Public Health Scotland

Evaluating the impact of Minimum Unit Pricing (MUP) of alcohol in Scotland on cross-border purchasing

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Contents

Executive summary

The introduction of minimum unit pricing (MUP) in Scotland in 2018 set a price floor for all alcohol sales made through licensed premises in Scotland, with the aim of reducing alcohol-related harm through reducing consumption. The Monitoring and Evaluating Scotland's Alcohol Strategy (MESAS) MUP evaluation portfolio comprises a number of research studies that are being undertaken to assess the impact of MUP. The MUP theory of change identified the potential effects of MUP across four outcome areas: implementation and compliance, the alcoholic drinks industry, alcohol consumption, and health and social harms.[1] Those living in Scotland may purchase alcohol from retailers outwith Scotland at a level below the price floor, which could have an impact on the intended outcomes of MUP.

This report, as part of the MUP evaluation portfolio, aims to examine existing literature and evidence alongside new analyses in order to ascertain whether cross-border purchases are occurring at a level that may materially affect alcohol consumption at the population level or amongst particular groups in Scotland, or that may affect retailers. To this end, we used the following sources of evidence:

- Previous literature detailing existing work on cross-border purchasing of alcohol.
- Analysis of costs of in-person purchasing with regard to the trade-off between potential savings from lower alcohol prices and costs of travel.
- Online price analysis comparing the costs of buying alcohol online compared to in-person at Scottish supermarkets.
- Questions about self-reported online and cross-border purchasing put to a representative panel.
- Interrupted time series analysis of off-trade alcohol sales in the north of England.
- Alcohol licensing near the border.

- Qualitative interviews of retailers near the border detailing their own experience of cross-border purchasing.

Findings were consistent across these sources of evidence. Interviews with retailers indicated that cross-border purchasing was infrequent. Licensing near the border did not show a shift from Scotland to England following the introduction of MUP legislation. The interrupted time series analysis of off-trade alcohol sales data from 2013 to 2019 showed a small increase (less than 1.5%) in total alcohol sales in the north of England in the 12 months following implementation of MUP, controlled for sales in the rest of England and Wales. Analysis of online alcohol prices highlighted that, whilst it was possible to circumvent MUP price limits at the time of data collection by purchasing alcohol online, bulk purchasing of a considerable amount of alcohol would usually be required to make significant savings. Analysis also showed that large amounts of alcohol would need to be purchased to make significant savings, after meeting the costs of travelling from between 25 and 100 miles to the border. These results broadly agree with previous literature indicating that cross-border purchasing is more likely to happen at locations relatively close to the border.

Overall, the findings of these analyses indicate that, whilst some cross-border purchasing is occurring, it is unlikely to be happening on a scale that would significantly affect consumption at a population level nor materially affect other outcomes identified in the MUP theory of change.[1] Further evidence may arise at a later date, for example as part of the study on Drinking at Harmful Levels.[2]

Introduction

Minimum unit pricing (MUP) is part of a package of interventions introduced by the Scottish Government to address Scotland's high rate of alcohol-related harm. The Alcohol (Minimum Pricing) (Scotland) Act 2012 sets a floor price based on the alcoholic strength of products below which alcohol cannot be sold. The law applies to both the on-trade (places that sell alcohol for consumption on the premises, such as pubs, restaurants and clubs) and the off-trade (supermarkets, off-licences, convenience stores and any outlet that sells alcohol for consumption off the

premises). It aims to reduce alcohol consumption and related harm by increasing the price of low cost, high strength alcohol.

MUP was implemented in May 2018 and is currently set at £0.50 per unit (pu) of alcohol. Public Health Scotland has been tasked by Scottish Government to evaluate the impact of MUP on a number of outcomes that may occur across four areas: implementation and compliance, the alcoholic drinks industry, alcohol consumption, and health and social harms.[1] The legislation requires that the evaluation includes an assessment of the impact of MUP on alcohol producers and retailers in Scotland as well as on the five licensing objectives (preventing crime and disorder, securing public safety, preventing public nuisance, protecting and improving public health and protecting children and young persons from harm). The evaluation consists of a portfolio of studies that report as they are completed. A final report will draw together the evidence from the studies. More information on the evaluation of MUP can be found here.[3]

The point of the sale price increase on the subgroup of products below the floor price can be avoided by purchase from countries where MUP doesn't apply, such as England and Northern Ireland. This cross-border purchase can be in person or online if purchasing from online retailers who dispatch from outwith Scotland. Cross-border purchase is important if it happens to an extent that it materially impairs the outcomes associated with the policy, whether intended or unintended. This could occur if consumption does not reduce in the population or particular groups. Retailers in Scotland may also be affected.

This report, as part of the MUP evaluation portfolio, presents an overview of the evidence we have gathered to date, either from published studies in the portfolio or bespoke analyses carried out for this report. Further evidence may arise at a later date, for example as part of the study on Drinking at Harmful Levels.[2]

Research questions

This paper seeks to address the following questions:

1. Has the scale of cross-border purchasing changed since the introduction of MUP?
2. Does cross-border purchasing happen to such an extent that any impact of MUP on alcohol consumption in the following groups of people would be compromised:
    a. those drinking at harmful levels
    b. people located in particular areas of Scotland
    c. the population as a whole?
3. Does cross-border purchasing happen to such an extent that it adversely affects retailers in Scotland:
    a. in Scotland as a whole
    b. those based close to the border?

Overview of approach

In order to address the research questions we have gathered evidence using a range of approaches that include drawing on those evaluation studies we have published so far as well as new analyses. These different sources of evidence should be considered together, assessing how the findings add to, support or challenge each other. Using this method of triangulation makes it possible to build up a picture of cross-border alcohol-purchasing from several perspectives. We explored several data sources, not all of which were available to us and none of which could on their own provide a single source of evidence capable of addressing the research questions. The methods and findings are presented together for each approach as follows:

1. literature review

2. in-person purchasing demand analysis
3. online purchasing price analysis
4. alcohol sales in the north of England controlled for rest of England and Wales
5. self-reported cross-border and online purchasing
6. changes in near-border off-trade licences
7. qualitative research from studies in the MUP evaluation portfolio.

Literature review

A literature search was carried out to explore the methods and findings of previous studies that assessed the extent of cross-border purchasing of alcohol. A search strategy establishing keywords and databases was developed in November 2018. Details of the search terms and databases searched can be found in the Appendix. Searches were conducted and updated in November 2020. The results were then de-duplicated and screened using date/title/abstract. A total of 231 records were selected from the two search dates.

The literature review identified studies at the borders between states of the USA, USA–Mexico, between Nordic countries, Denmark–Germany, Ireland–Northern Ireland and Estonia–Latvia. Several studies were designed to measure changes before and after changes in tax policy. Methods employed included interviews (cross-sectional), surveys (population level), interrupted time series, government tax revenue and place of car registration stratified by distance from the border.

There is some evidence that cross-border purchasing happens between these countries/states. Some studies have explicitly considered whether cross-border trade undermines health and social policy goals, but to date few studies conclude that it does. A study of alcohol-related legislation in Estonia examined changes over time in estimated domestic alcohol per-capita consumption and purchases abroad alongside changes in excise tax, prices and affordability. A paper from that study showed that the potential for increased excise tax on alcohol to curb adult domestic consumption

of alcohol may have been reduced due to increases in purchasing of lower cost alcohol across the border with Latvia.[4] In that and other studies found in the literature search, alcohol taxation affected the whole price range, not just a low-cost subset of the market as is the case with the MUP floor price, so the results are not directly transferable to the situation in Scotland.

A study of private alcohol importers in Nordic countries, where excise tax policies vary across borders and import quotas have changed over time, found that 'People living in regions close to countries with lower alcohol prices were more often importers and imported higher amounts than people living in other regions'.[5] Another study at the Danish–German border found that distance plays a decisive role in cross-border shopping for alcoholic beverages. In this study, those living within 25 km of the border exhibited behaviour significantly different from travellers from larger distances.[6]

A literature review on fiscally-induced cross-border shopping (including for alcoholic drinks, tobacco, fuel and lotteries) concluded that the tax differentials between neighbouring territories induce consumers to purchase in the territory where taxation is lower, on the condition that the tax saving compensates for the transport costs associated with the travel made by the purchaser in order to take advantage of the lower taxation.[7]

The studies that have been done show that the extent of cross-border purchase depends on context: the price differential, ease of travel and crossing the border, distance in relation to how far people are used to travelling, the extent of crossing the border for other reasons such as work and border regulations (hard border import quotas, etc.).

In-person purchasing demand analysis

There are a number of factors that influence whether a person resident in Scotland may choose to purchase alcohol in person from England. These may be unrelated to MUP, for example, the location of shops (on either side of the border) in relation to home, work or places of leisure. Other factors affecting individual demand include

price differential, distance, journey time and cost of travel. We explored how some of these factors might influence decisions by people resident in Scotland about whether to purchase alcohol across the border with England. We conducted a break-even analysis in May 2020 to find the amount of alcohol that would need to be purchased at prices available across the border at the time, in order to make the cost of a return journey from various distances financially worthwhile. It should also be noted that these analyses do not include travel time, which travellers value in terms of the other activities they could undertake in that time.[8] With Scotland's major cities at least a 2-hour return trip from the border with England this may be an important factor for people living in Scotland if considering in-person cross-border purchasing.

The two main routes between Scotland and England mean that, for individuals wishing to travel south to take advantage of cheaper alcohol prices, the first towns they are likely to arrive in are Carlisle in the West (via the M74) and Berwick-upon-Tweed in the East (via the A1). We calculated the cost (fuel plus running costs) of journeys by private car for a range of travel distances (Table 1). The fuel costs were calculated assuming an average of 50 miles per gallon, and a cost per gallon of around £4.85 (equivalent to 106.7p per litre, which was the average price for unleaded petrol in the UK at the time of analysis in May 2020[9]). Additional variable running costs of around 8p per mile were assumed, based on an annual mileage of 15,000 miles and an engine size of 1.2–1.6 litres.[10]

Table 1: Journey costs (fuel)

Distance from border	Cost of return journey
25 miles	£8.85
50 miles	£17.70
75 miles	£26.55
100 miles	£35.40

Sources: AA Fuel Price Report May 2020[9]; minimum unit pricing of alcohol: final business and regulatory impact assessment.[10]

The areas of Scotland that are within a 25-mile drive, 50-mile drive, 75-mile drive and 100-mile drive of Carlisle and Berwick-upon-Tweed were mapped (Figures 1 and 2 respectively) and the proportion of the Scottish population living within those distances calculated (Table 3).

Figure 1: Distance of areas in Scotland from Carlisle

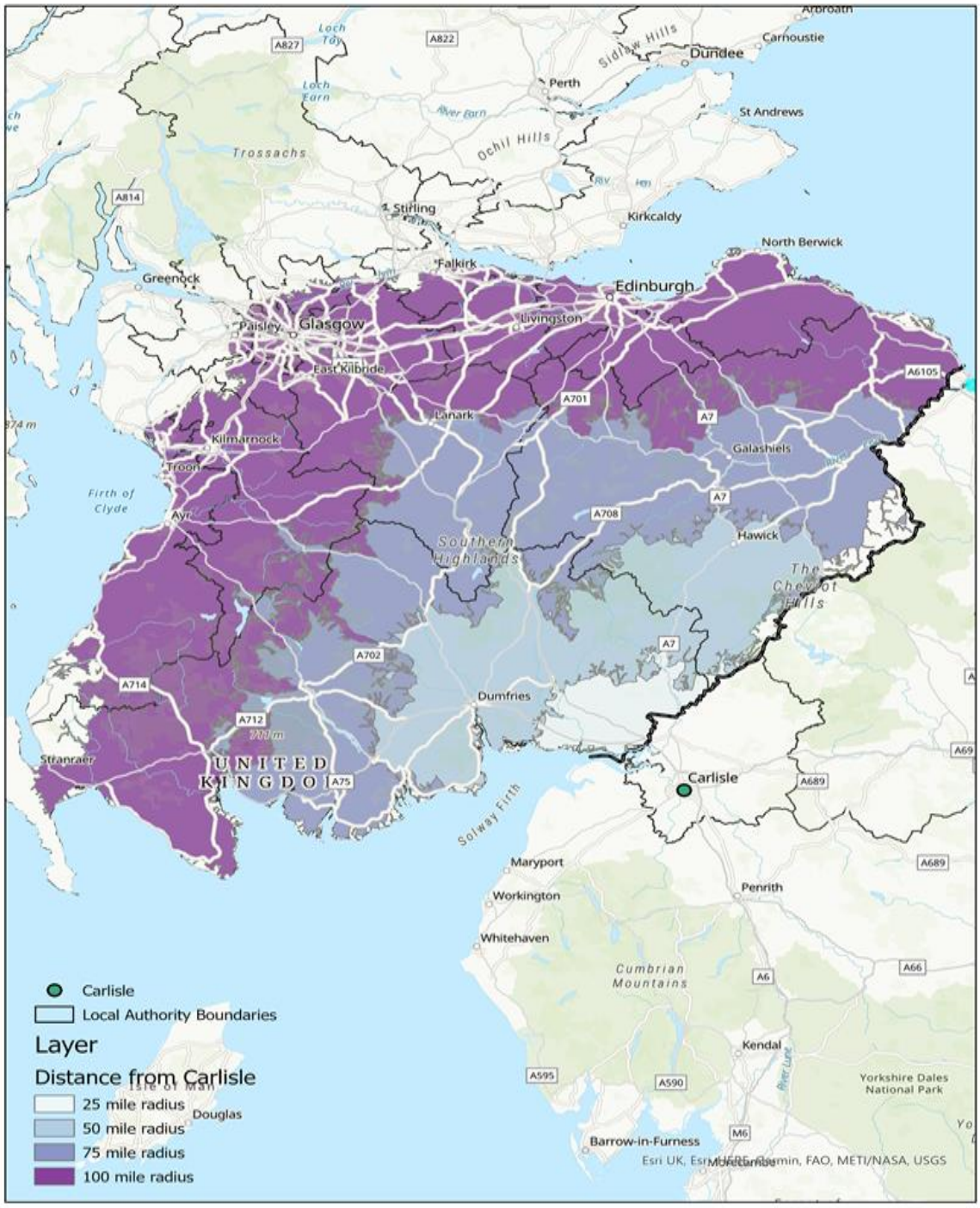
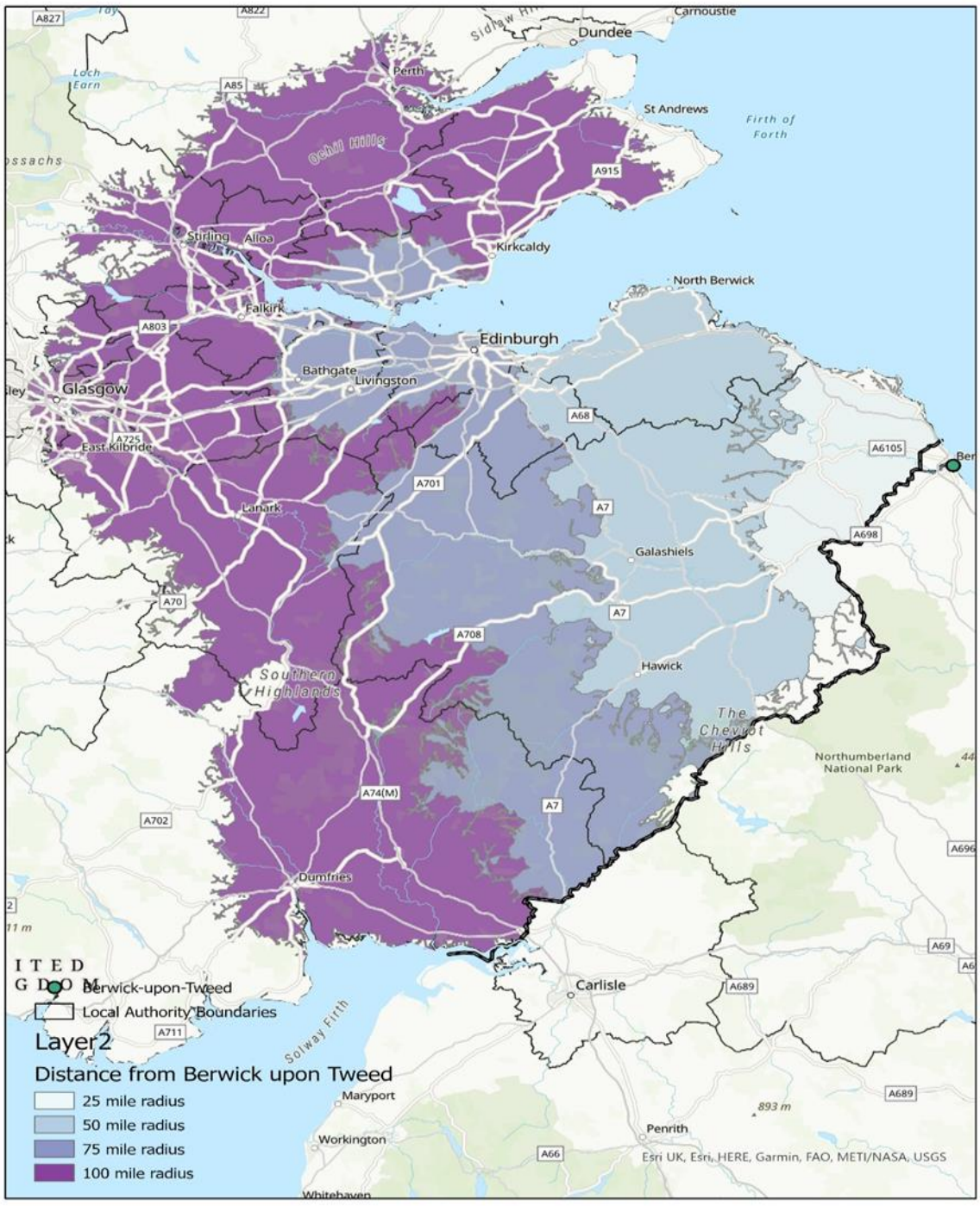


Figure 2: Distance of areas in Scotland in from Berwick-upon-Tweed



We then calculated the total cost (journey plus alcohol costs) for four products that were affected by MUP, for a range of travel distances (Table 2). The alcohol costs were calculated based on the minimum number of units of each product that would need to be purchased for the savings to be greater than the cost of a return journey.

Table 2: Quantity required to be purchased to break even and total outlay by distance from border and drink type (as at May 2020)

Drink type	England price as at May 2020	Minimum price Scotland	Price differential	25 miles	25 miles	50 miles	50 miles	75 miles	75 miles	100 miles	100 miles
				Number of units of each product*	Total outlay**	Number of products	Total outlay	Number of products	Total outlay	Number of products	Total outlay
Cider (own brand, 7.5%, 2 l)	£4.55	£7.50	£2.95	3	£22.50	6	£36.15	9	£49.80	12	£63.45
Vodka (own brand, 37.5%, 70 cl)	£10.00	£13.13	£3.13	3	£47.70	6	£77.70	9	£107.70	12	£137.70
20 cans lager (5.3%, 330 ml)	£10.00	£17.60	£7.60	2	£46.55	3	£56.55	4	£66.55	5	£76.55
Bottle of white wine (12.5%, 75 cl)	£4.15	£4.69	£0.54	17	£105.95	33	£172.35	50	£242.90	66	£309.30

*Number of units: this is the minimum number of units that would need to be bought to break even. This was calculated by dividing the cost of a return journey (fuel plus variable running costs) at each distance (listed in Table 1) by the price differential for each unit of product and rounding up to the nearest whole number.

** Total outlay was calculated as the number of units multiplied by the England price as at May 2020 plus the estimated cost of a return journey

Table 3: Number and percentage of the Scottish population within 100 miles driving distance of Carlisle and Berwick-upon-Tweed (as at May 2020)

Driving distance from Carlisle or Berwick	Scottish population within driving distance from Carlisle	% of Scottish population from Carlisle	Scottish population within driving distance from Berwick	% of Scottish population within driving distance from Berwick
0–25 miles	24,779	0.5	27,975	0.5
26–50 miles	92,292	1.7	221,614	4.1
51–75 miles	136,015	2.5	912,125	16.9
76–100 miles	2,821,717	52.3	1,817,719	33.7

The illustrative scenarios set out in Table 2 show that in order to break even in terms of estimated journey and alcohol costs, bulk purchasing would be required. For example, an individual making an in-person cross-border purchase from 25 miles driving distance would need to spend between £22 and £106, depending on the alcoholic drink purchased. Only 0.5% of the population live within this distance of Carlisle, and similarly 0.5% for Berwick-upon-Tweed. A much greater proportion of the population could make cost savings on in-person alcohol purchases by travelling 76–100 miles but the amount of alcohol required to be purchased to break even, and the total outlay, would be greater. For example, those living in Glasgow, Scotland's largest city, would need to spend £63 if buying twelve 2-litre bottles of cider, £138 for 12 bottles of vodka, £77 for five multi-packs of lager and £309 for 66 bottles of wine in order to break even. Such quantities of bulk purchase for personal use would also require space to be stored. A licence is needed to sell alcohol, so any purchases would have to be for personal use or to gift to others.

It should be noted that these estimated outgoings are to break even in financial terms. If the individual wished to save money from the cross-border

venture, then the initial outlay would be even greater. Additionally, the destination shop may not be located very close to the border, incurring a further distance to be travelled. They also take no account of the opportunity cost of the time taken to make the journeys across the border, although these would in turn be offset if people made cross-border purchases en route from England back to Scotland for a reason other than for the sole purpose of purchasing alcohol.

Online purchasing price analysis

This section explores whether it is possible to circumvent MUP by purchasing alcohol online if it is then dispatched from places in the UK where MUP does not apply. It is not possible to determine place of dispatch but in order to establish whether online purchase of alcohol is possible below £0.50 pu of alcohol, we examined the cost of purchase and delivery for a range of alcoholic beverages from online retailers. To identify the retailers, we used the Salience report on the top 10 online UK alcohol retailers of 2019[11] (see Appendix for details). In addition to these, amazon.co.uk was examined due to its major online presence.

Price per unit of alcohol for online sales was calculated inclusive of delivery costs. We carried this out for a range of alcoholic beverages (see Appendix for details). The drinks were chosen either because they are sold in high volume in Scotland or because they have experienced large price changes as a result of MUP.

Alcohol by volume (ABV) was taken individually from each product description on the retailer's website as small variations in ABV are possible. These ABVs were then used to calculate price per unit of alcohol separately for each product in each online store. In order to confirm the price charged for these products in major supermarkets in Scotland, we further calculated prices for these alcoholic beverages in the top 10 UK supermarkets as given by Retail Economics UK Top 10 Food and Grocery Retailers by Market Share in 2018/19[12] (see Appendix for details).

In order to establish correct online alcohol prices for Scotland, accounts were created for each website and a delivery location in Scotland was entered. Each purchase was taken as far as entering payment information to ensure (as much as feasible) final pricing for Scotland was given, but we did not proceed to payment. When examining in-person prices for supermarkets within Scotland, drinks were ordered to 'click and collect' at a supermarket within Scotland, again stopping the transaction when asked to proceed to payment. In some cases, it appeared some products were available below £0.50 pu and in-store visits were conducted to check the price in case the price or products were adjusted on payment. After checking in-store, all supermarket prices were at least £0.50 pu.

In July 2020, eight of the 18 products were available below £0.50 pu when purchased online and none were available below £0.50 pu when purchased in the supermarkets included (Figure 3). Price per unit of alcohol shown is the lowest cost found in online retailers and supermarkets in Scotland.

Online purchasing of Frosty Jack's cider showed the cheapest price per unit of alcohol (£0.31/unit alcohol). Frosty Jack's cider was not available for sale in Scotland in any supermarket examined. This product may be available in non-supermarket retailers, such as convenience stores, but these were not checked.

At the time of data collection in July 2020 most of the alcoholic beverages that were available below £0.50 pu when purchasing online required bulk purchase, often at significant cost, in order to take advantage of a price that was less than £0.50 pu. As noted above it was possible to do so if the products were dispatched from places in the UK where MUP does not apply. Table 4 shows the minimum quantity of each of these alcohol beverages that could be purchased below the MUP floor price, the price per unit and the total outlay for the bulk purchase. A price less than £0.50 pu for an individual product was only available on individual bottles for two products, one of which was sold very close to the MUP price: gin (£0.45/unit alcohol, £17.00 total cost) and rum (£0.49/unit alcohol, £17.00 total cost). The savings on these

products would be modest at approximately £1.40 on a 70 cl bottle of gin and £0.40 on a 1 l bottle of rum.

Figure 3: Cheapest cost per unit of alcohol in supermarkets and online. Red line indicates price per unit alcohol under minimum unit pricing (MUP)

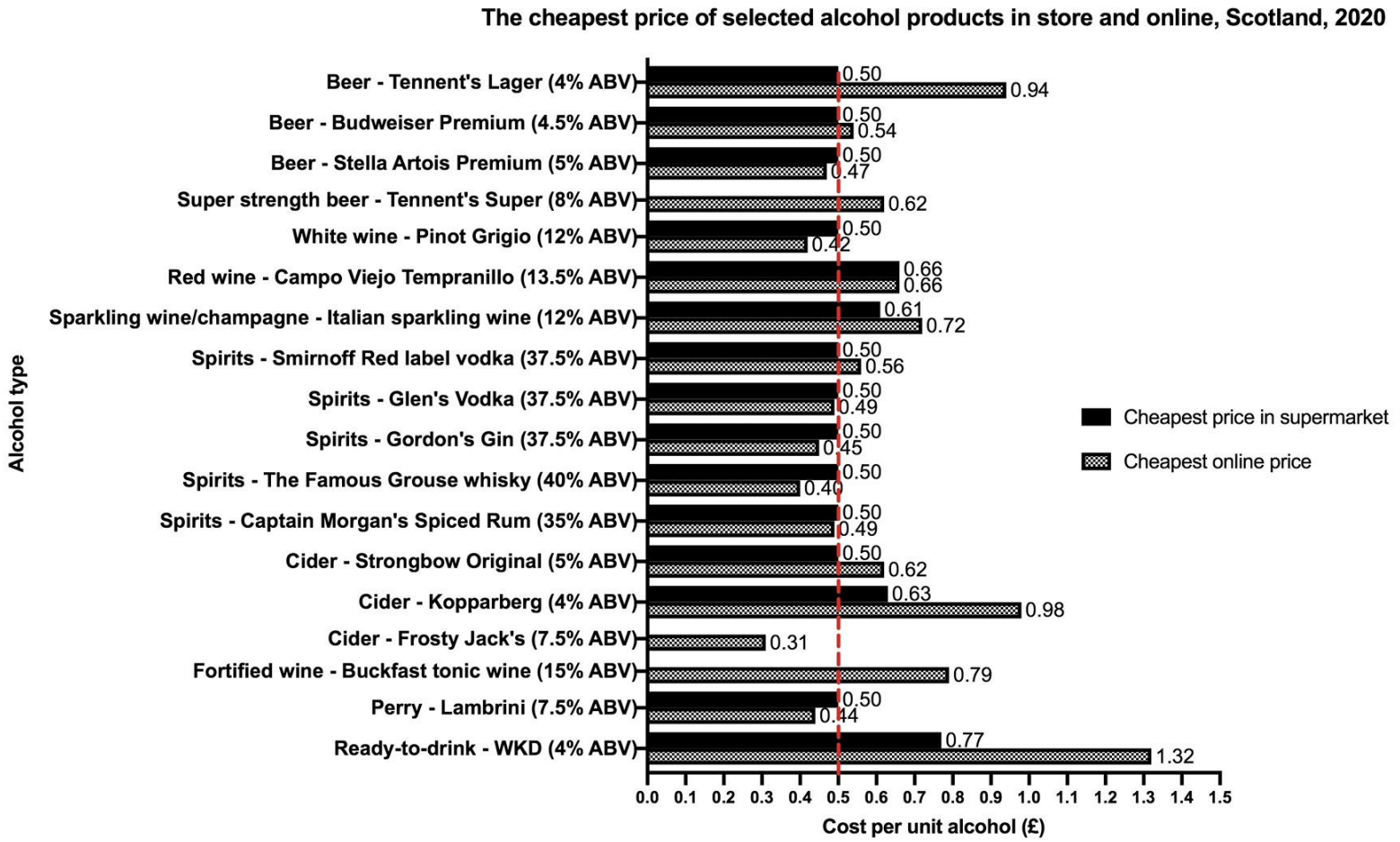


Table 4: Quantity required to be purchased in order to buy below £0.50 pu, price per unit and total price (July 2020)

Alcohol	Minimum quantity required to be purchased below MUP floor price (volume per bottle)	Price per unit alcohol (£)	Total price of bulk purchase (£)
Beer – Stella Artois	9 boxes (18 x 440 ml bottles)	0.47	162.00
Wine – Pinot Grigio	19 bottles (75 cl)	0.42	104.31
Gin – Gordon's Gin	1 bottle (70 cl)	0.45	17.00
Vodka – Glen's Vodka	12 bottles (70 cl)	0.49	79.25
Whisky – Famous Grouse	12 bottles (70 cl)	0.40	170.00
Cider – Frosty Jack's	4 bottles (2.5 litres)	0.31	23.28
Perry – Lambrini	6 bottles (75 cl)	0.44	8.94
Rum – Captain Morgan's Spiced Rum	1 bottle (1 litre)	0.49	17.00

Self-reported cross-border and online purchasing

We put questions about self-reported cross-border and online purchasing to a representative panel. This was done by YouGov, a company that specialises in market research and opinion polling through online methods. The company's methodology involves obtaining responses from an invited group of internet users and then weighting these responses in line with demographic information. It draws these demographically representative samples from a panel.

Thirteen questions were put to YouGov's Omnibus (see Appendix). Fieldwork was undertaken on 17 and 18 March 2021. The total sample size was 1,028 adults. The sample was weighted to be representative of all Scottish adults (aged 18+ years). Data were analysed by Progressive Partnership Ltd in conjunction with YouGov Plc.

The majority (62%) reported that they had never bought alcohol online. Of those who reported purchasing online, most reported doing so fairly infrequently, with 40% purchasing online once a year or less frequently, and over 40% purchasing once every two to six months.

A minority (14%) reported buying online once a month or more frequently. 14% of respondents reported that they started buying online in the last 12 months. Since the fieldwork was undertaken in March 2021, the previously 12 months were during the COVID-19 pandemic and it is possible that restrictions could have been a factor in decisions on whether to purchase online or in-person. The most common reasons given for buying online were choice (37%) and convenience (32%). 'Cheaper or better value' was give as a reason by 27%.

The majority (86%) of respondents did not report purchasing alcohol from across the border with England in person. Only 3% reported travelling for the sole purpose of buying alcohol to bring back to Scotland. A larger proportion (13%) reported bringing alcohol back to Scotland that they have purchased on a visit for another purpose. Of the 86% of respondents in Scotland who reported living more than 60 minutes from the border with England:

- Only 2% responded that they had travelled to another part of the UK for the sole purpose of buying alcohol to bring back to Scotland.
- Only 12% did so while on a trip for another purpose.

In-person purchasing of alcohol in another part of the UK is more common among the minority (10%) of respondents in Scotland that reported living within 60 minutes' travel from the border with England, with about a quarter reporting having done so (while on a trip for any purpose).

Alcohol sales in the north of England controlled for rest of England and Wales

To investigate whether in-person cross-border purchasing is occurring to a material extent, we examined whether the introduction of MUP was associated with a change in the volume of pure alcohol sold per adult in the off-trade in the north of England in the 12-month period after it was introduced, overall and by drink category. In order to assess whether observed changes in sales were different in these regions to changes in sales in the rest of England and Wales, the analysis controlled for sales data from the rest of England and Wales combined.

The weekly off-trade alcohol sales data used in these analyses are provided to Public Health Scotland on an annual basis by market research specialist Nielsen, with the full time series covering January 2013 to May 2019. Data from the discount stores Aldi and Lidl are not provided to Nielsen. We have applied an uplift to the data based on the market share of Aldi and Lidl to account for the lack of these data.

The methodology is the same as was used for our report on evaluating the impact of Minimum Unit Pricing (MUP) on sales-based alcohol consumption in Scotland,[13] which was updated in December 2020.[14] The main statistical method used is controlled interrupted time series regression with seasonal autoregressive integrated moving average (SARIMA) errors. The analytical strategy consisted of initially modelling the alcohol sales data time series to obtain an adequate preliminary model and then modelling and testing the effect of the intervention (i.e. MUP) with and without adjustment for covariates. This approach helps to isolate the estimated impact of MUP while controlling for underlying secular and seasonal trends and other covariates, including changes in disposable income and substitution between drink categories and retail sectors (i.e. off-trade and on-trade).

For the purposes of this report on cross-border purchasing, interrupted time series (ITS) analyses were carried out by the University of Glasgow for alcohol sales in the north-east (NE) of England, north-west (NW) of England, and for combined sales in both the north-east and north-west of England (NENW). Data are not available for

smaller geographical areas. All analysis is adjusted for sales data from the rest of England and Wales.

Analyses were carried out for beer, cider, fortified wine, perry, ready-to-drink (RTD) beverages, spirits and wine, as well as a combined group containing all drink categories ('total alcohol').

Results are presented as percentage change in sales, with 95% confidence intervals calculated for each. All tests of statistical significance were carried out at the 5% level.

When examining changes in alcohol sales in north-east England in the 12 months following the implementation of MUP, controlled for sales in the rest of England and Wales, we observed a small statistically significant increase in total alcohol sales (1.46%, 95% CI 0.31%, 2.62%, p=0.01). For individual drink types, larger increases in sales of cider (4.51%) and RTDs (5.85%) were observed, and these were statistically significant (Table 5).

In north-west England, a small increase in total alcohol sales was apparent (1.21%, 95% CI 0.24%, 2.19%, p=0.01). There were no statistically significant differences for individual drink types (Table 6).

When combining sales data for north-east and north-west England in order to examine the north of England as a whole (Table 7), a small increase in total alcohol sales was observed (1.14%, 95% CI 0.19, 2.09, p=0.02). There were no statistically significant differences for individual drink types.

Table 5: North-east England: percentage change in alcohol purchasing in the 12 months following implementation of MUP: interrupted time series analysis controlled for the rest of England and Wales

Drink type	Change in alcohol sales (%)	Lower 95% confidence interval (%)	Upper 95% confidence interval (%)	p
All alcohol	1.46	0.31	2.62	0.012
Spirits	1.33	-2.57	5.38	0.507
Beer	1.71	-1.09	4.59	0.232
Wine	0.61	-1.28	2.54	0.526
Cider	4.51	1.52	7.57	0.003
Perry	6.96	-0.60	15.08	0.071
Fortified wine	0.03	-3.73	3.93	0.989
Ready to drink	5.85	2.01	9.83	0.003

Table 6: North-west England: percentage change in alcohol purchasing in the 12 months following implementation of MUP: interrupted time series analysis controlled for the rest of England and Wales

Drink type	Change in alcohol sales (%)	Lower 95% confidence interval (%)	Upper 95% confidence interval (%)	p
All alcohol	1.21	0.24	2.19	0.014
Spirits	-1.31	-6.13	3.76	0.604
Beer	0.25	-3.22	3.83	0.890
Wine	-0.25	-1.35	0.85	0.654
Cider	3.12	-6.11	13.24	0.519
Perry	5.65	-3.61	15.81	0.239
Fortified wine	-2.12	-4.57	0.41	0.099
Ready to drink	0.68	-4.22	5.84	0.788

Table 7: North of England (north-east and north-west combined): percentage change in alcohol purchasing in the 12 months following implementation of MUP: interrupted time series analysis controlled for the rest of England and Wales

Drink type	Change in alcohol sales (%)	Lower 95% confidence interval (%)	Upper 95% confidence interval (%)	p
All alcohol	1.14	0.19	2.09	0.018
Spirits	-0.33	-1.96	1.34	0.696
Beer	0.59	-2.05	3.31	0.662
Wine	0.00	-1.42	1.45	0.997
Cider	3.95	-2.25	10.53	0.216
Perry	4.11	-2.98	11.74	0.262
Fortified wine	-2.20	-4.36	0.02	0.051
Ready to drink	4.10	-4.87	13.92	0.380

Changes in near-border off-trade licences

Data on off-trade licences located in border regions was assessed, to determine whether there has been a change in number and location of off-trade licenses in these areas that might indicate an MUP effect, following its implementation. Licensing data as at July 2018, June/July 2019 and June/July 2020 were obtained from the councils of Scottish Borders, Dumfries and Galloway, Carlisle District and Northumberland. The name and postcode of each premises was provided. The premises were categorised by type with supermarkets, convenience stores, petrol stations and food takeaways being the most common. The number of new and removed off-trade licences between 2018 to 2019 and 2019 to 2020 were tallied and their locations were mapped. The data provided in 2019 and 2020 varied in the total number as at June/July 2019 so these amounts have been labelled as 2019a and 2019b respectively. Premises with on-trade licences that also had off-trade licences

were excluded. The information obtained showed premises that had a license at the time of inquiry. Where a premise no longer had a licence the following year, we have used the notation ‘closed’ but it is possible for premises to be open but no longer be licensed or to have closed but still have a licence. Discussion with a Licensing Standards Officer (LSO) noted that there may be regional differences in processes for renewal and termination of licences.

Table 8: Total, new and closed off-trade licences by location and year

Year		Dumfries and Galloway and Scottish Borders		Northumberland and Carlisle District	
		Number of licences	% of previous year’s total	Number of licences	% of previous year’s total
2018	Total	262		439	
2019a	Closed since 2018	6	2.3%	17	3.9%
	New since 2018	7	2.7%	12	2.7%
2019a	Total	263		434	
2019b	Total	268		445	
2020	Closed since 2019	8	3.0%	84	18.9%
	New since 2019	3	1.1%	0	0.0%
	Total	263		361	

This analysis shows that there have been changes in the total number of off-trade licences on both sides of the Scotland–England border, with premises both opening and closing (Table 8). The turnover of licences was of a similar magnitude on the Scottish and English sides of the border in 2019. In 2020, however, a much larger

proportion of off-trade licences on the English side closed (18.9% compared with 3.0% on the Scottish side). Mapping the licences shows the distribution of off-trade licences in 2018, 2019 and 2020 (Figure 4), and new/terminating licences across the areas between years (Figure 5), with no apparent evidence of systematic licence terminations along the Scotland side of the border or openings along the English side.

Figures 4a, 4b and 4c: Locations of off-trade premises in 2018, 2019a and 2020 in Dumfries and Galloway, Scottish Borders, Carlisle District and Northumberland

Figure 4a: 2018

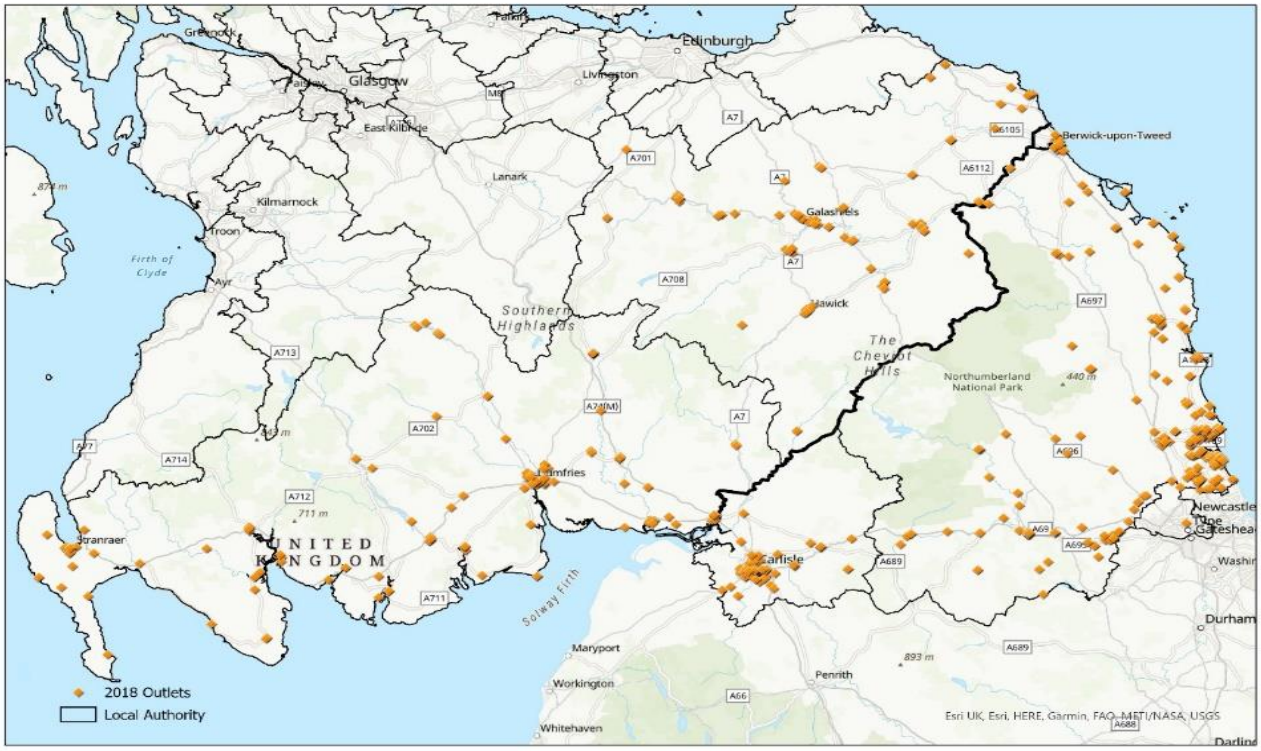


Figure 4b: 2019a

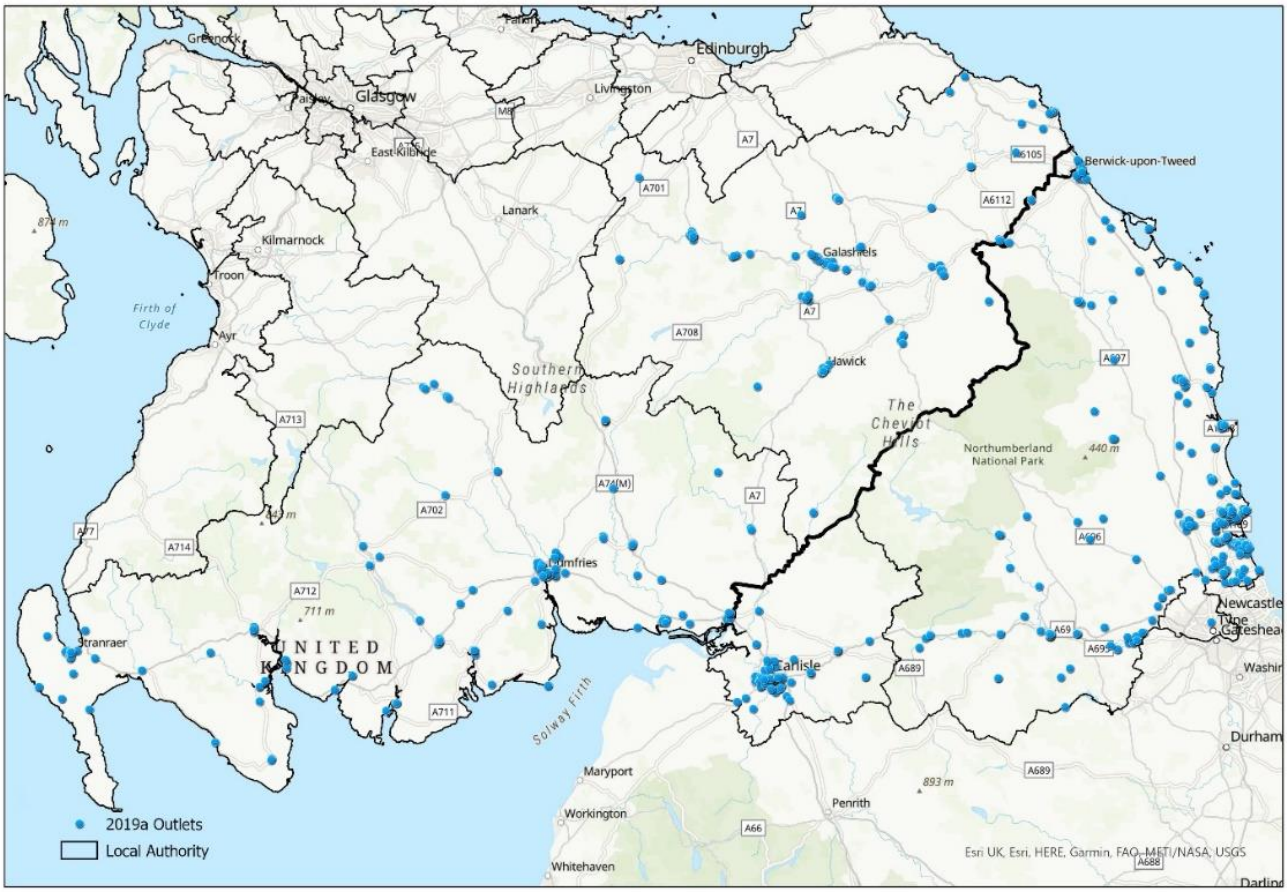
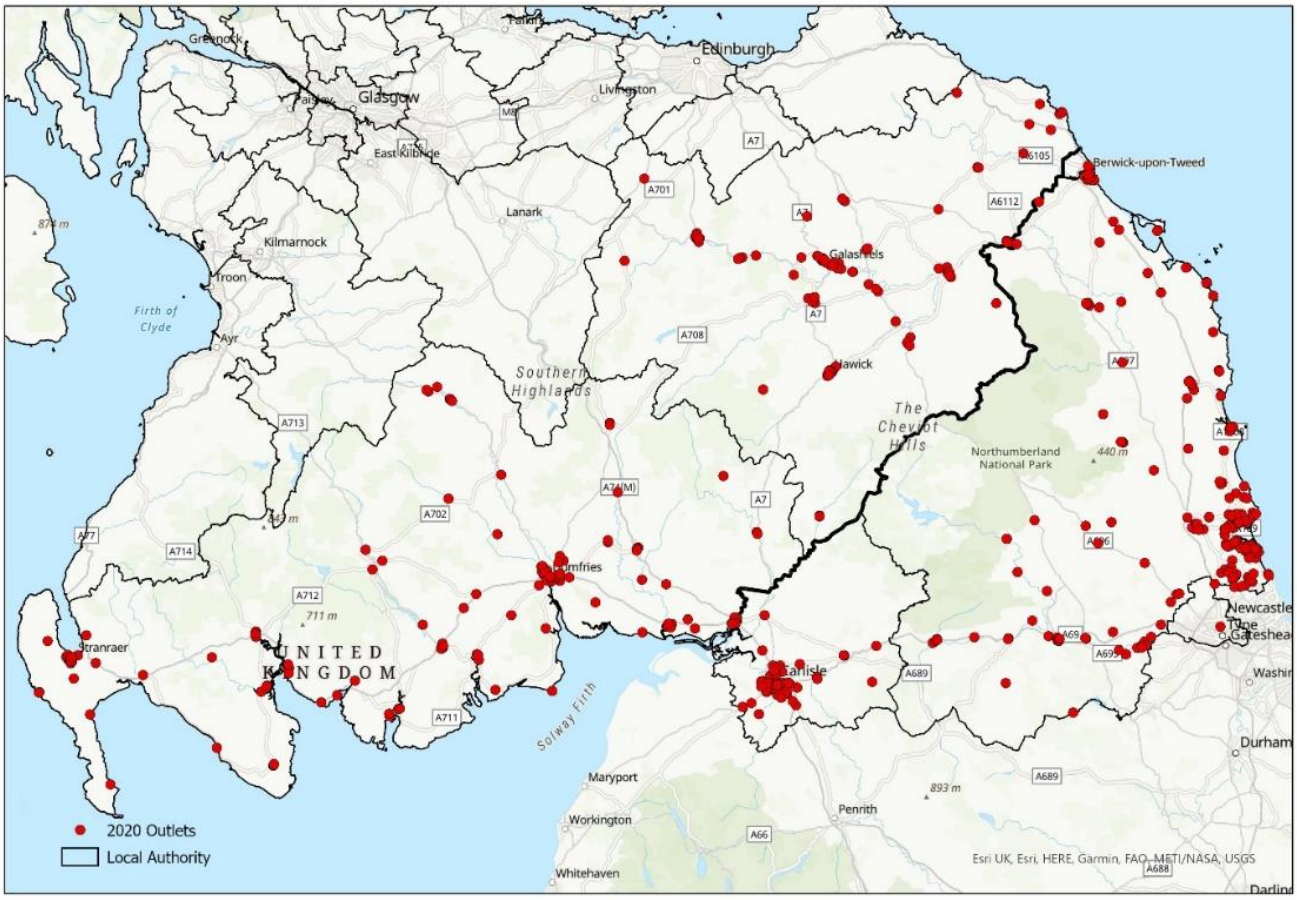


Figure 4c: 2020



Figures 5a and 5b: New and terminated off-trade outlets in 2018/2019a and 2019b/2020

Figure 5a: 2018/2019a

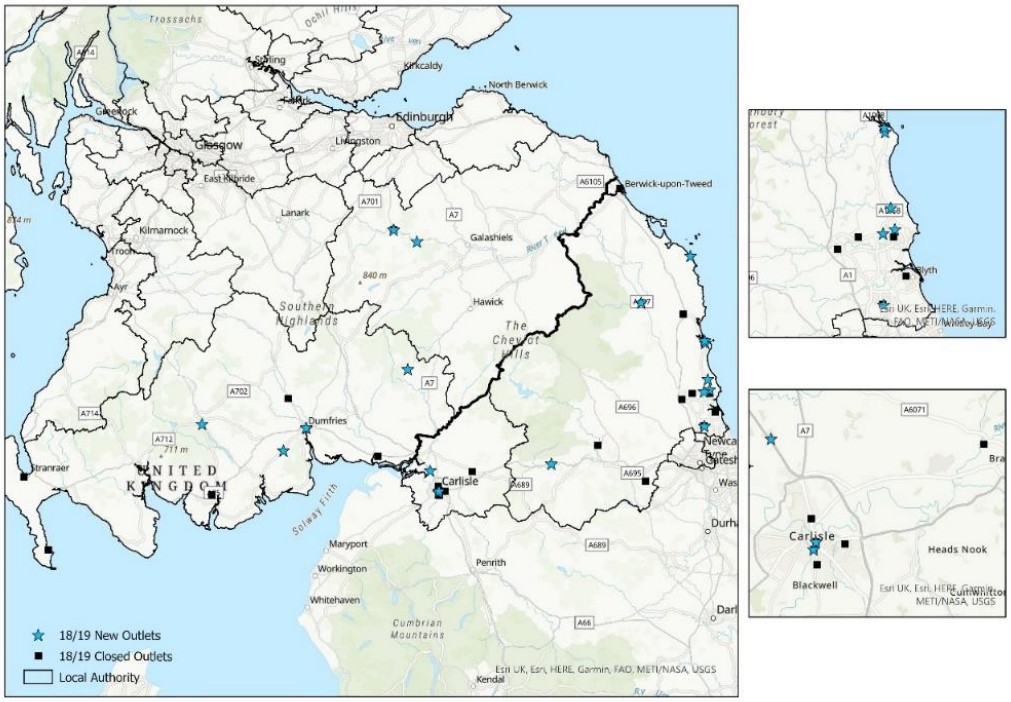


Figure 5b: 2019b/2020

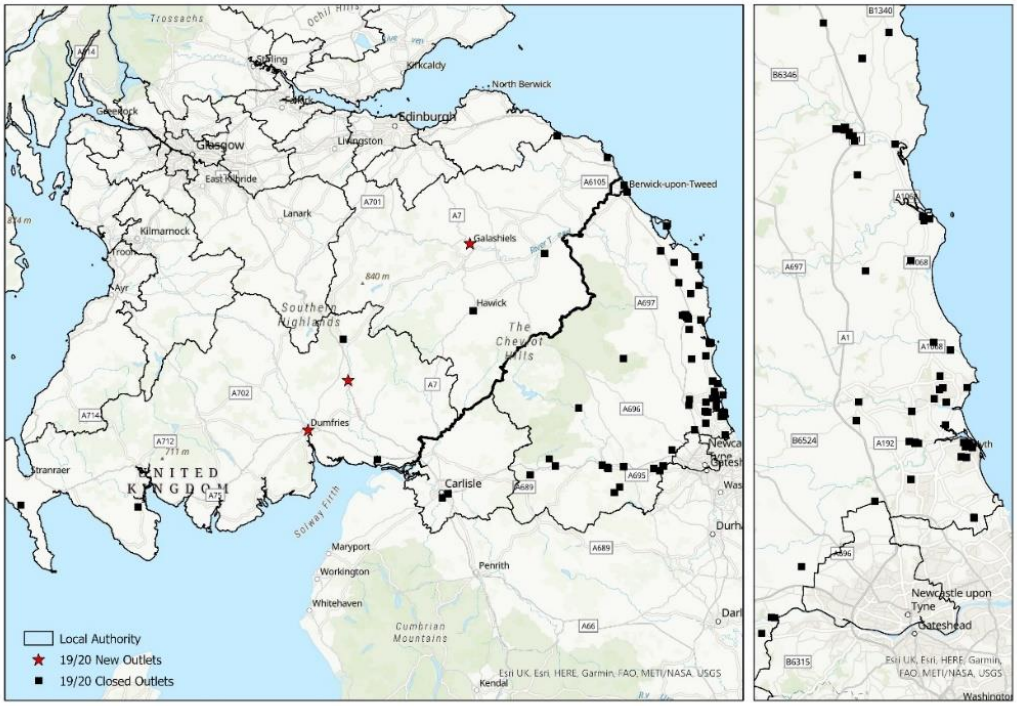


Table 9: New premises by type

Premises	Scottish Border (2018/19)	English Border (2018/19)	Scottish Border (2019/20)	English Border (2019/20)
Food takeaway	0	1	1	0
Petrol station	0	5	1	0
Supermarket or grocery	5	4	1	0
Tourist	1	1	0	0
Unknown	1	1	0	0
Total	**7**	**12**	**3**	**0**

Qualitative research from studies in the MUP evaluation portfolio

A number of studies in the MUP evaluation portfolio include qualitative data that can provide insights about cross-border activity after MUP implementation, from the perspective of both consumers and retailers.

In the Economic Impact study (2019)[15] interviews were conducted with retailers located within approximately 10 miles of the border. Retailers that were close to population centres on the English side of the border, particularly those with good private or public transport options, were prioritised. Out of 46 retailers identified, 22 were successfully contacted, 13 accepted, 9 declined and 10 were interviewed.

These comprised:

- Five retailers in England, including three large chain supermarkets and two smaller chain convenience stores.
- Five retailers in Scotland, all of which were smaller chain convenience stores.

The interviews were conducted by telephone and lasted between 15 and 45 minutes and followed an agreed process to ensure that participants understood the purpose

of the study and how the evidence they provided would be used. Additionally, off-trade retailers participating in case studies as part of the same study were asked about their experience of cross-border purchasing.

A review of retail trade press was conducted as part of a study on small retailers.[16]

In a study of compliance[17] with MUP, telephone interviews were conducted with 12 LSOs, five Police Scotland local divisional licensing officers and three Trading Standards Officers (TSOs).

With regard to consumer purchasing behaviour, retailer interviews in March to May 2019 as part of the Economic Impact study found that some retailers reported Scottish consumers engaging in cross-border purchasing. This evidence came primarily from retailers in the immediate vicinity of the border, particularly those near Carlisle and Berwick-upon-Tweed. However, retailers did not report observing large numbers ('not massive … but a few') and noted that many consumers who lived in Scotland near the English border worked in Carlisle or Berwick-upon-Tweed, or conducted weekly grocery shopping in these towns ('they buy the entire basket'), and that some cross-border purchasing activity pre-dated the introduction of MUP.

Retailers also noted that there was a range of regulatory differences between England and Scotland that had an impact on cross-border purchasing of alcohol prior to MUP. None of the retailers were aware of an increase in cross-border home deliveries to take advantage of lower prices in England.

None of the retailers had knowledge of people from Scotland appearing to travel to England to buy large quantities of alcoholic drinks to distribute or resell to others, a practice the retailers referred to as a 'white van run'. This is consistent with the findings of the Compliance study[16] where licensing professionals working near the Scotland–England border reported being aware of people purchasing alcohol from stores immediately over the border, but in general did not feel that any cross-border activity was a systematic attempt to subvert MUP on a large scale. While licensing professionals were aware of the potential for illicit alcohol sales activity, at the time of the interviews conducted between June 2018 and March 2019, they had no

intelligence that there had been an increase in or a shift towards illegal alcohol-related activity as a result of the introduction of MUP.

In the Economic Impact study retailer interviews conducted nine months after the implementation of MUP, near-border Scottish retailers reported that sales volumes of alcoholic drinks had decreased slightly and this small decrease was distributed across a number of smaller retailers. The retailers involved in the case studies did not report any significant change in profitability, turnover or employment following the introduction of MUP. Responses were mixed: one retailer noted that any decrease in volumes of alcoholic drinks for lines of directly affected products was likely to be compensated for by higher margins; one retailer acknowledged that profitability was slightly higher as a result of MUP; and another retailer suggested that it would consider not renewing its alcohol licence due to lower volumes of alcoholic drink sales. No retailers expected substantial changes to profitability, turnover or employment in the future.

For English retailers close to the border, sales volumes increased, but these were isolated to large retailers in major towns. It was difficult to differentiate the impact of MUP from confounding factors. For example, sporting events such as the World Cup and good weather in the summer following the introduction of MUP may have had a positive impact on sales. There was no evidence of a change in cross-border purchasing behaviour for smaller English retailers following the introduction of MUP.

The review of retail trade press conducted as part of the small retailer study[16] found that there was no reporting in the trade press of a shift towards online or cross-border shopping activity following the introduction of MUP.

Discussion

Summary of current evidence from this report

Using weekly sales consumption data over a long time period, licensing data from the local authorities on either side of the Scotland–England border, questions on self-

reported behaviour put to a representative panel online and pricing information from websites of supermarkets and online retailers, we were able to explore aspects of in-person and online cross-border purchase as a way to circumvent the price increases on some products.

The interrupted time series analysis of off-trade alcohol sales data showed a small statistically significant increase (less than 1.5%) in total alcohol sales in the north of England in the 12 months following implementation of MUP, controlled for sales in the rest of England and Wales.

When investigating the ability to purchase alcohol online to circumvent MUP restrictions, we found the potential for this to happen through both purchase of single bottles and, more frequently, through bulk purchasing. Cost savings available on single products were modest (£0.40 to £1.40 per item). For products requiring bulk purchase in order to take advantage of prices that were available below £0.50 when dispatched from retailers outwith Scotland where MUP does not apply, an outlay of between £9 and £170 was required depending on the product. Both of these factors (modest savings and need for bulk outlay) may not make for strong reasons to purchase online. This is consistent with findings from questions about online purchasing put to a representative panel that the majority of respondents had never bought alcohol online. Of those who did purchase online, most reported doing so fairly infrequently, with 40% purchasing online once a year or less frequently. The most common reasons given for buying online were choice and convenience, and more than a quarter of respondents gave ‘cheaper or better value’ as a reason for purchasing online.

Similar results showing that bulk purchasing was required to make savings were observed when calculating the journey costs to England from Scotland to avoid MUP when purchasing alcohol. Someone living in Glasgow, the largest city in Scotland, would need to spend between £63 and £309 to just break even once journey costs are taken into account, depending on the alcohol purchased. The fuel prices used in this analysis were lower in May 2020 during a national lockdown due to the COVID-19 pandemic. The much higher prices currently would further reduce the incentive for cross-border purchase of alcohol. This is before any costs on an individual’s time for making return journeys are taken into consideration. Smaller outlays are required

when travelling from nearer the border, but population distribution in Scotland means that distances below 50 miles are only relevant to a small proportion (approximately 6%) of the population.

Mapping of licences close to the border has allowed us to examine new premises that may be opening in England in response to increased demand from shoppers in Scotland after MUP implementation. There was no apparent evidence of specialist stores designed to take advantage of cross-border purchasing, with most new premises being either petrol stations or situated some distance from the border.

Strengths and limitations

The main strength of this work is the triangulation of a number of different data sources to build a picture of cross-border activity. Triangulation increases confidence in findings, particularly in instances where different methods produce broadly similar results, as was the case for this study. For example, using retail sales data allows us to examine trends in alcohol sales in the north of England before and after the introduction of MUP controlled for the rest of England and Wales. This gives an indication of whether there has been a change in near-border regions relative to the whole country since the implementation of MUP. Taken together with other sources of evidence such as self-report customer surveys, this enables us to build up a picture of cross-border alcohol-purchasing behaviours from several perspectives. Further evidence may arise at a later date, for example, as part of the study on Drinking at Harmful Levels.[3]

Another strength is that licensing data, acquired from both Scottish and English councils on either side of the border, allowed us to determine the number and location of premises that may be opening or closing in response to changes in demand after MUP.

A potential weakness is that the geographical areas of north-east and north-west England in the retail sales data are large, containing cities such as Manchester, Liverpool and Newcastle. These large cities will drive the results for north England, meaning small changes in sales through in-person purchase in the small towns near the border may not be detected or, conversely, that any changes detected are driven

by changes in the cities some distance from the border. We were unable to identify any data sources providing sales data for smaller geographies. This means that we cannot determine to what extent the observed change after the implementation of MUP reflects a change in cross-border purchasing due to MUP or to other reasons. The data from the other sources suggest, however, that cross-border purchasing due to MUP has been limited.

A limitation with the self-report data from questions put to an online panel is that while the panel is weighted to be demographically similar to the Scottish population, that does not mean it is representative in terms of alcohol purchasing.

We were unable to identify any data on changes in volume of online sales or sales in stores near the border. We explored the use of data on value of grocery purchases made in England on debit and credit cards registered to addresses in Scotland, similar to the baseline analysis done for the Business Regulatory Impact Assessment for MUP in Wales,[18] but the card provider refused consent for the data provider to undertake the analysis we requested. We explored purchase of data from loyalty card providers, but none engaged with our enquiries.

Conclusions

These studies indicate that while cross-border purchasing happens, two main caveats apply. Firstly, our findings indicate that cross-border purchases are small relative to the overall purchasing behaviours of the population as a whole. For Scotland, this may indicate that the extent of cross-border purchasing is unlikely to be large enough to offset any impact of MUP on the outcomes set out in the theory of change. Secondly, there appears to be a distance-based effect of cross-border alcohol purchasing shown in the literature, with most cross-border sales occurring in households in close proximity to the border. With the majority of the Scottish population living in Glasgow, Edinburgh, Aberdeen or Dundee, a significant degree of cross-border purchasing for households within these cities is unlikely, and the self-reported behaviours of a representative online panel are consistent with this. A further conclusion is that substantial bulk purchasing would be required for

individuals to make significant savings whether purchasing in person or online, once travel and delivery costs have been taken into account.

Appendix Part A: Literature search details

Keywords: alcohol drinking; alcoholic beverages; commerce; consumer behaviour; travel; public policy; socioeconomic factors; costs and cost analysis; border; alcohol.

Databases searched:

- Medline, Public Health Database, IBSS, The Knowledge Network Library Search, Google & Google Scholar (November 2018).
- Medline, Proquest Public Health Database (November 2020).

Number of records selected from screening: 66 (November 2018); 165 (November 2020).

Appendix Part B: Online purchasing analysis – details of retailers, alcoholic beverages and supermarkets

Retailers identified using the Salience report on the top 10 online UK alcohol retailers of 2019[11]: majestic.co.uk, waitrosecellar.com, thewhiskyexchange.com, fortnumandmason.com, masterofmalt.com, virginwines.co.uk, bbr.com, thewinesociety.com, beerhawk.co.uk and drinksupermarket.com.

In addition to these, amazon.co.uk was examined due to its major online presence.

Alcoholic beverages for which price per unit of alcohol for online sales was calculated inclusive of delivery costs: Tennent's lager, Budweiser Premium beer, Stella Artois beer, Tennent's Super lager, Pinot Grigio white wine, Campo Viejo Tempranillo red wine, Italian sparkling wine, Smirnoff Red Label vodka, Glen's vodka, Gordon's gin, The Famous Grouse whisky, Captain Morgan's spiced rum, Strongbow original cider, Kopparberg cider, Frosty Jack's cider, Buckfast tonic wine, Lambrini perry and WKD.

Top 10 UK supermarkets as given by Retail Economics UK Top 10 Food and Grocery Retailers by Market Share in 2018/19[12]: Tesco, Sainsbury's, Asda, Morrison's, Aldi, Lidl, Co-op, M&S food, Waitrose and Iceland.

Appendix Part C: Questions put to YouGov Panel

Q1a: I have travelled to another part of the UK (e.g. England, Northern Ireland) for the sole purpose of buying alcohol because it is cheaper there than in Scotland:

- Yes, this is something I have done before
- No, this is not something I have ever done
- Don't know/can't recall

Q1b: I have bought alcohol (to bring back to Scotland) while on a trip to another part of the UK for another purpose (such as a business, leisure or shopping trip) because it is cheaper there than in Scotland:

- Yes, this is something I have done before
- No, this is not something I have ever done
- Don't know/can't recall

Q2: You said you had brought alcohol back to Scotland before, how long have you been doing this for?

- I've done this in the past but not in the last 12 months
- I've started doing this in the last 12 months
- I've been doing this for 1–2 years
- I've been doing this for over 2 years
- Don't know/can't recall

Q3: You indicated you had travelled to another part of the UK for the sole purpose of buying alcohol before. What type of alcohol did you buy?

- Spirits
- Wine
- Beer or lager

- Cider
- Another type of alcohol
- Don’t know/can’t recall

Q4: You indicated you had stocked up on alcohol when on a trip to another part of the UK before. What type of alcohol did you buy?

- Spirits
- Wine
- Beer or lager
- Cider
- Another type of alcohol
- Don’t know/can’t recall

Q5: Have you ever bought alcohol through a website or app for delivery to your home other than as part of an online supermarket shop?

- I’ve done this in the past but not in the last 12 months
- Yes, I’ve started doing this in the last 12 months
- Yes, I’ve been doing this for 1–2 years
- Yes, I’ve been doing this for over 2 years
- No, this isn’t something I do
- Don’t know/can’t recall

Q6: You indicated you had bought alcohol through a website or app for delivery to your home before. What websites or apps did you use?

- Waitrose Cellar
- Master of Malt
- Bargain Booze

- The Whisky Exchange
- Virgin Wines
- Majestic
- Amazon
- DrinkSupermarket
- Beerwulf
- UberEats
- Deliveroo
- Other (specify)
- Don’t know/can’t recall

Q7: How often do you buy alcohol through a website or app for delivery to your home other than as part of an online grocery shop?

- More often than once a month
- Once a month
- Once every 2–3 months
- Once every 4–5 months
- Once every 6 months
- Once a year
- Less often than once a year
- Don’t know/can’t recall

Q8: You indicated you had bought alcohol through a website or app for delivery to your home before. What type of alcohol did you buy?

- Spirits
- Wine

- Beer or lager
- Cider
- Another type of alcohol
- Don’t know/can’t recall

Q9: What are your reasons for buying alcohol through a website or app for delivery to your home other than as part of an online supermarket shop?

- It is easier or more convenient
- It is cheaper or better value
- There is more choice – I can buy products I can’t easily get in stores nearby
- I am a member of a wine club or similar
- Because of restrictions on movement due to COVID-19
- As part of a takeaway food order
- Other
- Don’t know/can’t recall

Q10: Are you aware of minimum unit pricing in Scotland?

- Yes
- No

Q11: How much, if at all, has minimum unit pricing in Scotland impacted on how you purchase alcohol?

- No, minimum unit pricing has made no difference to how I buy alcohol
- Yes, minimum unit pricing has made a little difference to how I buy alcohol
- Yes, minimum unit pricing has made a big difference to how I buy alcohol

Q12: How often, if at all, do you drink alcohol?

- I drink alcohol every day
- I drink alcohol most days (5 or 6 days a week)
- I drink alcohol 3 or 4 days a week
- I drink alcohol once or twice a week
- I drink alcohol less than once a week
- I drink alcohol less than once a month
- I never drink alcohol
- Prefer not to say

Q13: How much time would it take you to travel to the border with England?

- Less than 15 minutes
- 15–30 minutes
- 31–60 minutes
- More than 60 minutes
- Don’t know/can’t recall

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