofar as its assumptions are discernible, they are frequently wrong. I wrote a paper discussing some of these flaws with the statistician John Duffy several years ago which can be found here:

https://static1.squarespace.com/static/56edde762cd9413e151ac92/t/573d9a94859fd04293de33a8/1463655061615/ASI_SAPM.pdf

For a shorter read, this recent article by the Adam Smith Institute's Sam Bowman gives a good overview of some of the problems with the Sheffield University approach:

<https://www.adamsmith.org/blog/minimum-alcohol-pricing-is-policy-based-evidence-making>

What is being proposed is unprecedented and it is impossible to predict how consumers will react to a 50p minimum unit price. The data do not exist for a reliable model to be created. But a lack of evidence does not mean that we should trust anything that calls itself evidence. The SARG reports are based on assumptions that are often dubious and sometimes manifestly incorrect. It brings the policy-making process into disrepute when an unrealistic computer model designed by vocal advocates of minimum pricing is treated with the same respect as scientific evidence.

So, what is *likely* to happen?

- a) The only certain outcome is that it will raise the cost of a wide range of alcohol products (sparkling wine being the notable exception) and therefore increase the cost of living for millions of people. Unlike alcohol duty, it will not provide any revenue for public services. It will simply wipe out the bottom end of the market and force consumers who have a preference for budget brands to buy mid-range brands.
- b) It will almost certainly incentivise cross-border alcohol sales between England and Wales. Much of this is likely to be for personal consumption, but the profits to be had from selling the cheapest ciders, beer and spirits in Wales under MUP are far from trivial.
- c) It is likely to lead to a shift from cider to spirits for dependent drinkers. A shift to the cheapest illegal drugs is also highly plausible among some groups, including young people.
- d) The increase in the cost of living for those who do not wish to reduce their alcohol consumption will likely lead to cuts in other parts of the household budget, such as food and heating, by those on low incomes.
- e) It is likely to further damage the pub trade as drinkers aim to economise on alcohol (see this article: <https://health.spectator.co.uk/its-the-economy-stupid-why-minimum-pricing-wont-work/>)

- f) For all these reasons, it is likely to be unpopular with the general public when they are finally confronted with the newly priced products. The fact that the policy is plainly regressive and effectively exempts the rich makes its unpopularity more likely.

For a brief overview of the likely unintended consequences, see here: <https://health.spectator.co.uk/minimum-pricing-wont-end-alcoholism-it-will-make-the-addiction-more-deadly/>

Finally, many untruths are routinely told by advocates of minimum pricing. The following list is by no means exhaustive, but is offered as a starting point to bring the debate into the arena of reality.

- a) 'Alcohol is much cheaper than it was in previous decades' (usually 1960 or 1980 are mentioned). Untrue: the price of alcohol has risen in both nominal and real terms almost continuously for decades. Between 1980 and 2015, for example, alcohol price inflation was 23% higher than retail price inflation (see Table 4: <http://digital.nhs.uk/catalogue/PUB20999>). This is largely due to above-inflation rises in alcohol duty implemented over many years. The UK currently pays 40 per cent of all the alcohol duty in the EU. By the standards of many European countries, there is no cheap alcohol in Britain.
- b) 'Consumption rises in line with affordability'. Untrue. When people say that alcohol is cheaper (see (a) above), the most charitable interpretation is that they mean that alcohol is more *affordable*. Greater affordability is largely a function of rising incomes which have made nearly everything more affordable over several decades. One of your witnesses on 23 November noted that alcohol consumption rose between 1960 and 2002 as alcohol became more affordable. It is telling that he stopped at 2002 as there has been an 18 per cent drop in consumption in the UK in the years since despite alcohol becoming still more affordable (and despite the absence of any significant new alcohol policies, bar the relaxation of licensing laws). An 18 per cent decline in alcohol consumption is more than four times greater than the four per cent decline that will be brought about by a 50p MUP if the Sheffield model is correct. The Welsh Assembly's website says: 'Alcohol is now 60 per cent more affordable than it was in 1980.' This is true, but it is also a fact that per capita alcohol consumption in the UK is exactly the same as it was in 1980 (9.4 litres). These are interesting figures and yet I do not see much interest shown in them by health groups and legislators.
- c) 'Minimum pricing has been shown to work in Canada'. Untrue: the system used in some Canadian provinces is not the same as minimum unit pricing as advocated in Wales and it has not been shown to 'work'. One activist-researcher, Tim Stockwell, has made several claims about unfeasibly large declines in alcohol-related deaths, hospital admissions and crime as a result of relatively small increases in the minimum price in British Columbia. Official statistics do not support any of these claims. This article gives a good layperson's overview: http://www.thejournal.ie/minimum-unit-pricing-alcohol-ireland-facts-2932210-Aug2016/?utm_source=shortlink
- d) 'Minimum pricing will not affect moderate drinkers.' Untrue: as I show in (e) below, the policy will affect most alcohol sales. The claim that moderate drinkers will pay only slightly more under minimum pricing is based on findings from the Sheffield model and is based on the assumption that moderate drinkers consume just 5.5 units per week. This is not a definition of moderate drinking that most people would recognise.

- e) 'Minimum pricing will only affect the cheapest, high strength alcohol.' Untrue: around three-quarters of off trade beer and cider sales, two-thirds of spirits sales and two-fifths of wine sales will be affected by the policy. See table below (taken from SARG's 2014 analysis).

Table 4.2: Proportion of alcohol sold in Wales below a range of MUP thresholds

	Proportions sold below thresholds (2014 prices)		
	40p	45p	50p
Off-trade beer	40.8%	55.2%	72.1%
Off-trade cider	59.7%	70.3%	78.2%
Off-trade wine	12.2%	24.9%	41.5%
Off-trade spirits	9.3%	47.0%	65.5%
Off-trade RTDs	0.0%	0.0%	0.0%
On-trade beer	1.4%	1.9%	2.4%
On-trade cider	0.0%	0.0%	3.4%
On-trade wine	0.1%	0.1%	0.1%
On-trade spirits	1.4%	2.7%	4.5%
On-trade RTDs	0.0%	0.0%	0.0%

- f) 'Minimum pricing is needed to address the negative externalities of alcohol.' Untrue: excessive drinking creates negative externalities, such as costs to the police and health services, and raising the cost of alcohol to the point at which those costs are internalised is an idea of which economists generally approve. Normally this is done with a Pigouvian tax, but minimum pricing could serve the same purpose. However, alcohol duty currently raises £12.8 billion in the UK, exceeding the costs to public services by around £8 billion. Most of the costs that anti-alcohol campaigners claim are externalities are actually internal costs borne by the individual. Failing to make the appropriate distinction leads to greatly inflated estimates of the costs and gives the misleading impression that drinkers are not 'paying their way'.

Christopher Snowdon
23 November 2017

Mark Drakeford AM/AC
Ysgrifennydd y Cabinet dros Gyllid
Cabinet Secretary for Finance



Llywodraeth Cymru
Welsh Government

Ein cyf/Our ref

Simon Thomas AM
Chair
Finance Committee
National Assembly for Wales
Cardiff Bay
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21 November 2017

Arwydd Siôn.

Ahead of this week's Budget scrutiny session at Finance Committee, I wanted to set out my intention to restructure the draft Budget 2018-19 in accordance with the new Ministerial portfolios following the Cabinet reshuffle.

Both the outline and detailed draft Budget proposals – published on October 3 and 24 respectively – reflect the structure of the Welsh Government Ministerial portfolios at the time.

In order to provide full transparency of the Welsh Government's Budget and our spending plans, it is my intention to restate the Main Expenditure Group (MEG) BEL tables, which were published as part of the detailed spending proposals on October 24, in line with the new portfolio structures.

This will be a purely administrative exercise to regularise changes to the new structures and Ministerial portfolios. In restating the budget tables, we will provide a reconciliation between those published in October and the new structures. As part of this exercise, we will also restate the 2017-18 Budget position to support the scrutiny of the Second Supplementary Budget later this financial year.

The revised MEG BEL tables are currently being reviewed by Cabinet Secretaries and Ministers. I will publish the tables ahead of the draft Budget debate on 5 December.

Bae Caerdydd • Cardiff Bay
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Rydym yn croesawu derbyn gohebiaeth yn Gymraeg. Byddwn yn ateb gohebiaeth a dderbynnir yn Gymraeg yn Gymraeg ac ni fydd gohebu yn Gymraeg yn arwain at oedi.

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We welcome receiving correspondence in Welsh. Any correspondence received in Welsh will be answered in Welsh and corresponding in Welsh will not lead to a delay in responding.

I am copying this letter to the Chairs of the policy committees.

In gyroir,
Mark

Mark Drakeford AM/AC
Ysgrifennydd y Cabinet dros Gyllid
Cabinet Secretary for Finance

Ken Skates AC/AM
Ysgrifennydd y Cabinet dros yr Economi a
Thrafnidiaeth
Cabinet Secretary for Economy and Transport

Mr Dai Lloyd AM
Chair
Health, Social Care & Sport Committee
National Assembly for Wales

21 November 2017

Dear *Dai*,

Thank you for your letter dated 14th November to the Minister for Culture, Tourism and Sport and myself, regarding the Welsh Government Draft Budget for 2018-19. I shall answer the questions in the order you have presented them.

1. What is the rationale for separating sport and physical activity from public health again, given that the evidence paper submitted for the budget scrutiny session with the Cabinet Secretary for Health and Social Services and Minister for Children and Social Care, highlights that sport and public health were brought together in this Government due to the important contribution of sport to physical activity levels?

We do not consider that there is any separation between health, sport and physical activity, despite the splitting of portfolios. Sport will continue to help to make a significant contribution, but increasing levels of physical activity requires a wider response and will require collaboration across government. We are committed to promoting healthier lifestyles and choices and are taking action through interventions to prevent ill health, encouraging more physical activity for general well being throughout the life course as well as tackling obesity through a range of policies, programmes and legislation.

2. The previous Minister with responsibility for public health and sport clarified the remit of Sports Wales last month:

- **Will the change in Ministerial portfolios have an impact on this, or the new outcomes framework Sport Wales has been tasked with developing?**
- **Does the Minister share the same vision for Sports Wales?**

The change in Ministerial portfolios will not deter or have any negative impact on the work being undertaken by Sport Wales or on their outcomes framework.

We fully support and share the same vision for Sport Wales. This is an opportunity for everyone in Wales to help shape how sport is delivered across Wales and to get more people active at every stage of their lives. Following the independent review of Sport Wales

there were a series of recommendations to which Sport Wales have responded very positively. This will include adopting a fresh approach to demonstrate the value and impact of sport and physical activity and work is already underway.

3. The previous Minister set out a requirement for Sport Wales and Public Health Wales to work together to deliver the commitment to significantly increase physical activity levels:

- **Will this continue to be a Government priority?**
- **If so, how will the two portfolios be aligned across Government to deliver these objectives?**

We will continue to work across a range of Ministerial portfolios to maximise the opportunities that are available for people to become more active. Increasing rates of physical activity remain a Welsh Government priority as set out in Prosperity for All. To tackle this agenda needs a range of partners working effectively together and we need to draw on Wales' significant natural resources to increase people's physical activity levels.

The collaborative working between Sport Wales and Public Health will continue and over the coming months they will develop priorities and actions to contribute to our action plan to deliver the objectives of our national strategy. They have already held discussions with other public bodies such as Natural Resources Wales to agree a common set of objectives and indicators. That work will continue to establish a new outcomes framework for physical activity, some shared performance measures and methods for evaluating impact and value for money. Furthermore, the Public Health Wales Act places a requirement on Welsh Ministers to publish a national strategy on preventing and reducing obesity, where engaging in physical activity and tackling sedentary lifestyles will play an important role.

4. The Welsh Government has protected overall sport and physical activity resource funding at its current level (£22.3m), but should physical activity be given a higher priority in funding terms if the Welsh Government is serious about the preventative agenda?

Prosperity for All made clear Government's commitment to increasing levels of physical activity. That is to be realised not just through levels of funding but through a range of partners, Health Boards, Local Authorities, Schools, Employers – ensuring opportunities for physical activity can be factored in to daily life in Wales.

The budgetary protection at the current funding levels are for specific measures and programmes for sport and physical activity but do not present the totality of efforts to increase physical activity. For instance, they do not cover active travel, the National Exercise Referral Programme, support for the Daily Mile, or work with employers to promote physical activity.

5. What proportion of the sport and physical activity funding is allocated to increasing the physical activity levels of children and young people, and is this substantially different from previous years?

Increasing the number of young people who take part in sport and physical activity remains a priority area for Sport Wales and we are seeing levels increasing but we acknowledge that more work needs to be done.

Sport Wales continue to provide funding to support young people and this year will invest £11.5m in a range of programmes which focus on supporting sport and physical activity opportunities across our communities.

6. Sport Wales has been tasked with developing a new approach to physical activity, targeting communities which are least likely to meet Chief Medical Officer's guidelines. Sport Wales' resource budget has not increased for 2018-19:

- **How confident is the Minister that Sport Wales has the capacity to deliver this?**
- **Will delivery of the new approach be evaluated on effectiveness and value for money?**
- **What will be the contribution of Public Health Wales to this new approach?**

Sport Wales have responded very positively to the independent review and as part of their response they have recently launched their "My Welsh Sport, the Conversation" which aims at inviting people across Wales, from community level to elite level, to contribute their ideas and views as part of a nationwide consultation. These views will help us to rethink our ways of working together, consider future investment, create new focus and help inform a new vision for sport. But importantly this will not be a Sport Wales vision but it will be a vision for everyone.

We have total confidence in Sport Wales to build upon the foundation of success recognised in the independent review of sport to unite the sport sector and to deliver tangible and long lasting benefits to the communities of Wales. We want children from all social backgrounds to have the best start in life and for under represented groups to have more and better quality opportunities to take part in sport and physical activity on a regular basis. Sport Wales will be working with Public Health Wales to identify opportunities to increase people's activity levels. As part of the new comprehensive engagement plan, measurement, evaluation and effectiveness will form a central and fundamental part of the work of Sport Wales.

7. The WLGA and ADSS Cymru told the Committee that local authorities have responded to financial pressures by prioritising statutory services, often at the expense of non-statutory services like leisure centres which have a preventative role:

- **Has the Welsh Government undertaken any assessment of the impact of cuts to community leisure centres and services on physical activity levels?**
- **How does the Welsh Government plan to mitigate this?**

No assessment has been undertaken in terms of any cuts suffered to community leisure centres. However, we recognise that in the light of budgetary pressures, public sector bodies, such as local authorities, have to make some very difficult decisions, particularly on providing non-statutory services such as sport and leisure facilities.

To support local authorities in their decision making, the Welsh Government has undertaken a number of actions. For example, in March last year, we asked Sport Wales to develop, "Facilities for Future Generations – A Blueprint for Sport and Active Recreation in Wales" to help facility owners, managers and investors to consider the wider landscape of their communities, the changing trends in customer demand and the opportunities for collaboration, innovation and smarter investments. This document was developed in consultation with key partners that included local authorities and the Welsh Local Government Association.

The Welsh Government has also supported the sharing of good practice by publishing a toolkit on Community Asset Transfers to help and support community groups who express an interest in taking ownership of a community asset like a leisure centre or sports club.

I trust this information answers the questions you have raised and reassures the Health Social Care and Sport Committee that we remain committed to increasing levels of sport and physical activity across Wales and working with key partners and stakeholders to drive this agenda forward.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Ken', written in a cursive style.

Ken Skates AC/AM

Ysgrifennydd y Cabinet dros yr Economi a Thrafnidiaeth
Cabinet Secretary for Economy and Transport

Cynulliad Cenedlaethol Cymru
Y Pwyllgor Materion Allanol a Deddfwriaeth Ychwanegol

National Assembly for Wales
External Affairs and Additional Legislation Committee

Mr Mark Drakeford AM
Cabinet Secretary for Finance
Welsh Government

21 November 2017

Dear Mark

Common UK policy frameworks: “deep dive” exercises

Thank you for attending the External Affairs and Additional Legislation Committee’s meeting yesterday.

At the meeting, committee members asked you questions about the development of common UK policy frameworks.

You explained that the Welsh, Scottish and UK Governments are jointly undertaking three “deep dives” to explore the feasibility of agreeing common UK policy frameworks in relation to agriculture; justice and public health. You stated that each of these would involve two–days of meetings and that such meetings in relation to the ‘deep dive’ on agriculture had already taken place.

The Committee believes that this significant process must also be subject to appropriate scrutiny.

For the agriculture “deep dive”, will you provide further details to the committee, including:

- terms of reference for this exercise;
- names and titles of those present at the two–days of meetings;
- dates of the meetings;



- outputs from the meetings and the “deep dive” (e.g. reports, draft text, minutes or similar); and
- a summary of any decisions taken, including the next steps agreed.

In terms of the public health “deep dive”, can you please provide: details of when meetings are planned; the terms of reference that have been agreed; and who you expect to be in attendance.

You explained that the justice “deep dive” is more a bilateral exercise between the Scottish and UK Governments. I would like to request details of when this exercise is to be undertaken and how the Welsh Government is to be involved.

I am sure you would agree that the pace with which this process is moving poses some challenges for the scrutiny process – particularly as we are only weeks away from the next JMC (EN) meeting. The support of the Welsh Government and its willingness to ensure such scrutiny is achieved is welcome.

In terms of the agenda for the next JMC (EN) meeting, I would hope that you are able to share this with the Committee as soon as it is confirmed. In particular, I would like to know whether you foresee any decisions being taken on common UK policy frameworks or the EU (Withdrawal) Bill at this meeting.

The transparency of these inter-governmental arrangements is important – a point that has been made in clear terms to the Committee by its stakeholders. I intend to write to you separately with a broader request regarding the level of information the Committee will need in future to effectively scrutinise these Brexit-related inter-governmental processes.

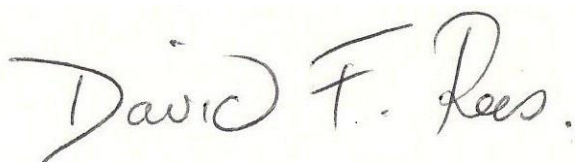
As most of the above information is likely to be in your possession already, I would be grateful for a swift response. If at all possible, I would like to include it in the Committee’s meeting papers for 4 December 2017. To that end, I would need a response by 29 November 2017.



I am copying this letter to Mike Hedges AM, Chair of the Climate Change, Environment and Rural Affairs Committee, Dr Dai Lloyd AM, Chair of the Health and Social Services Committee and Mick Antoniw AM, Chair of the Constitutional and Legislative Affairs Committee.

Thank you for considering this request. I look forward to receiving your response.

Yours sincerely

A handwritten signature in black ink that reads "David F. Rees." The signature is written in a cursive style with a large, looped 'D' and 'R'.

David Rees AM

Chair of the External Affairs and Additional Legislation Committee



Agenda Item 4.4

Priflywodfa, Ffwd Cymdeithasol a Chwaraeon
Health, Social Care and Sport Committee
HSCS(5)-33-17 Papur 6 / Paper 6

November 26, 2017

Dr. Dai Lloyd, AM
Chair, Health, Social Care and Sport Committee
National Assembly for Wales
Cardiff Bay, Cardiff, CF99 1NA
[REDACTED]

cc: Ms. Sarah Sargent
Policy and Legislative Committee Service
[REDACTED]

Re: Evaluation of Minimum Price for Alcohol (MPA) Bill

Dear Dr. Lloyd:

Thank you for your request of 26 October for my views on the MPA Bill, presently before the National Assembly for Wales. As I understand from your letter and HSCSC webpage, Stage 1 scrutiny of the Bill allows for continued consideration of general principles of MPA and extent to which this Bill will improve the health and well-being of the population of Wales. This letter contains my independent review and skepticism regarding the MPA Bill and supporting documents on minimum unit pricing (MUP).

Some details on my background; since 1990 I have conducted academic research on economic aspects of alcohol use and alcohol-related harms. I have published over 40 articles and book chapters related to this research, with an emphasis on marketing and pricing of beverage alcohol. Collectively, this body of research has been cited more than 750 times. A listing of my work published since 2006 appears at the end of the evaluation. Most of these publications have undergone the anonymous peer-review process employed by academic journals and compendiums.¹ My recent research has focused on systematic reviews of empirical work on alcohol use and misuse, which are highly pertinent to the MPA Bill. I have published 10 meta-analyses and systematic reviews focused on alcohol marketing, alcohol pricing and alcohol-related harms, including drinking by youth and young adults. All 10 articles were peer reviewed. Some of my past research was supported financially by US public agencies; some was supported by industry-associated groups; and some was conducted independently as a normal part of academic employment. In the Economics Discipline, most economists take the position that scientific research reports are evaluated on their merits, absent innuendos and claims of personal bias. I resent crude *ad hominem* attempts to discredit my research as somehow tainted by industry support, without arguments that detail the scientific basis for such claims or errors on my part. Several recent attempts to do so have in my opinion failed (see Nelson 2008a, 2014e, 2016a). This letter presents my independent views, and received no financial support, input, or consultation of any kind or manner from individuals associated with the alcohol industry. As in all my publications, it is my work alone, and does not necessarily represent the opinion or position of other groups or institutions.

¹ EM (p. 80) argues that peer-review is strong evidence of support for a research approach, but fails to address other research-related issues such as publication bias and general issues of statistical hypothesis testing. I have written extensively on issues of *publication bias* in alcohol-related research (Nelson 2010a, 2011, 2013d, 2013e, 2014a).

A summary of my recent research is available as: “Economic evidence regarding alcohol price elasticities and price responses by heavy drinkers,” **Public Health Open J**, 1 (2), August 2016, 36-39. Open Access at: <http://dx.doi.org/10.17140/PHOJ-1-108>

Much of the literature on MUP is focused on hypothetical price changes, including the Sheffield Model, and not real-world price changes. Actual policy-induced price changes have been the focus of my recent research, including effects on heavy drinkers and alcohol-related harms for adults and youth. As demonstrated below, the Evaluation Memorandum (EM) and report of the Advisory Panel on Substance Abuse (APoSM) are incomplete, misleading, and deeply flawed as scientific documents. An assessment of the MPA Bill indicates that it is unlikely to achieve its objectives. The main reason is that harmful and hazardous drinkers are relatively insensitive to price changes contrary to claims in the Bill’s supporting documents (EM, p. 84; APoSM, p. 58). As shown below, evidence that alcohol-related harms will be lessened by price increases or minimum prices is not extensive or convincing. However, this letter is not a complete appraisal as several issues deserve more attention, such as methods used to determine benefits and costs of MUP and the major deficiencies in empirical studies of MUP in Canada and elsewhere.

The focus of the Bill is a reduction in alcohol-related harms that are a consequence of harmful or hazardous use alcohol. However, heavy drinkers, including youth, are not responsive to alcohol prices as depicted by the Sheffield Model or other claims in the public health literature. Many of these claims concern population-level drinking, including moderate drinkers (e.g., APoSM, p. 54). Review of changes in alcohol prices from survey data and natural experiments reveals that price effects on heavy drinking and alcohol-related harms are more nuanced than earlier studies suggest, including the Sheffield Study for Wales. My detailed evaluation, attached to this letter, sets out reasons for my conclusions. It is my opinion that other policy actions besides MPA need to be considered:

1. Maintain the existing policy banning below-cost sales of alcohol at off-premise outlets.
2. Adopt policies proposed under EM Option Two (p. 92), especially education programs targeting children and young people, that strengthen the focus on alcohol misuse. Implement laws and regulations to reduce alcohol sales and drinking in conjunction with athletic sporting events and other youth-oriented events, such as public concerts. Consider limits on beverages that combine alcohol and caffeine. Consider an increase in the legal age to 19 or 20 years. Better enforce existing laws on underage consumption.
3. Adopt additional policy actions that better target harmful and hazardous drinkers of all ages, including strengthening of laws and penalties for drink-driving, public intoxication, underage drinking, and other actions that are closely related to harmful or hazardous consumption. Penalties such as drink-driving fines are more salient than broad population-level policies such as advertising bans and minimum prices. Better enforce existing laws on hazardous consumption.

Thank you for this opportunity to comment on the MPA Bill. Alcohol-use harms are a serious problem in Wales and other countries. Such problems deserve serious assessment and evaluation, including scientific reviews that do not meet the current public health view of political correctness. Evidence-based policies should be based on consideration of all scientific evidence, and not a selective slice thereof.

Respectfully submitted:

X

J o n P . N e l s o n

Jon P. Nelson, Ph.D. <[REDACTED]>
Professor Emeritus of Economics
Pennsylvania State University

Evaluation of Minimum Price for Alcohol (MPA) Bill in Wales (dated November 26, 2017)

Jon P. Nelson, Ph.D. <[REDACTED]>
 Professor Emeritus of Economics
 Pennsylvania State University

Introduction

1. I reviewed the following MPA reports:

Public Health (Minimum Price for Alcohol) (Wales) Bill – Explanatory Memorandum incorporating the Regulatory Impact Assessment and Explanatory Notes, October 2017 [EM].

Model-based Appraisal of Minimum Unit Pricing for Alcohol in Wales – An Adaptation of the Sheffield Alcohol Policy Model version 3, September 2014 [Sheffield Study or SS].

Advisory Panel on Substance Misuse, Minimum Unit Pricing: A Review of Its Potential in a Welsh Context, July 2014 [APoSM].

2. EM (p. 124) states that:

The objective of the minimum pricing legislation is to tackle alcohol-related harm, including reducing alcohol-attributable hospital admissions and alcohol-related deaths, by reducing alcohol consumption among harmful and hazardous consumers, including among young people in Wales.

3. While the above reports contain evidence regarding possible effects of higher prices on alcohol consumption and alcohol-related harms, evidence for harmful and hazardous drinking is incomplete or presented in a misleading manner. Additional evidence reviewed here indicates that MPA will not be as effective as claimed for consumption or harms. Major errors and problems are detailed below.

3.1 EM and APoSM also employ rhetorical language in attempting to make a case for MPA. Examples of misleading language from EM include: “strong evidence” (p. 10); “growing body of evidence and research that shows a strong link” (p. 20); “there is clear evidence” (p. 47); “there is a strong evidence base” (p. 65); “strong and consistent link” (p. 78); “robust process, using conservative assumptions” (p. 80); “robust evidence base” (p. 84); and “strong and consistent evidence” (p. 121). APoSM employs similar rhetorical language, including: “the evidence base is extensive” (p. 10); “modelling is ... well-founded and robust” (p. 10); “strong evidence” (p. 55); and “evidence consistently indicates” (p. 55).

4. As shown below, these bold claims ignore conflicting evidence, and often are presented prior to an actual examination of evidence, so the accompanying review is presented, *ipso facto*, as obvious truth. This language is misleading and in the current context, deliberately so. It should be removed or modified.

Economic modelling by Sheffield

5. In principle, minimum unit pricing operates by placing a floor under prices for alcohol beverages, with an intended effect of limiting choice for all drinkers, especially harmful or hazardous drinkers who tend to consume greater quantities of low-cost and/or higher-alcohol content beverages. Evidence for beneficial effects of minimum pricing are based largely on the University of Sheffield Model as adapted for Wales. The Sheffield Study is deficient:

- 5.1 Many details of the Sheffield Model are largely unknown or underreported for Wales and other countries (e.g., Canada, Scotland, UK), including forecast error intervals for policy simulations. Confidence intervals for forecasts increase in size as model inputs or parameters are changed importantly relative to current values.² Sheffield regressions and simulations lack standard measures of forecasting accuracy. The estimates are always presented as “precise” *point estimates* (e.g., reduction of 53 deaths and 1,400 fewer hospital admissions, SS, p. 10), which hides the range of uncertainty for effects and possible benefits of MPA. Although a sensitivity analysis is presented for some parameters (p. 77), this does not fully capture uncertainty surrounding forecasts for a 20-year period. Statistical forecast intervals and forecast statistics should be presented for all Sheffield Model estimates. Point estimates are insufficient as the sole scientific basis for MPA. All estimates should include standard errors, and confidence intervals for parameter estimates should be reflected in the sensitivity analysis.
- 5.2 Estimated own-price elasticities for the UK (SS, p. 25) are not representative of values obtained elsewhere for beverage alcohol, and most cross-price elasticity estimates do not meet a widely-accepted test for statistical significance ($p < 0.05$). For example, a meta-analysis by Nelson (2014a) reports a consensus beer price elasticity that is only -0.20 compared to values of -0.98 (off-premise) and -0.79 (on-premise) used by Sheffield (p. 25).³ Even if the Model can be shown to be internally valid, its external validity is in doubt. Further, large elasticities by beverage reported by Sheffield do not coincide arithmetically with an overall average elasticity of -0.50 used elsewhere in MPA reports (APoSM, p. 54; EM, p. 28; and SS, p. 79). Price elasticity estimates for Wales for harmful and hazardous drinkers are required to formulate an evidence-based MPA policy.
- 5.3 Various other Sheffield estimates show low overall levels of statistical reliability. As one example, the Sheffield Study (p. 29) in Table 4.5 reports statistical models for risks of binge drinking and mean daily consumption. Values for R-squared statistics range from only 0.19 to 0.45, indicating that less than 50% of variation in the data are explained by the regressions. Uncertainty in estimates in

² As explained by P. Kennedy, *A Guide to Econometrics*, 6th ed. (2008, p. 332), an error interval is smallest at average values of a data set and expands away from the means. See also J.S. Armstrong, *Standards and Practices for Forecasting* (2001), available at <http://forecastingprinciples.com>. One possible way to demonstrate legitimacy of a forecast or simulation is to save part of a data sample for model validation. This is referred to as *cross-validation* (Kennedy, p. 102), and helps to internally validate a given model. To the best of my knowledge, Sheffield has not done this modelling exercise. Hence, robustness of the Model is largely unknown, contrary to EM (p. 80).

³ The consensus value of -0.20 is incorrectly reported as -20 in EM (p. 32). The full citation for Nelson (2014a) is given below, which is incomplete in EM (p. 32). EM also incorrectly reports the year of publication. For additional evidence regarding own-price elasticity values, see the reviews in Nelson (2013d, 2013e, 2014a, 2016c), which correct for “*publication bias*.”

Table 4.5 is not reflected in model simulations.⁴ This is important because some alcohol-related harms are linked to “peak day consumption.” In many cases, parameters are reported without standard errors or other indicators of significance. For example, Table 4.13 (p. 48) simply reports slope estimates for work absence, without regressions or associated standard errors. This is incomplete reporting of key results. All statistical estimates and simulations using the Sheffield Model need to report standard errors, complete regression results, and forecast error intervals and other pertinent statistics.⁵ Only if model simulations reflect statistical (in)accuracy can policymakers accurately judge the possible range of impacts of MPA.

- 5.4 A major omission in the Sheffield Study is its failure to model outcomes if there is a shift in major parts of the price distribution when a MUP is imposed on the lower end of that distribution (EM, p. 135). An across-the-board shift in prices imposes costs on all consumers, regardless of drinking level, which are not accounted for in current benefit-cost calculations.⁶ Sheffield Model simulations need to be modified to account for this possibility, but more importantly benefit-cost analysis for MPA needs to reflect costs that will be imposed on moderate consumers due to higher prices generally.
- 5.5 EM (p. 64) argues erroneously that it is not possible to quantify “. . . a possible reduction in consumer utility” [due to higher prices]. Monetary measurement of loss of consumer surplus from price increases is a standard exercise in benefit-cost analysis, and it is inconceivable that this statement was written by a trained economist. Hence, it is not known accurately that “. . . MUP policies would have only a small impact on moderate drinkers” (EM, p. 65). The benefit-cost analysis should be modified to account for loss of consumer surplus arising due reduced consumption of alcohol by all consumers, under a variety of assumptions concerning the final distribution of prices.
- 5.6 In addition to MUP, the Sheffield Model is used to evaluate other possible policies, including a general 10% price increase and a ban on below-cost selling. For the latter, the Sheffield Study (p. 79) argues that “a policy to ban below-cost selling has virtually no impact on consumption and alcohol-related harms.” This conclusion is premature without statistical confidence intervals for all Model estimates. The statement is based on point estimates, which might have wide ranges. Simulations of other policies require confidence intervals for the forecasts involved. The estimates also fail to account for a general shift in the distribution of alcohol prices, following imposition of a MUP.
- 5.7 Simulation modelling is not a perfect substitute for evidence of actual real-world price differences and changes. The Sheffield Model is based on general population data. The scientific evidence assessed, however, should be focused on harmful and hazardous drinkers. Population-level econometric studies incorporate all manners of drinking levels and patterns, including in many instances individuals who abstain from consumption of alcohol.

⁴ The Sheffield Study (p. 28) incorrectly reports that these estimates are contained in Table 4.6.

⁵ Coefficient of determination or R-squared is the standard measure of the amount of variation explained by a regression model. It is subject to possible misuse if investigators simply miss-specify the model to increase R-squared. However, the Sheffield Study for Wales fails to include specification tests of any kind.

⁶ For example, Stockwell et al. (2011, p. 916) reports actual price-distribution increases for moderate- and higher-priced products of about 1% to 2.6% compared to average real price increases of 3.6% for lower-end products.

Evidence relating to heavy drinking, alcohol prices, and alcohol harms

6. EM (pp. 27-35) provides a highly selective survey of the evidence base relating to impacts of price on alcohol consumption and associated harms. The survey is neither comprehensive nor systematic, but it is used to arrive at a sweeping conclusion that “. . . in the *majority of cases*, this evidence demonstrates that in response to an alcohol price increase, there is a decrease in alcohol consumption and – crucially – a decrease in alcohol-related harm and mortality. Likewise, when there is a decrease in price, alcohol-related harm increases” (EM, p. 32, emphasis added). These claims are erroneous and misleading.

7. A comprehensive review of alcohol policies related to taxes and prices is important for several reasons. First, the Sheffield Model is not a study of real-world policy changes relating to prices, alcohol taxes, minimum prices, below-cost selling, or other policy changes. The Sheffield Model might be best described as a “correlational study,” which leaves issues of causality unresolved. Second, MUP is targeted toward heavy and hazardous drinking, and many economic studies are based on population-level data. Third, as noted by EM (p. 32, citing Boniface et al. 2017), the evidence-base for MUP has been produced by a small number of research teams and “the quantitative uncertainty in many estimates or forecasts is often poorly communicated outside the academic literature.” This comment echoes my concern above that the Sheffield Study has failed to provide sufficient statistical uncertainty measures.⁷

8. I next provide several examples of the incompleteness of evidence cited by EM for alcohol and price as it relates to both heavy drinkers and alcohol-related harms. My critique is not complete, but is provided to indicate that there are important scientific omissions in EM and APoSM, which need to be rectified before decisions are made on the MPA Bill. The additional evidence considered here pertains to real-world price changes, and not those produced by model simulations. This is important as external validation of Sheffield Model estimates for Wales.

8.1 **Switzerland** – EM (p. 33) cites one study for Switzerland (Heeb et al. 2003) for an actual policy-induced change in alcohol prices.⁸ However, there have been five studies of this policy change for alcohol consumption, with conflicting results (Nelson and McNall 2017, p. 430). Overall, Swiss results indicate that spirits consumption rose *modestly and temporarily* for heavy drinkers following a price reduction. One study also is available for Switzerland for changes in alcohol dependency among younger drinkers, with *null results* (Nelson and McNall 2016b, p. 268).

8.2 **Finland** – there has been extensive study of policy-induced changes in Finnish prices, but EM (p. 33) reports results for only three studies for alcohol-related harms. This is selective reporting. For consumption changes, Nelson and McNall (2017, p. 424) report results for nine studies. We conclude that “overall, consumption results for Finland are mixed” (p. 425), with possible *short-term effects* on heavy drinkers and little effect on lower-income younger persons and youth. For alcohol-related harms, Nelson and McNall (2016b, p. 267) review 28 studies covering multiple harms, including

⁷ Similar issues exist in other Sheffield studies cited in support of MUP, such as Meir et al. (2009) that reports off-premise and on-premise average prices paid by UK drinkers with different average consumption levels. Results in Meir et al. do not include standard errors, so it is uncertain if any of the reported differences in average prices are statistically significant.

⁸ Studies of actual policy-induced changes are often characterized as “natural experiments” in contrast to more abstract modelling approach used by Sheffield. Natural experiments address some causality issues left uncertain in the abstract modelling approach.

studies relating to mortality and hospitalizations (15 studies); assaults and other crimes (5 studies); drink-driving (3 studies); intoxication (4 studies); and alcohol-dependency (2 studies). Results are generally mixed for most harms, but lower prices in Finland had some effects on mortality and hospitalizations, especially for liver disease among older persons (p. 270). This result is indicative of nuanced or selective effects of alcohol price changes on distinct subpopulations and/or distinct alcohol-related harms.

8.3 **Sweden** – EM (p. 34) ignores the large body of evidence relating to price reductions in Sweden, and chooses to focus exclusively on one study of quality substitution due to a price increase. Nelson and McNall (2017, p. 427) examine 13 studies of Swedish alcohol consumption following actual policy-induced changes in prices. Numerous null or negative results are reported in these studies, and again any increases in consumption appear to be *short-term* in nature. In addition, Nelson and McNall (2016b, p. 267) review 20 studies for alcohol-related harms in Sweden following actual price changes. We conclude (p. 270) that any effects on mortality and hospitalizations were *short-term* in nature, and other effects were weak or non-existent.

9. **Summary of alcohol consumption changes following actual price changes in five countries** – In a peer-reviewed study, Nelson and McNall (2017) examined 29 primary studies containing 35 sets of results for alcohol consumption, including results for binge drinking (18 studies), young adult and youth alcohol consumption (18 studies), and older adults and heavy-drinking adults (16 studies). Results are reported for five countries, and some studies cover multiple countries or outcomes. Our general conclusion from a comprehensive review is as follows:

Overall, we find a general lack of consistent results that can provide a sound evidence-base for development of alcohol tax policy. In all countries there is a lack of robust results for major segments of the population, following interventions that reduced prices and relaxed import quotas . . . In many cases, positive policy effects are short-term in nature or apply to particular groups of individuals or subpopulations . . . what we learn from this review is that alcohol tax and price changes are likely to have selective effects on drinking and drinking patterns (Nelson and McNall 2017, p. 431).

10. **Summary of alcohol harm changes following actual price changes in nine countries** – In a peer-reviewed study, Nelson and McNall (2016b) examined 45 studies for nine countries for five harmful outcomes: mortality and hospitalizations; assaults and other crime; drink-driving; intoxication; and alcohol-dependency.⁹ We reviewed 69 outcomes as some studies covered more than one harm or country. Our results and conclusion are summarized as follows:

Findings indicate that changes in taxes and prices have selective effects on harms. Mortality outcomes are positive for liver disease and older persons, especially in Finland and Russia. Mostly null results for assaults and drink-driving are found for five countries. Intoxication results

⁹ It is worth noting that EM fails to address issues of social unrest, public nuisance, and other anti-social behaviors that are often associated with drinking by youth and young adults and sporting events. Results in Nelson and McNall (2016b) for intoxication may capture this type of harm. There is not strong evidence that intoxication is increased by lower prices. Some indirect evidence on this issue might also be found in so-called field studies that examine several on-premise pricing practices such as happy hours, pitcher specials, drinking games, and buying rounds. Boniface et al. (2017, p. 10) review only one laboratory study in their “systematic” review of minimum pricing. In contrast, Nelson (2015a, p. 9) reviews six field studies, with mixed results for binge drinking outcomes.

for Nordic countries are mixed for selective subpopulations. Results for survey [dependency] indexes are mixed, with no strong pattern of outcomes within or across countries. Prior reviews stress taxes [and pricing] as a comprehensive and cost-effective intervention for addressing alcohol-related harms. A review of natural experiments indicates the confidence placed on this measure is too high, and natural experiments in alcohol policy had selective effects on various subpopulations (Nelson and McNall 2016b, p. 264).

11. While policy changes studied by Nelson and McNall (2016b, 2017) do not include minimum unit prices as such, they do provide information on the kinds of evidence cited by EM in support of a MUP policy for Wales. Further, these policy changes entail across-the-board price reductions. Heavy drinkers account for a substantial share of total alcohol consumption. If harmful and hazardous drinkers are as sensitive to prices as claimed by supporters of MUP, then one might expect to see dramatic effects of these natural experiments on both alcohol consumption and alcohol-related harms. Dramatic effects are not apparent, especially over the longer-run.

12. Three other systematic reviews by Nelson (2013c, 2014d, 2015a) – all peer-reviewed – provide evidence on price-sensitivity of individuals who engage in heavy or hazardous consumption of alcohol. Only one study – Nelson (2013c) – was incorporated in EM (p. 82) and APoSM (p. 54), which again is indicative of uninformed or selective reporting. A summary of each review follows:

12.1 **Nelson (2013c)** examined 19 individual-based studies (survey sample methods) that examine price responses by heavy-drinking adults and nine studies of prices and cirrhosis mortality. A total of 573 studies relating to alcohol prices and taxes were retrieved as a first step in the review process, with final selection based on further examination of studies and their content. The 19 studies for consumption excludes population-level empirical studies. The 19 studies include results from five countries, while the nine studies cover multiple countries, including an international OECD panel.¹⁰ This peer-reviewed study concluded the following:

The review finds only two studies [out of 19] of heavy drinking with a significant and substantial negative price response. For cirrhosis mortality, only two studies [out of 9] find a significant negative price response. Overall, the role of price and taxes as a significant deterrent to heavy drinking by adults is uncertain (Nelson 2013c, p. 265).¹¹

12.2 **Nelson (2014d)** provides a review of alcohol prices and gender differences for drinking and heavy drinking by adults and young adults. Starting again with a broad database, relevant studies were narrowed to 15 studies of adult drinking and eight studies of drinking by young adults, aged 18-26 years. As in Nelson (2013c), this review included discussion of samples, measurement and econometric issues, and key empirical results in each primary study. I attempt to review all relevant

¹⁰ Small samples of studies in systematic reviews result from a tight focus on closely-related studies. This contrasts with the “kitchen-sink” approach used in some studies; e.g., a MUP review by Boniface et al. (2017) combines MUP studies with several other studies are not closely-related to MUP; see EM (p. 32). The same problem occurs in the sample of “heavy drinking” studies reviewed in Wagenaar et al. (2009); see EM (p. 29).

¹¹ Since publication of this survey, I have re-examined EU data on cirrhosis mortality with a focus on statistical outliers in the data sample; see Nelson (2015b). My study of “affordability” of alcohol is contained in Nelson (2014b), which demonstrates that increased “affordability” of alcohol in most countries of the OECD and EU is due to rising real personal incomes and not falling real prices.

evidence on the issue at hand, and not a selective slice thereof. Results of the peer-reviewed study are as follows:

First, adult men have less [price] elastic demands compared to women. Second, there is little or no price response by heavy-drinking adults, regardless of gender. Third, although the sample is small, price might be important for drinking participation for young adults. Fourth, the results strongly suggest that heavy drinking by young adults, regardless of gender, is not easily dissuaded by higher prices (Nelson 2014d, p. 1260).

12.3 **Nelson (2015a)** conducted a systematic review – again peer-reviewed – for effects of alcohol prices (or tax surrogates) on binge drinking for three age groups: youth, young adults, and adults. Outcomes examined include binge participation, intensity and frequency. Criteria for data collection and potential sources of bias are discussed, including adequacy of price data. Fifty-six relevant studies were found, with studies and results distributed equally among three age groups. Also found were five natural experiments for tax reductions and six field-based studies examining price-promotions in bars and pubs. This is a much larger sample of results compared to reviews used in EM (p. 29, citing Wagenaar et al. 2009; Elder et al. 2010). My review included results for four countries. An innovation in Nelson (2015a, p. 4) is a demonstration of under-reporting of econometric studies that occurs in earlier reviews by public health researchers, such as Wagenaar et al. (2009, 2010). My systematic review of binge drinking studies concludes that:

Null results or mixed results are found in more than half of the studies. The body of evidence indicates that binge drinkers are not highly-responsive to increased prices. Non-responsiveness holds generally for younger and older drinkers and for male and female binge drinkers alike. Increased alcohol taxes or prices are unlikely to be effective as a means to reduce binge drinking, regardless of gender or age group (Nelson 2015a, p. 1).

13. As MUP is specifically targeted at harmful and hazardous drinking, it is particularly important that the evidence-base focus on that element of drinking and on real-world price changes as opposed to simulations of price changes or evidence for population-level drinking. Evidence for alcohol harms does suggest that there might be some positive benefits for highly-selective subpopulations, but selective effects are better dealt with through more targeted policies, rather than a population-level MUP policy.

14. Overall, these five reviews cover numerous studies, countries, sub-populations, drinking patterns, and outcomes. My systematic reviews provide virtually no support for the notion that MUP will be effective over the long-term in reducing heavy use of alcohol or alcohol-related harms. The extensive nature of these reviews is in stark contrast to the limited and selective summaries contained in EM and APoSM.

15. Based on a limited review, APoSM (p. 54) argues that “. . . taken as a whole, there are far more estimates demonstrating a strong relationship between alcohol and price compared to a handful that do not [citing only studies by Nelson 2013c and Ayyagari et al. 2013]. As such there is strong evidence to support a connection between the price of alcohol and demand for alcohol.”

15.1 **This statement is a red herring** in my opinion, and unfortunately appears repeatedly in the public health research literature (e.g., Babor et al. 2010, p. 125). The issue is not overall “demand for alcohol,” but price responses of those drinkers who are targets of the MPA Bill, *viz.*, *harmful and*

hazardous drinkers. APoSM is correct that numerous studies demonstrate a relationship between price and alcohol demand (see Nelson 2013e, 2013d, 2014a), but most of these studies are not relevant for evaluation of the MPA Bill – they are concerned with all manners of drinking levels and patterns, including light, moderate, and heavy drinkers combined in population-level studies. It is my professional opinion that only studies in my five systematic reviews – and similar focused studies – are relevant to the MPA Bill and MUP.¹² These reviews and primary studies should be given careful assessment prior to final consideration of the Bill. APoSM fails to provide sufficient appraisal of the evidence-base for heavy drinkers and real-world price changes. The APoSM report is incomplete and misleading.

16. EM (pp. 31-32) also selectively cites literature pertaining to alcohol prices and heavy drinking. The EM report appears to be suggesting that only one or two studies have reported a weak link between prices and heavy drinking. **This suggestion is false and misleading.** The EM (p. 32) also incorrectly cites Nelson (2014a) as a study of “harmful and hazardous drinkers.” It is not; rather it is a study of population-level drinking.

17. As an indication of results in other studies relevant for MPA, I have appended quotations and references from 16 selected studies. The appendix provides a summary of studies that report null or negative statistical results for alcohol prices and heavy drinking or alcohol-related harms. None of these 16 studies are cited in EM and only one of the studies is cited in APoSM. More complete and detailed results are contained in tables in my five reviews:

- Nelson (2013c) – Table 3 for 19 primary studies for heavy-drinking adults (p. 274); Table 4 for 9 primary studies cirrhosis mortality (p. 277).
- Nelson (2014d) – Table 2 for 15 primary studies for adults (p. 1267); Table 3 for eight primary studies for young adults (p. 1270).
- Nelson (2015a) – Table 2 (p. 7), with binge-drinking studies divided according to youth (18 studies); young adults (20 studies); adults (19 studies); and studies using natural experiments (5 studies) and field methods (6 studies).
- Nelson and McNall (2016b) – Table 3 (p. 268) for a summary of five categories of alcohol-related harms, divided by positive vs. null evidence, for 69 outcomes (45 primary studies).
- Nelson and McNall (2017) – Table 2 for alcohol consumption in Denmark (6 studies); Table 3 for Finland (9 studies); Table 4 for Hong Kong (2 studies); Table 5 for Sweden (13 studies); and Table 6 for Switzerland (5 studies).

18. A summary of these five systematic reviews is Nelson (2016c), “Economic evidence regarding alcohol price elasticities and price responses by heavy drinkers,” **Public Health Open J**, 1 (2), Aug 2016, 36-39. Open Access at: <http://dx.doi.org/10.17140/PHOJ-1-108>

¹² Empirical results in Stockwell et al. (2001, 2012) for minimum pricing in Canada do not address heavy, harmful or hazardous drinkers, and are therefore largely irrelevant for evaluation of the MPA Bill. As noted by EM (p. 31) “. . . an MUP is more targeted towards the heaviest drinkers,” but alcohol measures in the Stockwell studies concern entire provincial populations of drinkers. There are numerous other flaws in Stockwell’s empirical studies, including: omission of “adding-up” constraints; omission of cross-price effects; omission of measures of goodness-of-fit; and inconsistent results. Results also are not robust to a first-differencing of data, which likely renders the data stationary. Numerous other MUP studies in the alcohol literature are based on hypothetical changes in prices, and not actual real-world price changes as in the natural experiments reviewed in Nelson and McNall (2016b, 2017).

Anticipating unintended consequences

19. Governments around the globe have experimented with population-level market interventions to limit undesired activities or promote those activities that are currently politically popular or desired.

Unintended consequences often result since it is impossible to close-off all forms of innovation by consumers and producers. The EM report, MPA Bill, and several commentaries speak to issues of unintended consequences, such as cross-border shopping (EM, p. 84, p. 128); product substitution and/or innovations (p. 132, p. 140); rent-seeking activity (p. 136); non-price competition (p. 139); mixed or joint sales (Bill, sections 5-7); illicit and illegal alcohol use (EM, p. 83; Duffy and Snowdon 2012; O'May et al. 2015, 2016); and general effects on consumer spending patterns (EM, p. 83; Snowdon 2014). This is a long list. The MPA Bill also incorporates a "sunset provision" in Section 21-22, which provides for a report on operation and effects of MPA. This is at least tacit recognition that MPA could be ineffective or have unintended consequences that may not be desired.

19.1 Another unintended consequence of alcohol policy is that beneficial effects are often short-lived. As discussed above, this is apparent in many studies examined by Nelson and McNall (2016b, 2017).

Other recent econometric studies also indicate that alcohol policy interventions can have short-run effects for alcohol-related harms that do not carry-over in the long run.¹³

19.2 The possibility exists for positive short-run effects if a MUP is instituted, but null or negative effects in the long run. Hence, provisions should be made that anticipate this consequence.¹⁴ First, political and governmental organizations should refrain from self-congratulatory speeches and notices regarding MUP, since effects may be short-lived. Second, for appraisal of effects of MUP (if implemented), methodologies should be adopted that recognize the potential for short-run effects only.¹⁵ Third, considering the highly political nature of alcohol policy in Wales and the UK, those groups who are closely associated with the Bill should not be major participants in the "sunset review." This includes individuals responsible for the Sheffield Model as well as other prominent members of the public health research community, who have been at the heart of MUP debate in Wales, UK, Ireland, and Scotland. Frankly, it is ludicrous to suggest that such vested interests do not exist.

19.3 As discussed by Craven et al. (2013), there are a wide range of issues that proponents of minimum prices must first resolve, including such concerns as substitution of marijuana and other illegal or illicit drugs for low-price alcohol.¹⁶

¹³ See, e.g., R. McClelland and J. Iselin, Do alcohol excise taxes reduce motor vehicle fatalities? Evidence from two Illinois tax increases, Tax Policy Center, Urban Institute and Brookings Institution, October 2017. This study is consistent with long-term results reported in Nelson and McNall (2016b, 2017), and contrary to results in Wagenaar et al. (2015) and Wagenaar et al. (2010). The latter study is cited favorably in EM (p. 29).

¹⁴ In financial markets, short-run effects are referred to as "announcement effects." For a recent study of this economic phenomenon, see H. Allcott and T. Rodgers, The short-run and long-run effects of behavioral interventions: Experimental evidence from energy conservation, *American Economic Review* 104, 2014, 3003-37.

¹⁵ What I have in mind here are assessment methods that address issues of causality and selection, such as employed for assessment of US labor supply programs. For an introduction, see J.D. Angrist and J-S Pischke, *Mostly Harmless Econometrics: An Empiricist's Companion* (Princeton University Press: 2009).

¹⁶ B.M. Craven, et al., The economics of minimum pricing of alcohol, *Economic Affairs* 32, 2013, 174-89.

What can be done

20. A brief review of the MPA Bill indicates that it is unlikely to achieve its objectives. The EU and APoSM reports are incomplete as scientific evidence in support of MPA. My evaluation indicates the scientific errors and omissions in these reports. However, this letter is not a complete evaluation as several additional issues deserve attention, such as methods used to determine benefits and costs of MPA and major shortcomings in empirical studies of existing MUP policies. The focus of the MPA Bill is harmful and hazardous consumption of alcohol and alcohol-related harms that are a consequence of this level or pattern of alcohol use. Harmful and hazardous drinkers, including youth, are not responsive to alcohol prices as depicted by the Sheffield Model or many other claims in the public health literature. **Population-level studies do not reveal this insensitivity.** Review of real-world changes in alcohol prices indicates that effects on alcohol-related harms are likely to be nuanced or selective.¹⁷ These effects also may be short-term in nature. It is important to remember that the objective of the Bill goes beyond just increasing prices at the low-end, and entails a desired long-term reduction in harms.

21. In conclusion, it is my opinion that other policy actions besides MPA need to be considered:

1. Maintain the existing policy banning below-cost sales of alcohol at off-premise outlets.
2. Adopt policies proposed under EM Option Two (p. 92), especially education programs targeting children and young people, that strengthen the focus on alcohol misuse. Implement laws and regulations to reduce alcohol sales and drinking in conjunction with athletic sporting events and other youth-oriented events, such as public concerts. Consider limits on beverages that combine alcohol and caffeine. Consider an increase in the legal age to 19 or 20 years. Better enforce existing laws on underage consumption.
3. Consider additional policy actions that better target harmful and hazardous drinkers of all ages, including strengthening of laws and penalties for drink-driving, public intoxication, underage drinking, and other actions that are closely related to harmful or hazardous consumption. Penalties such as drink-driving fines are more salient than broad population-level policies such as advertising bans and minimum prices. Better enforce existing laws on hazardous consumption.

22. Thank you for this opportunity to comment on the MPA Bill. Alcohol-use harms are a serious problem in Wales and other countries. Such problems deserve serious review and evaluation, including scientific reviews that do not meet current public health views on political correctness. Evidence-based policies should be based on consideration of all scientific evidence, and not a selective slice thereof.

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¹⁷ See, e.g., A. Allamani, et al., A commentary on the limits of alcoholic beverage policies, *Alcohol and Alcoholism* 52, 2017, 706-14 [suggesting that alcohol policy must consider social and cultural context].

Appendix – 16 representative studies reporting negative/null results for heavy drinking:

- The estimated tax effects among the whole population . . . are relatively large and significant among light drinkers but shrink substantially for moderate and heavy drinkers. We cannot reject that alcohol consumption of the latter types is unresponsive to tax changes (An and Sturm 2011, p. 19).
- The more [price] responsive group is more likely to be non-white, female, married, and older and to consume less alcohol . . . Our results indicate that the heavier drinking group is insensitive to price; thus higher taxes would be unlikely to reduce negative externalities for older drinkers (Ayyagari et al. 2013, p. 102).
- Taxation policies which increase the price of alcohol, and are very efficient at decreasing harms associated with reduced average consumption, may be relatively inefficient at decreasing alcohol harms associated with high-intensity drinking (Brynes et al. 2012, p. 2).
- The beer tax estimate for heavy episodic drinking is negative in sign but not statistically significant (Carpenter et al. 2007, p. 9).
- Increases in beer prices . . . [for] both binge drinking and underage drinking . . . indicate that male college students are virtually unresponsive to price (Chaloupka and Wechsler 1996, p. 122).
- The liquor [tax] responsiveness of self-reported drinks per month is large among women and those aged 25 to 55. . . results based on the full sample had suggested that binge drinking was unresponsive to all of the tax measures. This pattern is repeated in models based solely on these particular groups. More specifically, none of the results in Table 5 indicates that increased alcohol taxation reduces binge drinking (Dee 1999, p. 15).
- For heavier drinking . . . the overall price elasticity of increased salience of drinking is negative (-0.411) but not statistically significant . . . the qualitative pattern in the price elasticities is largely insensitive to our inclusion of these [state alcohol] policy variables (Farrell et al. 2003, pp.129-30).
- According to the results, alcoholic beverage taxes have no effect on alcohol consumption. For the general population, taxes have no effect on neither the number of drinks consumed nor binge drinking (Gius 2002, p. 80).
- The negative own price effect for occasional and moderate drinkers is consistent with the consumer behaviour but the insignificant effect for the heavy drinkers is against intuition . . . the results are not inconsistent with those found in Manning et al. (Harris 2006, p. 794).
- Both the frequency and intensity of moderate drinking are sensitive to price . . . At the extremes, heavy drinking by the most-informed consumers is much more price elastic than moderate drinking, while the estimated price elasticities of heavy drinking for the least-informed consumers are not statistically significantly different from zero (Kenkel 1996, pp. 306-07).
- The results indicate that both light and heavy drinkers are much less price elastic than moderate drinkers. Further, we cannot reject the hypothesis that the very heaviest drinkers have perfectly price inelastic demands (Manning et al. 1995, p. 123).
- Alcohol prices do not affect mortality rates due to chronic liver diseases. Empirical results in the study do not lend support to broad price-based approaches to alcohol policy (Nelson 2015, p. 1).
- All three models show a negative impact of current distilled-spirits taxes on log cirrhosis mortality rates, although the effect is not significant in Model 2 . . . Wine and beer tax rates . . . are never significant predictors of cirrhosis mortality (Ponicki and Gruenewald 2006, p. 936).
- Logistic regression analyses were conducted to identify predictors of heavy drinking . . . Neither degree of crowding nor the discounting of drinks significantly contributed to the model (Stockwell et al. 1993, pp. 1522-23).

- Price had negative effects on the probability of heavy episodic drinking and drinking and driving among heavy drinkers, but the effects were not statistically significant (Stout et al. 2000, p. 408).
- However, after adjustment for adult binge drinking, the association between tax and youth drinking was attenuated and no longer statistically significant [i.e., no direct effect] . . . We observed similar findings when assessing the effect of adult binge drinking on the relationship between tax and youth binge drinking (Xuan et al. 2013, p. 1717).

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