



# **Alcohol sales and consumption in Scotland during the early stages of the COVID-19 pandemic – briefing paper**

## **Introduction**

In the weeks following the declaration of the global COVID-19 pandemic, the governments of the UK and its constituent nations acted to control the spread of the virus by introducing various measures to encourage physical distancing. These included the closure of licensed alcohol (on-trade) premises (such as pubs, clubs and restaurants) on 21 March 2020, and a government-enforced lockdown of all non-essential business and travel began on 23 March 2020. Following these closures, some on-trade premises remained open for takeaway sales, however the majority of on-trade sales ceased until the easing of restrictions in July 2020.

These controls affected opportunities to purchase alcohol across the UK. Additionally, the COVID-19 pandemic and associated restrictions have impacted many people's psychological, social and economic circumstances. These combined factors could have impacted overall consumption and drinking behaviour, potentially having different effects in different sub-groups of the population or for different types of alcoholic drink.

The Monitoring and Evaluating Scotland's Alcohol Strategy (MESAS) programme commissioned two studies to investigate the impact of the COVID-19 pandemic and related restrictions on alcohol consumption in Great Britain.<sup>1,2</sup> One of the studies used data on alcohol sales, and the other study used self-report survey data. This briefing paper brings together the findings of these studies.

## **What were the aims of these studies?**

The studies aimed to provide a better understanding of the impact of the COVID-19 pandemic, and associated physical distancing measures, on alcohol consumption in Scotland during the first few months of the pandemic.

The study that used alcohol sales data aimed to assess how the COVID-19 pandemic impacted alcohol consumption at the population level during the first few months, when strict physical distancing measures were introduced. The study using self-reported survey data complemented this, by describing how drinking behaviour changed, and provided insights into how particular population sub-groups were affected.

## **How were these studies carried out?**

Researchers at Public Health Scotland and the University of Glasgow carried out a study that used weekly alcohol retail sales data from market research companies to estimate alcohol consumption at a population level for Scotland, and England & Wales. These data cover sales through both the off-trade (supermarkets and off-licences) and the on-trade (pubs, clubs and restaurants) covering the period January 2017 to July 2020.<sup>1</sup> We used these data to estimate the volume, in litres, of pure alcohol sold per adult. This was summarised by trade sector (on- and off-trade), and drink category, for Scotland and England & Wales. We then described how weekly sales from January to mid-July 2020 differed from the average for these months across the years 2017–2019.

We estimated the change in volume of pure alcohol sold per adult, before and during the early months of the COVID-19 pandemic and related restrictions. This was evaluated using interrupted time series regression analysis, a statistical method that is good for estimating the impact of population-level interventions using time series data (the full method is described in the main report). This approach enabled us to account, and adjust, for important underlying trends and seasonal patterns in alcohol sales. Data from 2017 to

2020 (up to 14 March) were used to represent the period before COVID-19 and related restrictions were expected to have affected sales. The Scottish models were also adjusted to reflect any step-change in sales following the introduction of minimum unit pricing.

The self-reported drinking study was undertaken by researchers at the University of Sheffield. They used responses from a longstanding and regular online market research survey of adults (aged 18+ years) resident in Great Britain.<sup>2</sup> The survey provides information on the characteristics of respondents such as their age, sex, social grade, employment status and number of children in the household. The survey responses were collated on a monthly basis, to provide snapshots of alcohol consumption and characteristics around drinking occasions, such as when and where people were drinking and with whom. These were captured through a questionnaire and seven-day diary on the drinking habits of respondents in the week prior to the survey. The researchers assessed:

- the number of days on which respondents drank and number of alcohol units consumed, both per week and per drinking occasion
- the number of heavy drinking occasions per week (defined as 6+ units for women and 8+ units for men), and the number of units consumed on the heaviest drinking occasion
- the average start time of drinking per day and the number of drinking occasions which started prior to 17:00 on weekdays per week
- the number of solitary drinking occasions per week.

The researchers looked to see if there was any difference in Scotland and England. They also investigated whether there were any differences in changes based on the characteristics of survey respondents, as described above. The researchers compared changes in estimates between the first three months of COVID-19-related restrictions (17 March to 16 June 2020)

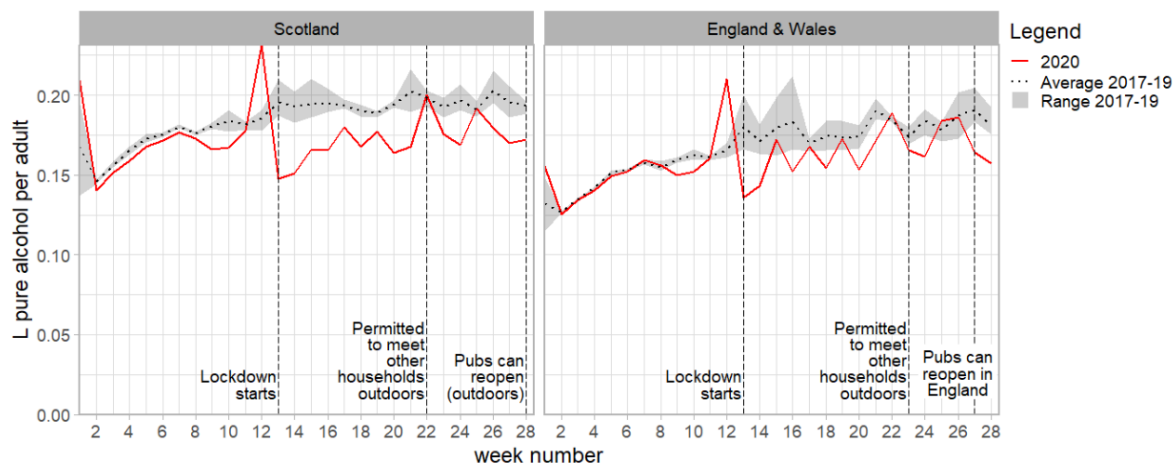
with the same period in 2019. No formal statistical testing was carried out, however, 95% confidence intervals were estimated.

## **What were the findings of both studies?**

In the early months of 2020, total alcohol sales in Scotland were lower than for the same weeks of 2017–19, whereas sales in England & Wales remained similar to the 2017–19 average (Figure 1). Around the time when COVID-19 cases had started to increase rapidly (late February to mid-March 2020), sales were around 6% lower on average in Scotland, and 4% lower in England & Wales.

There was evidence of stockpiling around the time on-trade premises were required to close across the UK (21 March 2020). In this week (the week prior to the national lockdown being imposed) there was a 42% increase in off-trade sales in Scotland and a 47% increase in England & Wales. These increases more than off-set the 20% and 22% reductions in on-trade sales in Scotland and England & Wales, respectively, resulting in total weekly alcohol sales that were 25% and 27% higher than the averages for the time of year. These spikes should not be interpreted as large increases in total alcohol consumption. They are more likely to reflect an element of stockpiling prior to restrictions coming into force.

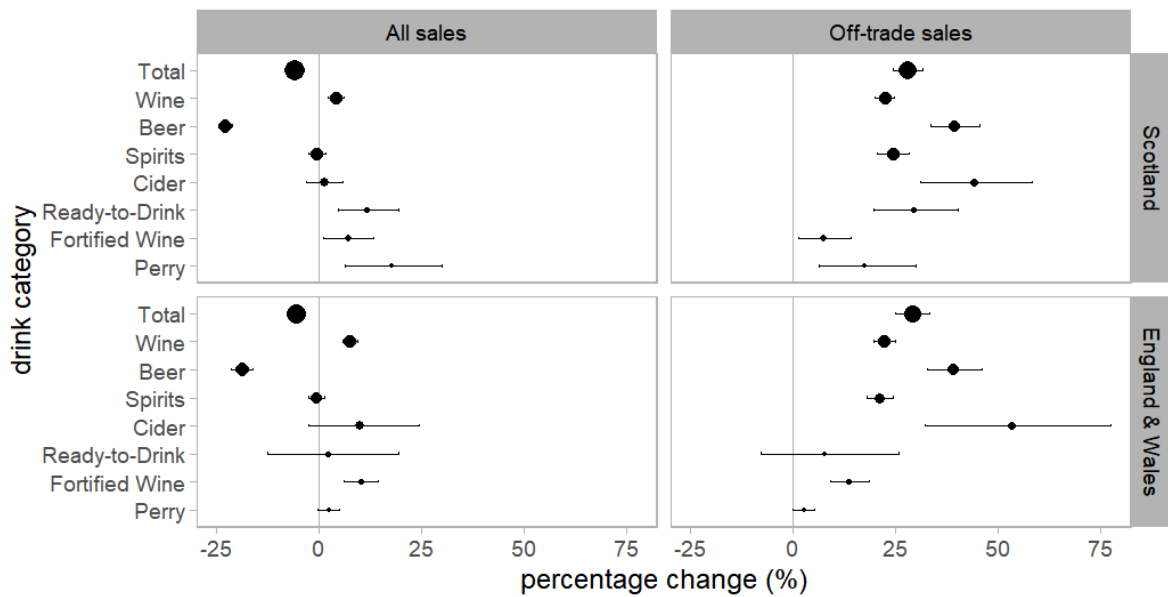
**Figure 1. Total weekly alcohol sales (Litres (L) of pure alcohol per adult, on- and off-trade combined) in Scotland and England & Wales in the first 28 weeks of 2020**



**Note:** In 2020, week 1 includes New Year’s Eve/Hogmanay; weeks 14 and 15 include the Easter weekend and its public holidays; week 19 includes the early May public holiday; and week 22 includes the late May public holiday.

In week 13 (commencing 22 March 2020) a national lockdown was imposed across the UK to slow the spread of COVID-19. The marked falls in alcohol sales seen in this week compared with the same week of 2017–2019 (25% in both Scotland and England & Wales) matched the spikes seen in the previous week, giving further evidence that these represented stockpiling. For much of the remainder of the time series (weeks 14 to 28: 29 March to 11 July 2020), total weekly alcohol sales in Scotland and England & Wales remained lower than for the same weeks of 2017–2019. Higher than average off-trade sales did not compensate for the loss of on-trade purchases.

**Figure 2. Impact (% change) of COVID-19 and related restrictions on all and off-trade alcohol sales, by drink category in Scotland and England & Wales**



**Notes:**

1. COVID-19 and related restrictions period: weeks 12 to 28 of 2020 (15 March 2020 to 11 July 2020, inclusive).
2. Estimates adjusted for underlying seasonal and secular trends, using interrupted time series modelling.
3. Category marker size is relative to the market share of that category.
4. Horizontal lines indicate the 95% confidence intervals (CI; the range of values around the estimate that we are 95% confident that the true value lies within). If the CI does not include zero the % change can be said to be statistically significant.

We used interrupted time series regression analysis to assess the impact of COVID-19 and related restrictions on total and off-trade alcohol sales, by drink category, in Scotland and England & Wales (Figure 2). COVID-19 and related restrictions (15 March to 11 July 2020) were associated with a 6% reduction in the volume of pure alcohol sold per adult in Scotland and in England & Wales, compared with the level which we would have expected had physical distancing measures not been in place, and taking account of underlying trends and seasonal patterns. Increases in per-adult off-trade sales (28% in Scotland and 29% in England & Wales) did not fully replace the loss of on-trade sales.

The impact of COVID-19 and related restrictions varied by drink category (Figure 2). Off-trade sales of most drink categories significantly increased. Beer had the largest relative reduction of 23% in overall alcohol sales in Scotland, with a slightly smaller reduction in England & Wales of 19%. In Scotland, there were significant increases in overall sales of wine (4%) and three lower-volume categories (ready-to-drink, fortified wine and perry). England & Wales also saw significant increases in overall sales of wine (8%) and fortified wine (10%). Overall sales of spirits in Scotland and England & Wales remained unchanged.

In the self-reported drinking study, the research team assessed changes in the mean number of drinking days, drinking occasions, and alcohol units, per week during the first three months of the COVID-19 pandemic and associated restrictions compared to the same period in 2019 (Table 1).

While not all the findings were found to be statistically significant, most measures of total (on- plus off-trade) consumption fell in both Scotland and England, with larger falls in England. All measures of off-trade consumption in both Scotland and England increased during the period of COVID-19 and related restrictions. In particular, in Scotland units of alcohol per week increased by 21% (+2.4 units), and units per occasion by 29% (+1.1 units). However, these only compensated for some of the losses in on-trade

consumption. This is consistent with our findings from the weekly alcohol sales study.

There was evidence of alcohol consumption shifting to later in the evening in both Scotland and England, and fewer weekday drinking occasions starting before 17:00 (Table 2). In Scotland, individual population sub-group analyses indicated that later consumption was evident in those aged 55 years and above; women; two-adult households; households with no children; and those that consumed alcohol on a weekly basis.

There were increases in solitary alcohol consumption in both countries, but to a larger extent in Scotland. There were notable increases in the absolute number of occasions involving drinking alone for population sub-groups including single adult households; households with three or more adults; and those in full-time education.



**Table 1. Changes in measures of alcohol consumption during the March–July 2020 period affected by COVID-19 and related restrictions, by measure, trade sector and country**

**Table 1A: Scotland (n=11,223)**

<b>Measure</b>	<b>Total change</b>	<b>Total % change</b>	<b>Off-trade change</b>	<b>Off-trade % change</b>
Number of drinking days per week	0.0	+1%	+0.2	+17%
Number of drinking occasions per week	-0.2	-9%	+0.2	+17%
Units of alcohol per week	-0.8	-5%	+2.4	+21%
Units of alcohol per occasion	0.0	0%	+1.1	+29%
Number of heavy drinking occasions per week	-0.1	-8%	+0.1	+21%
Units of alcohol in the heaviest drinking occasion per week	-0.2	-2%	+0.9	+15%

**Note:** Shaded cells in tables indicate that the change was statistically significant. This means that the 95% confidence interval for estimates during the first three months of the COVID-19 pandemic and associated restrictions did not overlap with those for estimates for the same period in 2019.\* Changes have been rounded to one decimal place. This is why some percentage changes are shown for changes that appear as 0.0.

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\* In the absence of formal statistical testing, the study carried out by researchers at the University of Sheffield treated any overlapping confidence interval as non-significant. This is a conservative assumption as such differences may be significant in some instances where the confidence interval of one group does not include the point estimate for the other group.

**Table 1B: England (n=70,126)**

<b>Measure</b>	<b>Total change</b>	<b>Total % change</b>	<b>Off-trade change</b>	<b>Off-trade % change</b>
Number of drinking days per week	0.0	0%	+0.2	+16%
Number of drinking occasions per week	-0.2	-9%	+0.3	+18%
Units of alcohol per week	-1.5	-10%	+1.7	+16%
Units of alcohol per occasion	-0.3	-5%	+0.8	+22%
Number of heavy drinking occasions per week	-0.1	-11%	+0.1	+15%
Units of alcohol in the heaviest drinking occasion per week	-0.7	-9%	+0.3	+5%

**Note:** Shaded cells in tables indicate that the change was statistically significant. This means that the 95% confidence interval for estimates during the first three months of the COVID-19 pandemic and associated restrictions did not overlap with those for estimates for the same period in 2019.<sup>†</sup> Changes have been rounded to one decimal place.

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<sup>†</sup> In the absence of formal statistical testing, the study carried out by researchers at the University of Sheffield treated any overlapping confidence interval as non-significant. This is a conservative assumption as such differences may be significant in some instances where the confidence interval of one group does not include the point estimate for the other group.

**Table 2. Changes in measures of drinking behaviours during the March–July 2020 period affected by COVID-19 and related restrictions, by measure, trade sector and country**

**Table 2A: Scotland (n=11,223)**

Measure	Total change	Total % change	Off-trade change	Off-trade % change
Start time per day (minutes)	+38.4		+17.4	
Number of weekday occasions before 17:00 per week	-0.1	-30%	0.0	-10%
Number of occasions involving drinking alone per week	+0.2	+35%	+0.3	+58%

**Note:** Shaded cells in tables indicate that the change was statistically significant. This means that the 95% confidence interval for estimates during the first three months of the COVID-19 pandemic and associated restrictions did not overlap with those for estimates for the same period in 2019.‡ Changes have been rounded to one decimal place. This is why some percentage changes are shown for changes that appear as 0.0.

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‡ In the absence of formal statistical testing, the study carried out by researchers at the University of Sheffield treated any overlapping confidence interval as non-significant. This is a conservative assumption as such differences may be significant in some instances where the confidence interval of one group does not include the point estimate for the other group.

**Table 2B: England (n=70,126)**

<b>Measure</b>	<b>Total change</b>	<b>Total % change</b>	<b>Off-trade change</b>	<b>Off-trade % change</b>
Start time per day (minutes)	+30.6		+10.2	
Number of weekday occasions before 17:00 per week	-0.1	-23%	0.0	-19%
Number of occasions involving drinking alone per week	+0.1	+12%	+0.1	+23%

**Note:** Shaded cells in tables indicate that the change was statistically significant. This means that the 95% confidence interval for estimates during the first three months of the COVID-19 pandemic and associated restrictions did not overlap with those for estimates for the same period in 2019.<sup>§</sup> Changes have been rounded to one decimal place. This is why some percentage changes are shown for changes that appear as 0.0.

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<sup>§</sup> In the absence of formal statistical testing, the study carried out by researchers at the University of Sheffield treated any overlapping confidence interval as non-significant. This is a conservative assumption as such differences may be significant in some instances where the confidence interval of one group does not include the point estimate for the other group.

## Implications of study findings

Taken together, these two studies suggest that at a population level, people were drinking at reduced levels in the early months of the COVID-19 pandemic, compared to the same months in previous years. This is consistent with other evidence: at the UK level, provisional duty receipts from the on- and off-trade combined from April to July 2020 were 2.4% lower than for the same period of 2019.<sup>4</sup> The extent of the reduction from sales data (6%) may be a slight overestimate, as online and on-trade takeaway sales were not captured. Despite the overall reduction in alcohol sales in this period, weekly averages – 17.5 units per adult in Scotland, and 16.7 in England & Wales – remained in excess of the UK Chief Medical Officers' guideline of 14 units per week.

It is also important to understand whether population-level findings mask disproportionate individual-level changes occurring in some groups of people. The University of Sheffield study found no notable changes in alcohol consumption or frequency of drinking for most population sub-groups. However, the smaller Scottish sample size limited the potential to detect change in sub-groups. This was an issue for the Scotland level analysis, resulting in some effects being either non-significant or inconclusive even when they were larger than significant effects in England, where the sample was bigger. Regardless, the changes in observed sample means (and the confidence intervals around them) from this descriptive study give useful indications of changes in the level of alcohol consumption and drinking behaviours in Scotland during the early stages of the COVID-19 pandemic.

Recently published surveys of alcohol consumption during the COVID-19 pandemic suggest the response has been mixed, with similar proportions of people reporting that they are drinking either more than before, or less than before.<sup>5-7</sup> However, a concerning finding emerging from multiple sources is that drinking at hazardous levels may have increased during lockdown, particularly among those who were already drinking at higher levels.<sup>5-10</sup> In the sensitivity analyses in the University of Sheffield study, during the early

months of the pandemic heavier drinkers in particular increased their off-trade consumption and maintained similar levels of overall consumption.

Further studies of how characteristics interact across several sub-groups (for example age, sex and employment status) would give us a better understanding of the full extent of any disproportionately negative, or positive, effects. In addition to this, periodic estimation across a longer time series will help monitor the ongoing impact.

## **Conclusion**

The physical distancing restrictions introduced in the UK as a result of the COVID-19 pandemic were unprecedented and had a marked impact on alcohol sales. Overall, there was a 6% reduction in total alcohol sales in Scotland, as increases in off-trade sales did not fully replace the loss of on-trade sales. Most self-reported alcohol consumption measures have also reduced accordingly, although statistically significant reductions could only be reported for England. There has been a notable shift to later start times of drinking, and increased solitary drinking, impacting some sub-groups of the population more than others.

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