

Estimating the impact of the minimum alcohol price on consumers' alcohol expenditure in the Northern Territory, Australia

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Abstract

Objective: From October 2018, the Northern Territory (NT) government introduced a minimum unit price (MUP) for alcohol of \$1.30 per standard drink. We assessed industry claims that the MUP penalised all drinkers by examining the alcohol expenditure of drinkers not targeted by the policy.

Methods: Participants recruited by a market research company using phone sampling (n=766, 15% consent fraction) completed a survey in 2019, post-MUP. Participants reported their drinking patterns and their preferred liquor brand. Estimated annual alcohol expenditure for each participant was calculated by collating the cheapest advertised price per standard drink of their preferred brand pre-and-post-MUP. Participants were grouped as consuming within the Australian drinking guidelines ("moderate") or over them ("heavy").

Results: Based on post-MUP drinking patterns, moderate consumers had an average annual alcohol expenditure of AU\$327.66 (CIs=325.61, 329.71) pre-MUP, which increased by AU\$3.07 (0.94%) post-MUP. Heavy consumers had an estimated average annual alcohol expenditure of AU\$2898.82 (CIs=2877.06, 2920.58) pre-MUP, which increased by AU\$37.12 (1.28%).

Conclusions: The MUP policy was associated with an increase of AU\$3.07 in alcohol annual expenditure for moderate consumers.

Implications for public health: This article provides evidence that counters the alcohol industry's messaging, enabling an evidence-based discussion in an area dominated by vested interest.

Key words: alcohol, expenditure, floor price, minimum unit price, consumption

The alcohol industry uses a variety of tactics to influence policy and public opinion, to ensure steady profits and unregulated sales, at the cost of public health.^{1,2} The industry has a distinct advantage over public health experts in that they can make claims and have them widely published, without requiring strong evidence to support their case. In March 2021, Retail Drinks Australia published an article in the Sunday Territorian aimed at undermining the findings and conclusions of a recent evaluation of Northern Territory's (NT) minimum unit price (MUP) policy.³ Our study addresses one of the key ways this article attempts to influence the public. The article reframes

the conversation from one about public health outcomes to one of individual responsibility, claiming that the MUP penalises all drinkers and that they advocate for policies that only target harmful alcohol consumption. This is a common tactic used by the alcohol industry in order to undermine effective public policy, pushing responsibility from themselves to individual consumers.¹ It is likely this tactic will effectively steer public conversation, as survey data indicate the general public prefer policies they perceive as targeted.⁴ Because of this, determining whether the MUP acts as a targeted or universal measure requires further evidence-based investigation.

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Alcohol in the Northern Territory

Heavy drinking is the primary driver of the many harms associated with alcohol consumption.⁵ Heavy drinking harms have far reaching consequences not only for the drinker but also for the wellbeing and safety of their family and community.⁶ Within Australia, alcohol use and related harms are disproportionately experienced in the NT,⁷ with social costs in the NT estimated to be AU\$1.4 billion annually.⁸ For the past 30 years, a range of strategies aimed at reducing alcohol consumption in the NT have been implemented.⁹ On 1 October 2018, the NT government introduced a MUP for alcohol, whereby alcohol could not be sold for less than AU\$1.30 per standard drink (10g of pure alcohol). This price was primarily chosen to target problematic cask wine consumption due to its low cost per standard drink ($M=AU\$0.70$).^{10–12} NT wholesale alcohol data showed a significant reduction in cask wine purchasing following the implementation of the MUP,¹³ and wastewater analysis showed an initial decrease in alcohol consumption within the NT when the MUP was first introduced.¹⁴

Pricing policies

Policies that increase the price of alcohol are considered to be among the most effective at reducing consumption and related harms.¹⁵ A modelling study from the United Kingdom has estimated that an MUP effectively targets and reduces the alcohol consumption of, and therefore harm to, heavy consumers.¹⁶ This finding has been supported by a similar modelling study based on Australian data, modelling the price at the level introduced in the NT.¹⁷ Despite these models, previous research has highlighted the public's concerns about how a MUP may impact moderate consumers of lower socio-economic status.¹⁶

Further research on individuals' expenditure, beyond predictive modelling, is needed to both address public opinion and the claims made by the alcohol industry, which currently stand unchallenged by real-world evidence. The current study is not an evaluation of the MUP, or individuals directly targeted by the MUP (e.g. cask wine drinkers), nor should the outcomes be interpreted as public health outcomes. Rather, the study aims to assess the impact of the monetary impact of the MUP on those not directly targeted by the policy (i.e. moderate consumers), who consume alcohol within the recommended national guidelines, across differing income levels, in the NT.

Method

Ethics approval for this project was provided by the Human Research Ethics Committees of Deakin University, La Trobe University, Menzies School of Health Research, and Central Australia.

Procedure

A 15-minute phone survey was conducted by Roy Morgan Research as a part of an evaluation on the MUP policy in the NT.¹¹ The survey, conducted between 18 July and 9 August 2019, contained 45 items and assessed alcohol consumption, policy attitudes and experiences of alcohol-related harms. The sample was selected using a combination of Random Digit Dialling methods (for landline telephones) and random selection of mobile phone numbers from existing lists of NT numbers kept by Roy Morgan. The sample

comprised 1000 respondents (74% mobile phone participants, total consent fraction of 15%). Data were weighted to reflect the NT population based on age, sex, survey region and telephone status.

Participants who preferred cask wine ($n=5$) were excluded from the study as the MUP directly targeted cask wine consumption, and the aim of the current study was to examine individuals not directly targeted by the MUP. Participants who reported changing their consumption behaviours due to a change in price were also excluded ($n=9$) as the survey was conducted after the policy change, and prior drinking patterns could not be inferred. Wholesale data have shown that the MUP only significantly impacted the consumption of cask wine,¹³ meaning that survey results from non-cask wine consumers after the MUP should be somewhat reflective on their consumption patterns pre-MUP.

Due to either incomplete consumption data, reporting alcohol preferences with no pricing data (e.g. homebrew alcohol), or reporting no consumption of alcohol, 220 participants were excluded from the current study. The final sample included 766 respondents.

Estimating expenditure

Participants reported how frequently they consumed alcohol, how much they consumed in a typical drinking session and their preferred brand of alcohol. Participants reported consumption patterns across two questions, asking their usual quantity and frequency of consumption.¹¹ Participants who reported alcohol consumption could report how many drinks they usually had on a day where they consumed alcohol as 20 or more, 11–19, 9–10, 5–8, 3–4, 1–2, less than 1 or can't say (all in standard drinks). Participants could report how often they consumed alcohol as: everyday, 5–6 days a week, 3–4 days a week, 1–2 days a week, about 1 day a month, less often and no longer drink. To estimate the maximum possible impact of the MUP on moderate consumers, all responses were coded to be as high as each range would allow. For example, participants who reported consuming 9–10 drinks in a typical drinking session were coded as consuming 10. Participants who reported drinking less than one drink a month or less than one drink per occasion were coded as drinking 0.9 drinks per month/occasion. As participants who reported consuming over 20 standard drinks during a typical drinking session had no upper bound, they were coded as consuming 21 drinks per drinking session. Using survey participants top brand preference, pricing data from before and after the MUP were applied to participants' annual consumption pattern data, giving two estimates for their alcohol expenditure. The difference between these two estimates was attributed to the MUP.

Participants were also asked to report their annual personal income, which was used to stratify the results (<\$30,000, \$30,000–\$69,999, \$70,000–\$119,999 and >\$120,000).

Price monitoring

The cheapest advertised price per standard drink for every brand was collated from the online catalogues of the two biggest alcohol retailers in the NT, from the month before and after the month the MUP was introduced.¹²

Analysis

Participants were grouped into two separate groups based on adherence to Australian drinking guidelines: respondents who

reported less than 520 standard drinks annually (no more than 10 per week) were classified as moderate consumers, while those drinking more were classified as heavy drinkers.¹⁸ Annual expenditure after the MUP was divided by annual expenditure prior to the MUP in order to obtain the proportional increase for all participants. A one-way Welch’s ANOVA was used to determine whether there was a significant difference between the increase in expenditure experienced by moderate and heavy consumers.

Results

Of the 766 participants, 62% consumed within the Australian Drinking Guidelines. **Figure 1** shows the distribution of annual alcohol consumption in the sample.

Consumption and price estimates across income groups are displayed in **Table 1**. Based on their self-reported consumption post-MUP, average annual expenditure on alcohol by moderate consumers would have been AU\$3.07 higher. Heavy consumers had an average increase of AU\$32.17 per year.

A one-way Welch’s ANOVA revealed that the average proportional increase in expenditure was significantly higher for heavy consumers than moderate consumers; $F(1, 81484.51)=21.43, p < .001$.

Discussion

This study aimed to examine the financial impact of the NT MUP on moderate consumers, in doing so, addressing the alcohol industries’ claim that the MUP penalises all consumers. Based on post-MUP drinking patterns, moderate consumers were estimated to experience an average increase in alcohol expenditure of less than 1% following the introduction of MUP, significantly less than heavy consumers’ expenditure increase of 1.28%. Regardless of consumption patterns, no consistent trend in expenditure change was seen across income groups. The lowest and highest income groups of moderate consumers both saw decreases in average annual expenditure after the MUP, suggesting that month-to-month pricing changes made by retailers had a more substantial impact on their expenditure than the MUP policy.

These estimates support the findings of prior modelling studies, which predicted that MUP policies would only substantially affect heavy consumers.^{16,17} The heavy consumers included in this study

were likely not the primary target of the MUP as cask wine consumers were excluded from the study. As such, their preferred liquor types likely averaged close to or already above AU\$1.30 per standard drink, which explains why only a small annual increase in annual alcohol expenditure was seen in this group. It is likely that a higher MUP, such as the \$1.50 as recommended by the Riley review,⁹ would need to be implemented to more heavily influence financial expenditure in this group and therefore reduce consumption. There is no strong evidence to indicate any consumers who did not prefer cask wine were substantially impacted by the policy. The small impact that was felt was significantly greater for those who were heavy consumers, providing evidence that although MUP policies apply universally, they have targeted impacts. These findings are an important step towards informing the public about how MUP policies function and may help the public understand that universal policies can be effective for the highest risk groups without causing major disruption to others. The current study found no evidence to support claims that the MUP policy unduly penalised all Territorians.

Limitations

The estimates provided in this study accounted for brand preferences; however, they did not account for packaging or purchase volume preferences (e.g. a six-pack vs. a 9-litre carton). The current study used the cheapest price available per standard drink to calculate expenditure. This may not reflect actual expenditure, but changes in expenditure above these levels would be due to consumer purchasing behaviour rather than being attributable to the policy. Estimated expenditure was calculated from a single brand preference, under the assumption of consistent consumption patterns, further limiting the accuracy of the estimates. Consumption was calculated from typical drinking patterns and consumption on non-typical single sessions (e.g. during a celebration) were not accounted for. The phone survey methods will have under-sampled the most at risk, who were the primary target of the MUP, but the aim of this study was to assess how MUP affected the general population. The phone survey only had a consent fraction of 15.1%, but the drinking characteristics seen in the survey sample reflected those seen at a national level, suggesting that the survey provided a reasonable representation of broad population trends.^{11,19,20}

Figure 1: Distribution of annual consumption among non-cask wine alcohol consumers.

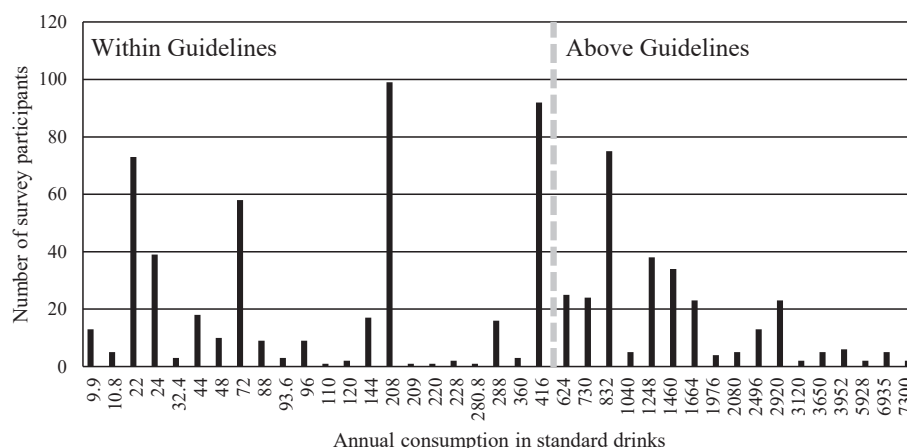


Table 1: Mean annual consumption and expenditure estimates.

Category	Annual personal income	n.	Annual consumption in standard drinks (CI)**	Mean annual expenditure (CI)		Annual expenditure change (%)
				Before MUP	After MUP	
<i>Moderate consumers</i>						
<\$30,000		75	119.58 (117.46, 121.70)	263.94 (258.83, 269.05)	263.72 (258.60, 268.83)	−0.22 (0.08)
\$30,000 – \$69,999		139	151.39 (149.69, 153.08)	284.84 (281.57, 288.12)	290.03 (286.72, 293.34)	5.19 (1.82)
\$70,000 – \$119,999		148	170.53 (168.81, 172.25)	353.83 (350.12, 357.54)	358.89 (355.18, 362.59)	5.05 (1.43)
>\$120,000		84	197.21 (194.65, 199.76)	402.36 (396.84, 407.87)	399.29 (393.86, 404.71)	−3.07 (−0.76)
Total*		475	161.59 (160.62, 162.55)	327.66 (325.61, 329.71)	330.73 (328.68, 332.77)	3.07 (0.94)
<i>Heavy consumers</i>						
<\$30,000		32	2241.55 (2178.65, 2304.45)	4051.81 (3941.29, 4162.33)	4080.06 (3967.79, 4192.33)	28.25 (0.70)
\$30,000 – \$69,999		76	1755.29 (1732.91, 1777.67)	3154.20 (3103.98, 3204.41)	3188.57 (3138.03, 3239.12)	34.38 (1.09)
\$70,000 – \$119,999		103	1601.43 (1582.75, 1620.11)	2775.57 (2744.77, 2806.37)	2822.62 (2790.88, 2854.37)	47.05 (1.70)
>\$120,000		65	1332.07 (1317.93, 1346.22)	2453.02 (2425.63, 2480.41)	2485.19 (2457.94, 2512.45)	32.17 (1.31)
Total		291	1630.89 (1618.96, 1642.82)	2898.82 (2877.06, 2920.58)	2935.94 (2913.85, 2958.02)	37.12 (1.28)

Note. Excludes cask wine consumers, *Totals included participants that did not give their annual personal income, **95% confidence intervals (CI), minimum unit price (MUP), all prices in Australian Dollars.

Conclusion

The MUP policy was associated with limited change in consumer alcohol expenditure, even among heavy consumers who did not consume cask wine. A higher MUP that targets other heavily consumed liquor types (e.g. beer¹³) would further incentivise lower consumption in the NT. This may be necessary to substantially decrease the amount consumed by heavy consumers who do not drink cask wine. The MUP had no substantial impact on moderate non-cask wine drinking consumers, and there was no indication that poorer consumers among this group were unduly affected by the policy. This supports the notion that while the implementation of a MUP is universal, it has a targeted impact.

Conflicts of interest

The authors have no conflicts of interest to declare.

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