IAS Institute of Alcohol Studies

BRIEFING

MINIMUM UNIT PRICING IN SCOTLAND

WHAT WE KNOW SO FAR ABOUT ITS EFFECTS ON CONSUMPTION AND HEALTH HARMS

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Executive summary

Background

Minimum unit pricing (MUP) for alcohol was introduced in Scotland on 1 May 2018. MUP sets a floor price per unit, currently 50p, below which it is illegal to sell alcohol. This specifically targets the cheapest, strongest drinks favoured by harmful drinkers – those who regularly drink more than the lower risk guidelines. By lowering alcohol consumption in this group, the policy is intended to "save lives, reduce hospital admissions and, ultimately, have a positive impact across the whole health system in Scotland and for wider society" [1]. The legislation introducing MUP requires the Scottish Government to conduct a formal evaluation of the policy's impact five years after it comes into force, following which the Scottish Parliament will vote on whether to retain MUP.

Several analyses of MUP's effect on consumption – of varying robustness – have been published

While we await the results of this official evaluation, a number of different sources have published data exploring the initial impact of MUP on sales and consumption. Media reports have been mixed, with some claiming the policy has been a success and others claiming it has been a failure. This briefing attempts to summarise this evidence to draw conclusions about the impact of MUP based on *what we know so far.*

When assessing the impact of MUP, one of the most important indicators to measure is alcohol consumption. This is because evidence shows that rates of consumption are directly linked to rates of alcohol harms such as deaths, hospital admissions and crime. Alcohol sales data are often used as a proxy to measure consumption rates and a number of analyses – of varying robustness – have been published using sales data to assess the impact of MUP so far. When evaluating these different sources of evidence, we should consider the following:

- **How were alcohol sales measured?** The best measure to evaluate the impact of MUP on consumption is the number of units of alcohol sold per adult, rather than 'natural volumes' or 'stock-keeping units'.
- **How were the data collected?** Alcohol sales data can come from retailer till scans or home consumer panels, each with their own strengths and limitations.
- **How were the data analysed and/or published?** Data published in official reports and academic journals are more in-depth and transparent than data published solely in newspaper articles and blogs.
- **What was the time period covered?** Some data relate to the first few weeks or months of MUP, other sources to the full first year.
- **What comparison or counterfactual was used?** When evaluating a policy, it is important to have a counterfactual or comparison to establish the policy's causal impact. For MUP, researchers tend to favour comparing Scotland with other parts of the UK, such as England and Wales. However, some studies only compare post-MUP figures to data from the year before. The latter assumes that consumption would not have changed year-on-year, despite changing circumstances (such as a particularly hot summer or the football World Cup, which both occurred in 2018).

The available evidence so far strongly suggests MUP has reduced alcohol consumption in Scotland

Two reliable analyses both report a drop in alcohol sales (of around 4-6%) in Scotland following MUP. While other sources suggest alcohol sales may have been flat year-on-year, every published source shows a greater rise in England and Wales than in Scotland. **The most robust available evidence suggests MUP has reduced per adult alcohol consumption by 7-8%**. Moreover, this reduction in consumption appears to be greatest among the heaviest drinkers. An overview of published data on alcohol sales in Scotland following MUP can be found in the appendix.

The evidence on health harms so far is less conclusive

Data related to alcohol health harms will also provide an indication of the impact of MUP. The official evaluation will assess changes in alcohol-related death rates and hospital admissions, using robust statistical analysis. However, this briefing presents early descriptive data on health harms.

Alcohol-specific deaths fell 7% in Scotland in the eight months following MUP, but they fell by the same amount in England. Hospitalisations due to alcohol were flat in the first 12 months of MUP in Scotland, but they appear to have risen in England. More data and robust analysis are needed to accurately distinguish the causal effect of MUP on health harms from random fluctuations, a process which may take years.

Introduction

Minimum unit pricing (MUP) came into force in Scotland on 1 May 2018, setting a 'floor price' of 50p per unit[1] below which it is illegal to sell alcohol. This specifically targets the cheapest, strongest drinks favoured by harmful drinkers – those who regularly drink more than the lower risk guidelines. By lowering alcohol consumption in this group, the policy is intended to "save lives, reduce hospital admissions and, ultimately, have a positive impact across the whole health system in Scotland and for wider society" [1] – and particularly reduce health inequalities between the affluent and deprived. Under MUP, a bottle of wine (12% ABV) has a minimum price of a £4.50, a pint of 4% ABV beer cannot be sold below £1.14, and a 70cl bottle of vodka (37.5% ABV) £13.13.

As a requirement of the legislation introducing MUP, the Scottish Government has commissioned an independent review of the policy's effects conducted by Public Health Scotland's (formerly NHS Health Scotland), *Monitoring and Evaluating Scotland's Alcohol Strategy* (MESAS) programme, which must report its findings by 2023. The legislation also contains a 'sunset clause', which requires the Scottish Parliament to vote again on whether to continue with MUP, informed by MESAS' conclusions, by 2024.

While we await the results of the official MESAS evaluation, a number of early analyses have been published, reporting on the impacts of MUP. Media reports of the data have been mixed, with some claiming the policy has been a success [2] and others claiming it has been a failure [3]. Such sweeping claims are clearly premature. Yet while thorough data collection and analysis takes time, there is understandable impatience to establish whether MUP is working.

This briefing collates some of the various sources of evidence that have been publicly released so far and assesses how useful they are in telling us what impact MUP has had. The appendix summarises the different pieces of quantitative data that we have, alongside relevant details about their sources. The focus here is primarily on the impact of MUP on alcohol consumption, using retail sales and purchasing as a proxy, which is where we have the greatest amount of (and most apparently conflicting) data. The objective is to reach some tentative conclusions, based on *what we know so far*, while understanding that these may shift over time as new evidence comes in.

The briefing also covers what data we have so far about trends in health harms following MUP. It does not specifically address the wider social and economic effects of MUP, including its impact on crime and disorder, industry or public attitudes, all of which have been or will be studied as part of the official evaluation [4].

1 A unit is 8g/10ml of pure alcohol

Different types of evidence on MUP's impact on consumption

In order for MUP to reduce alcohol-related harm, it will have to reduce alcohol consumption. At an individual level, there is voluminous evidence that reducing the alcohol consumption of heavier drinkers reduces the risk of various forms of harm [5]. Consequently, the level of alcohol consumption at the population level tends to be linked to alcohol-related deaths, hospital admissions and crime [6].

According to the World Health Organization, "In general, retail sales data offer the most accurate means of estimating how much alcohol was consumed by the population in a given year" [7]. The advantage of sales data over directly measuring consumption is that consumption data usually comes from self-report surveys that are less likely to cover the heaviest drinkers, and where respondents tend to significantly underestimate their own drinking [8]. At the same time, self-report surveys can be useful for understanding shifts in consumption in sub-groups within the population.

The evidence we have on the impact of MUP on alcohol sales so far comes in different forms from different sources. Not all evidence is equally reliable. When evaluating particular data, the following should be considered:

- How were alcohol sales measured?
- How were the data collected?
- How were the data analysed and/or published?
- What was the time period covered?
- What comparison or counterfactual was used to isolate the impact of MUP?

How were alcohol sales measured?

While sales data provide a better indication of population level alcohol consumption than self-report surveys, retail sales are affected by changes in population as well as levels of drinking. Sales data ought, therefore, to be adjusted for changes in population – **the best measure for estimating the effect of MUP on consumption is the number of units of alcohol sold per adult**. In 2018, according to MESAS, adjusting for growth in the adult population reduced sales growth in Scotland by around 0.4% points.[2]

Some sources report other sales measures, such as 'natural volume' (the total volume of liquid) or 'stock-keeping units' (SKUs; confusingly sometimes referred to as 'units' as well). Looking at natural volume, a litre of vodka and a litre of beer are counted as the same, even though the vodka may contain up to ten times as much pure alcohol. Similarly, a single SKU could be a single bottle of wine, a four-pack of cider or a large box of beer cans. Neither measure therefore perfectly reflects the actual amount of (pure) alcohol sold. Moreover, MUP may encourage shifting towards lower strength drinks. Looking at natural volume or SKUs would not pick up such shifts and thus may not accurately reflect the overall impact of MUP.

2 In MESAS' Monitoring report, total off-trade unit sales fell by 2.6% in 2018, but per adult off-trade unit sales fell by 3.0% – a difference of 0.4%

How were the data collected?

Most of the data released to date have focused on the off-trade (supermarkets and off-licences), where almost all the alcohol priced below 50p per unit – and so directly affected by MUP – was previously sold. In the off-trade, there are two main ways to collect data:

- **EPOS (Electronic Point of Sale):** Nielsen Scantrack and IRI receive sales data from the major supermarkets and a sample of independent retailers and convenience stores. The data are collected automatically when purchases are scanned at tills. This has the advantage that every single sale in the participating retailers is included. However, the major drawback is that it does not include data from discounters (Aldi and Lidl), who do not provide their data to Nielsen or IRI.
- **Consumer Panel:** Kantar Worldpanel have a demographically representative panel of 30,000 consumers, who scan the barcodes or take a picture of every item they buy. Nielsen HomeScan operate a similar panel of 15,000 consumers. In contrast to EPOS, consumer panel data only includes purchases from a sample of households and relies on people remembering to scan every purchase – a particular issue for products not consumed at home. Moreover, some groups that are disproportionately likely to be heavy drinkers, such as homeless people, are unlikely to be represented in the sample.

The only data we have so far that cover the on-trade (pubs, hotels, restaurants etc) come from CGA. CGA collects data from EPOS systems, delivery records and flowmeters (that measure the volume of draught beer and cider poured) from around 85,000 premises (over half the total) and estimates sales for the whole market from these [9].

How were the data analysed and/or published?

The evidence we have so far in the public domain on MUP's impact on consumption comes from four types of sources:

- **Market research companies**, such as Nielsen and Retail Data Partnership, who routinely collect EPOS or consumer panel data, have released some of these figures in newspaper articles and blogposts
- **Aston Manor, a producer of high-strength white cider** (among the products most adversely affected by MUP), has released some EPOS data purchased from IRI
- An **independent academic** study by O'Donnell et al, published in the *BMJ*, based on Kantar consumer panel data
- **Public Health Scotland's MESAS programme** has produced three reports containing data on sales in Scotland and England & Wales since 2018:
    - The 2019 Monitoring Report, which combines data from CGA (for the on-trade), Nielsen Scantrack (for most of the off-trade) and Kantar (for discounter market share), covering the calendar years 2000-18
    - The 2019 Sales Report, which uses the same off-trade data as the Monitoring Report, but provides sales figures for the first 12 months following the introduction of MUP
    - A report on the impact of MUP on the drinks industry, which contains interviews with retailers and producers in which they shared with the research team some of their sales figures.

These different sources vary in terms of their depth and transparency. The O'Donnell et al paper and the MESAS reports contain several data tables, and come with methodological detail explaining how the data were treated and analysed. Since the data released directly by market research companies or by Aston Manor have been in shorter, general readership articles, they have tended to release only a few headline data points, with far less supporting information on how the numbers were arrived at and what exactly they cover. Similarly, the figures published in the MESAS Industry Impact report provide only top line numbers, with minimal underlying or background detail. Moreover, only a few of the participants in the MESAS Industry Impact research provided numbers at all, with many providing only qualitative indications of the perceived effect of the policy.

What was the time period covered?

Different reports cover different time periods, which makes it difficult to compare them. Most start from May 2018, when MUP came into force, but they continue for different lengths – some only the first few weeks, others (most notably the MESAS sales report) the entire first year. The MESAS monitoring report (which is a routine publication, and not part of the official evaluation) only provides data for calendar years up to 2018 – as a result, the only comparison we can make that includes the on-trade is between the calendar years of 2018 and 2017, even though MUP was not in force for the first four months of 2018.

What comparison or counterfactual was used to identify the impact of MUP?

When evaluating a policy, it is important not only to examine what happened after the policy came into force, but also to establish a counterfactual or comparison – our best estimate of what would have happened if the policy had not occurred. The difference between the two provides an indication of the causal impact of the policy.

No counterfactual is perfect, but researchers have tended to **compare trends in Scotland to those in other parts of the UK** where possible**.** MESAS compare retail sales data for Scotland to England and Wales, while O'Donnell et al compare purchases by Scottish households to households in England. The rationale is that these other areas are similar enough to Scotland to offer a reliable guide as to what would have happened in Scotland if MUP had not been introduced. Indeed, previous analysis has shown that sales of alcohol in Scotland tend to move broadly in step with sales in England and Wales [10]: in the year prior to the implementation of MUP, per adult alcohol sales rose by 0.9% in Scotland and 0.8% in England and Wales [11].

Other published data sources, such as Aston Manor-IRI and Retail Data Partnership, have not provided a concurrent counterfactual, but rather compare the alcohol sales in Scotland to the previous year. Implicitly, this comparison assumes that in the absence of MUP there would have been no change in alcohol sales in Scotland. In reality, alcohol sales are highly likely to be affected by changing circumstances and as such vary year-on-year. For example, alcohol sales tend to be higher when there is a long and hot summer or big sporting events such as the men's football World Cup – both of which occurred in 2018.

Has MUP reduced alcohol sales in Scotland?

The evidence that we have so far, summarised in the appendix, strongly suggests that impact of MUP has been to reduce alcohol sales in Scotland.

Two separate,[3] robust sources – MESAS and the O'Donnell et al study – report that alcohol sales fell year-on-year. The MESAS sales report, which primarily uses Nielsen EPOS data (supplemented with Kantar's consumer panel data to estimate sales in discounters), estimated a fall of 3.6% in off-trade alcohol sales per adult in the first year following MUP [11]. The O'Donnell et al study, solely using Kantar data, estimated a 5.6% fall in off-trade alcohol sales per capita in the first eight months following MUP [12].

Other sources also report a decline in sales following MUP. The retailers and producers interviewed for MESAS' Industry Impact report observed a decrease in natural volume sales following the introduction of MUP relative to what they would otherwise have expected, with only retailers selling products above 50p per unit (premium specialist and on-premise retailers) reporting no impact. The only firm that provided unit sales data was a national chain of supermarkets, which indicated that unit sales fell by between 6% to 9% year-on-year in its Scottish stores [13]. The Retail Data Partnership report a 0.6% decline in sales in its sample of convenience stores in the first three months following MUP – a smaller fall, but still a drop [14]. Moreover, anecdotally, some retailers have claimed that consumers have switched from supermarkets to convenience stores following the introduction of MUP [15] (although the MESAS Industry Impact study finds little evidence support such claims [13]). If such a switch has occurred, we would expect sales to have fallen by more in supermarkets than convenience stores.

The major exception is the Aston Manor-IRI EPOS data, which show off-trade sales *increasing* in Scotland following the introduction of MUP. It is difficult to compare these findings directly with other sources as the underlying data and methodology have not been published in full but have only been reported in the media. However, the numbers we have seen are:

- at 40 weeks [16]: a year-on-year increase of 25.2 million units sold – which is an increase of 1.0% of the total[4]
- at 52 weeks [17]: a year-on-year increase of 2.5 million units sold – an increase of 0.1%.[5]

These figures do not account for population growth, which, as we have seen, could reduce them by 0.4%. Thus, even IRI's figures may be consistent with a (small) fall in consumption, on a per adult basis.

Nielsen published some consumer panel data which suggested that natural volume sales increased by 4% in Scotland in the first three months after MUP [18].[6] Yet, as discussed above, natural volume is not a reliable indicator of the actual amount of alcohol sold, as it fails to account for strength. Nielsen also published EPOS data suggesting natural volume sales increased by 0.9% in the first 46 weeks following the introduction of MUP [19]. However, this has been superseded by the MESAS report, which converts the same

3 Although note that both draw on Kantar, albeit not as the main source of data for MESAS
4 based on MESAS data on the total number of units sold in Scotland
5 based on MESAS data on the total number of units sold in Scotland
6 Nielsen collects both EPOS and consumer panel data. Only the EPOS data are used by MESAS

Nielsen EPOS data into units, covers a full year and adjusts for the absence of discounters and population growth – resulting in a decline in per adult off-trade sales.

In any case, the one consistent finding across the public data is that wherever the comparison has been made, **alcohol sales in Scotland fell relative to England/England and Wales following the introduction of MUP**. Moreover, in most cases, the gap is large. MESAS find that off-trade sales fell by 6.8% points more in Scotland than in England and Wales in the first year after MUP [11]. O'Donnell et al find an even bigger difference: 8.2% points in the first eight months (although their estimate for the causal impact of MUP, controlling for underlying trends, is a little lower: 7.6%) [12]. The supermarket that showed its internal sales data to MESAS reported sales growth in Scottish stores between 12% and 18% lower than in England and Wales [13].

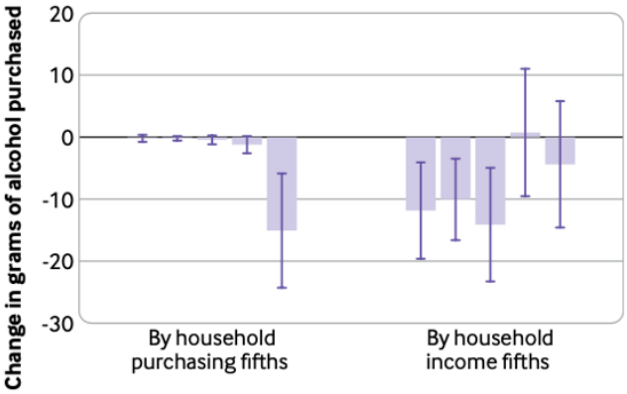
Sources that suggest Scottish alcohol sales increased following MUP also indicate that they increased by substantially less than in England and Wales. The Aston Manor-IRI data show that natural volume sales growth was 2.5% points lower in Scotland than in England and Wales in the first year after MUP [17]. The Nielsen consumer panel data that suggested that natural volumes increased by 4% in the first three months after MUP also showed a 7% rise in England [18]. To reiterate, natural volume is a less reliable measure than units of alcohol. However, for these two sources it is the only comparable measure between Scotland and England/England and Wales.

Does the impact of MUP vary between different drinkers?

One limitation of using aggregate sales data is that it does not tell us *which* drinkers have changed their drinking habits in response to the policy. MUP is intended to be targeted at heavier drinkers [20].

The one quantitative study that looks at the effect of MUP on different households is O'Donnell et al, which uses Kantar's consumer panel data. They find that the reduction in sales came almost entirely from the heaviest drinking households.

O'Donnell et al: Estimated change in weekly grams of alcohol purchased per adult per household as a result of MUP, by purchasing fifths (lowest to highest from left to right) and income fifths (lowest to highest from left to right). Whiskers=95% confidence intervals [12]

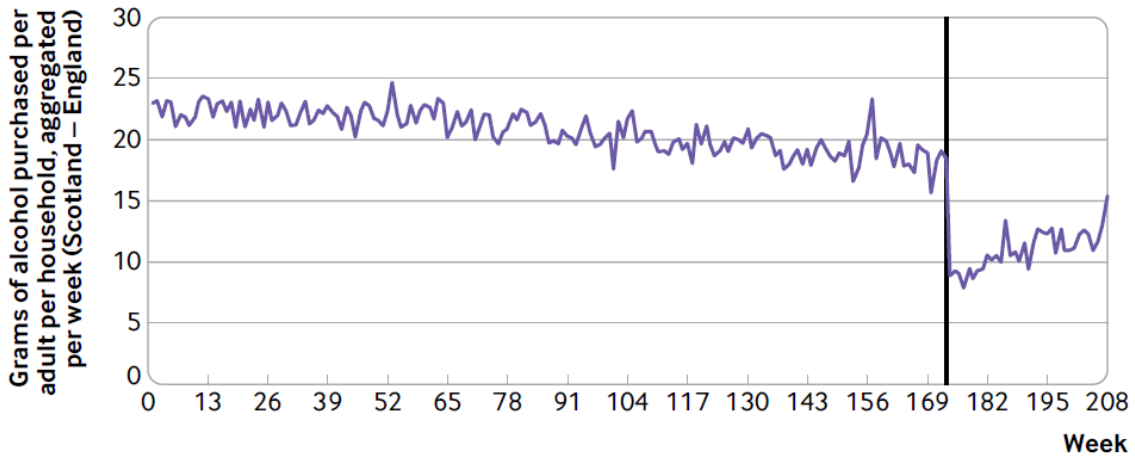


MESAS has also published a qualitative study exploring the impact of MUP on children and young people [21]. From interviews with 50 13-17-year-olds, conducted before and after MUP came into force, they found that some young drinkers had increased consumption, but others had decreased consumption, and that these changes were not usually explicitly linked to increases in price. Thus, they found little evidence to suggest a substantial change in drinking habits among young drinkers due to MUP. However, it is important to note that these findings come from a relatively small sample and so may not be generalisable to the wider population. The study specifically sought out young people who already drank (which most do not), and participants were more likely to have a history of offending or to be in care than the average young person. In any case, it is possible that MUP resulted in a small enough reduction in drinking among the participants that it was not detected in the interviews, which did not seek to quantify levels of consumption.

Does the effect of MUP 'wear off' over time?

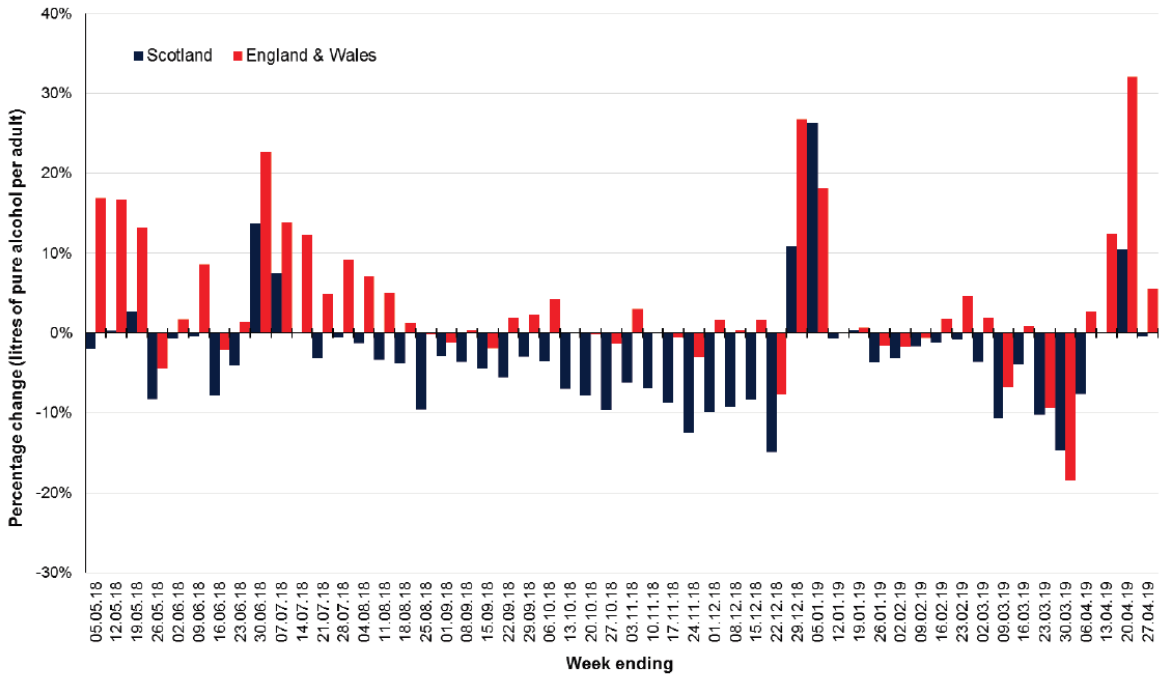
There has been some discussion of whether the effect of MUP may 'wear off' as time passes. The chart below from O'Donnell et al seems to show the difference in alcohol purchases between Scotland and England closing substantially in the immediate aftermath of MUP's introduction, but then creeping up towards its earlier level over the following eight months. However, this apparent relative increase in alcohol purchases following MUP is not found to be statistically significant in the paper [12].

O'Donnell et al: Difference in alcohol purchases Scotland minus England by week, 2015-2018. Vertical Line = introduction of MUP [12]



Moreover, the pattern is not replicated in MESAS' sales report, which provides weekly sales data using a different measure. The chart below shows the difference in the *year-on-year percentage change* in per adult alcohol sales (as opposed to O'Donnell et al's measure, *absolute* purchases) between Scotland and England and Wales. It shows that the gap between Scotland and England and Wales was fairly wide for most of the first few months of MUP, although it closed in January-March (after the end of O'Donnell et al's data series), before opening out again in April.

MESAS: Year-on-year percentage change in weekly off-trade alcohol sales, May 2018-April 2019 [11]



There is therefore currently no clear evidence that the effect of MUP deteriorates over time, although this should continue to be to be monitored over the longer term.

How has MUP affected health harms so far?

While there is encouraging evidence to suggest that MUP has reduced alcohol sales in Scotland, the picture is less clear in terms of health harms, where we have less post-MUP data and robust analysis so far. There is strong evidence that reductions in drinking typically bring improvements in population health [6], but it will remain important to confirm that the relationship holds for MUP in Scotland.

Official data from the Office for National Statistics [22] and National Records for Scotland [23], published by the Institute of Economic Affairs [24], show that alcohol-specific deaths fell by 7.3% in Scotland in the first eight months following the introduction of MUP, but that the decline was almost the same – 7.1% – in England and Wales over the same period . It is unclear whether these figures represent a statistically significant fall.

We should be cautious in how we interpret these numbers. Alcohol-specific deaths is a fairly narrow measure [25], and as a result relatively few deaths are classified as alcohol-specific in any given year: for example, there were 1,136 in 2018 [26]. Estimates suggest that only around a third of all alcohol-attributable deaths are classified as alcohol-specific [27]. This means that the number of alcohol-specific deaths is prone to substantial 'random' fluctuation from year-to-year, which is why the National Records for Scotland cautions that "it could be a long time before one could be confident that statistics of alcohol-specific deaths provide clear evidence of the success or otherwise of minimum unit pricing" [26]. In addition, it is worth pointing out that it may take some time for MUP to achieve its full impact as changes in consumption feed through to health outcomes. Modelled estimates of the impact of MUP suggest that while it should reduce deaths and hospital admissions from its first year, the number of lives saved and hospitalisations in year 1 are around half to two-thirds of the number in year 20 of the policy [28].

There are a larger number of alcohol-related hospital admissions, which are consequently less subject to random variation than the number of deaths. In the financial year 2018/19, 11 months of which was covered by MUP, the rate of alcohol-related hospital admissions was unchanged from the year previous [29]. In England over the same period, alcohol-related hospital admissions rose by 5% [30].[7] However, because of differences in definitions, admissions statistics are not directly comparable between Scotland and England. The impact of MUP on hospital admissions therefore remains unclear: more data are needed, and more robust analysis required to more accurately evaluate the health effects of MUP.

7 Using the narrow measure, counting only hospitalisations where the main reason for admission is attributable to alcohol, which is considered the best measure for estimating changes over time [31]

Conclusion

Two years have passed since the introduction of MUP in Scotland, and the process of collecting evidence and assessing its impact continues. It is unlikely that we will be able to draw firm conclusions until the official MESAS evaluation report is published in 2023. However, based on the data and analysis already in the public domain, there are strong signs that MUP has reduced alcohol consumption, at least in the short term. At the same time, the evidence in terms of health indicators is more limited and ambiguous so far. Over the coming months and years as more information emerges and more research is conducted, a clearer picture should develop, not just about the immediate impact, but also the effects over the longer term, and not just about the effect on consumption and health, but over a wider array of indicators. Such evidence as we have so far is encouraging, but not yet conclusive.

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Appendix: Overview of published data on the effect of Minimum Unit Pricing in Scotland on alcohol sales

Researcher / Commissioner	Publication	Data source	Data type	Coverage	Time period	Year-on-year change in unit sales				Other sales measures, year-on-year change			
						Scotland	England & Wales	Difference between Scotland and E&W	Accounts for population growth?	Measure	Scotland	England & Wales	Difference between Scotland and E&W
MESAS	Sales-based consumption, Nov 2019 [11]	Primarily Nielsen, plus Kantar	EPOS + consumer panel for discounters	Off-trade	May 2018–Apr 2019	-3.60%	3.20%	-6.80%	Yes				
MESAS	Monitoring Report, Jun 2019 [32]	Nielsen, Kantar, CGA	EPOS, consumer panel, delivery, flowmeter	All sales	2018 (includes 4 months pre-MUP)	-3.00%	1.50%	-4.40%	Yes				
		Primarily Nielsen, plus Kantar	EPOS + consumer panel for discounters	Off-trade		-3.00%	2.90%	-5.90%	Yes				
		CGA	Till scan, delivery, flowmeter	On-trade		-2.90%	-1.90%	-1.00%	Yes				
O'Donnell et al	BMJ, Sep 2019 [12]	Kantar	Consumer panel	Off-trade	May 2018-Dec 2018	-5.60%*	2.60%*	-8.20%*	Yes				
Aston Manor	Mail on Sunday, Apr 2019 [16]	IRI	EPOS	Off-trade	May 2018-Jan 2019	1.0%**			No				
Paul Chase / Aston Manor	Institute of Licensing, Nov 2019 [17]				May 2018-Apr 2019	0.10%***				Natural volume	1.70%	4.20%	-2.50%
Nielsen [18]		Nielsen	Consumer panel	Off-trade	May 2018-Jul 2018					Natural volume	4.00%	7.00%	-3.00%
Nielsen	Times, Apr 2019 [19]	Nielsen	EPOS	Off-trade (excl discounters)	May 2018-Mar 2019					Natural volume	0.90%		
Retail Data Partnership	RDP website, Oct 2018 [14]	Retail Data Partnership	EPOS	Convenience stores	May 2018-Jul 2018	-0.60%****							
Retail Data Partnership	RDP website, Sep 2019 [33]	Retail Data Partnership	EPOS	Convenience stores	Not provided					SKUs	7.80%		
MESAS	Impact on the drinks industry, Oct 2019 [13]	Supermarket internal sales data	EPOS	One supermarket chain	Not provided	-6% to -9%	6% to 9%	-12% to -18%	No				

* Not year-on-year: whereas other estimates report the change in alcohol sales compared to the same period 12 months earlier, O'Donnell et al report the change in average weekly alcohol sales per adult in the eight months following MUP compared to the 40 previous months. Also comparison is with England only, rather than England and Wales

** The *Mail on Sunday* report only states the absolute increase in the number of units sold in the first 40 weeks following MUP - 25.2 million. MESAS figures indicate 3.4 billion units were sold in Scotland in 2017. Proportionately that implies 40 week sales of around 2.5 billion (=3.2 billion x (40/52)), which suggests sales growth of 1.0%

*** As above, Paul Chase reports only the absolute increase in the number of units sold in the first 52 weeks following MUP – this time 2.5 million. That represents 0.1% of the 3.4 billion units total sold in Scotland in 2017.

**** It is unclear from the text of the blogpost whether this refers to units of alcohol or SKUs. As it is so different from the other sales figures Retail Data Partnership has provided for SKU sales, we have assumed it refers to units of alcohol.

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