Evaluating the impact of Minimum Unit Pricing in Scotland on people who are drinking at harmful levels

Final report

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Authorship

Lead investigator: John Holmes[1]

Work package 1: Penny Buykx[1,2], Andy Perkins[3] Jane Hughes[1], Wulf Livingston[3,4], Jennifer Boyd[1], Allan Johnston[3], Trevor McCarthy[3], Alex McLean[5], Alex Wright[3], Simon Little[3], Alan Brennan[1], John Holmes[1]

Work package 2: Andy Perkins[3], Wulf Livingston[3,4], Kevin Gardiner[3], Lorna Peddie[6], Yanni Yannoulis[6], John Holmes[1]

Work package 3: Abigail Stevely[1], Daniel Mackay[7], Mónica Hernández Alava[1], Petra Meier[1,7], Alessandro Sasso[1], John Holmes[1]

Work package 4: Colin Angus[1], John Holmes[1]

[1] School of Health and Related Research, University of Sheffield, UK

[2] University of Newcastle, NSW, Australia

[3] Figure 8 Consultancy Services Ltd, UK

[4] Glyndwr University, UK

[5] NHS Greater Glasgow and Clyde, UK

[6] Participant researcher

[7] Institute of Health and Wellbeing, University of Glasgow, UK

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Declaration of interests

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List of acronyms

ABV	Alcohol by volume
AD	Adult drinker
AIC	Akaike Information Criterion
AR	Autoregressive
AUDIT	Alcohol Use Disorders Identification Test
BIC	Bayesian Information Criterion
GP	General practitioner
MA	Moving average
MUP	Minimum unit pricing
N/A	Not applicable
PAI	Privileged access interview
PHS	Public Health Scotland
PPI	Patient and public involvement
SADQ	Severity of Alcohol Dependence Questionnaire
SARIMA	Seasonal autoregressive integrated moving average (model)
SPSS	Statistical Package for the Social Sciences
TLFB	Timeline Follow-back
UC	Universal Credit
WP	Work package

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Executive summary

Background

Increasing the price of alcohol is among the most effective and cost-effective ways to reduce alcohol consumption and the harm it causes to people's health and well-being. The Scottish Government introduced a minimum price for a unit of alcohol (1 unit = 10ml or 8g of pure ethanol) on 1 May 2018. This meant retailers could not sell a unit of alcohol to consumers for less than £0.50. The legislation enabling the minimum unit price (MUP) includes a sunset clause, meaning the policy will expire after six years unless the Scottish Parliament votes for it to continue. The Scottish Government therefore commissioned NHS Health Scotland (now part of Public Health Scotland [PHS]) to conduct an independent evaluation of the policy. As part of this commission, PHS must present a report to the Scottish Government after the policy has been in place for five years. PHS designed a broad portfolio of evaluation studies to inform that report, including the project reported here.

This project evaluates the impact of Scotland's MUP policy on people drinking at harmful levels, including those with alcohol dependence. The standard UK definition for harmful drinking (also known as high risk drinking) is consuming more than 35 units a week for women or more than 50 units a week for men. Alcohol dependence is the most severe form of harmful drinking and means having a physical or psychological dependence on alcohol (sometimes referred to as 'alcohol addiction' or 'alcoholism'). Only around one in five of people who drink at harmful levels meet the clinical definition for alcohol dependence. The project investigated seven areas related to the impact of MUP on people drinking at harmful levels and, where possible, compared changes in Scotland with changes in Northern England (i.e. a control population that has broadly similar characteristics to Scotland and has been used in previous evaluations of MUP[1]). The seven areas were:

1. Impacts on their alcohol **purchasing** and **consumption patterns** and alcohol **dependence**.
2. Strategies they use to respond to MUP, including any evidence of **positive** or **negative effects** of the policy beyond those intended by policy-makers and directly related to alcohol use.

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3. Impacts on their **health**.
4. Impacts on their **family members** and **carers**.
5. Impacts on those living in **remote** or **rural areas** of Scotland.
6. Responses to MUP enacted by **alcohol treatment services**.
7. **Additional factors** unrelated to MUP that affected the above areas (e.g. policy changes unrelated to alcohol).

The project originally comprised four work packages (WPs) but WP4 could not be completed due to problems with accessing the necessary data. We explain this fully in the main report. Table 0.1 summarises how the remaining three WPs contribute to the seven areas of interest and the intended contribution of WP4.

Table 0.1: Contribution of work packages to areas of interest.

Area of interest	WP1	WP2	WP3	WP4
Purchasing, consumption and dependence	X	X	X	–
Positive and negative secondary effects	X	X	–	–
Impacts on health	X	X	–	*X*
Impacts on family and carers	X	X	X	–
Remote and rural areas	X	X	–	–
Service and policy response	X	X	–	–
Additional factors	X	X	–	–

The WPs focus on different groups of people drinking harmfully and use a range of research designs and methodologies:

- WP1 examines the impact of MUP on people accessing treatment services related to alcohol dependence. It analyses new data from surveys with service users and qualitative interviews with service users and providers.
- WP2 examines the impact of MUP on people with or without alcohol dependence in the community, and also their families or carers. It analyses new data from qualitative interviews and group discussions with this population. This includes data collected and analysed for the project by

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'privileged access interviewers', who are themselves in recovery from alcohol dependence.

- WP3 examines the impact of MUP on levels and patterns of harmful drinking in the general population. It uses statistical techniques to analyse time series data from a long-running market research survey.
- WP4 was not completed but planned to examine the impact of MUP on health outcomes for people identified as drinking at harmful levels in primary care. It aimed to use statistical techniques to analyse a dataset created by linking electronic general practice (GP) records to hospital and death records. We do not discuss WP4 further in this executive summary.

As such, the project sought to examine a wide range of potential impacts of MUP on people drinking at harmful levels, and particularly to identify and understand any impacts of the policy that might have negative consequences for people's health. The limitations of the available data, methods and resources meant it did not aim to provide unequivocal evidence of the impact of MUP on any single outcome. Instead we designed the project to contribute substantial evidence to the wider evaluation programme to inform overall assessments of the impact of MUP.

The text below provides a brief description of the methods for each work package followed by an overall summary of the project findings based on a synthesis of the findings from each WP. For brevity and to avoid repetition, we do not report the findings for each WP in turn, but we do identify the WP(s) from which the evidence for each finding came.

Methods for WP1 – Mixed methods research in treatment settings

WP1 aimed to investigate the impact of implementing MUP on people who are alcohol dependent, focusing on impacts on their alcohol consumption and expenditure, and any positive or negative secondary effects of the policy. It also aimed to identify potential strategies for minimising harms in this population.

The study used a difference-in-difference design that involved collecting and analysing three waves of cross-sectional quantitative and qualitative data from

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Scotland and comparison data from Northern England (hereafter England), as described below:

- Wave 1: November 2017 – April 2018 (pre-implementation)
- Wave 2: August 2018 – February 2019 (3–9 months post-implementation)
- Wave 3: November 2019 – March 2020 (18–22 months post-implementation).

We recruited both service users (i.e. people with alcohol dependence) and service providers (i.e. clinicians, counsellors, other hospital or treatment centre staff) across 20 treatment sites in 10 geographic areas of Scotland and England, including inpatient and community-based alcohol and drug services, gastroenterology and liver services and general practices. The table below summarises the numbers of interviewees in each group.

Table 0.2: Sample sizes for WP1 structured, qualitative and service provider interviews

Group: people with alcohol dependence	**Wave 1**	**Wave 2**	**Wave 3**	**Total**
Structured quantitative interviews – Scotland	170	190	123	483
Structured quantitative interviews – England	85	86	52	223
Follow-up qualitative interviews – Scotland	21	17	11	49
Follow-up qualitative interviews – England	8	11	3	22
Group: service providers	**Wave 1**	**Wave 2**	**Wave 3**	**Total**
Individual/group qualitative interviewees – Scotland	15	19	10	44
Individual/group qualitative interviewees – England	6	5	0	11

The structured quantitative interviews covered topics relevant to the impact of MUP including respondents' recent and past alcohol and drug use, their treatment history, current health status, anticipated or actual responses to alcohol price changes, impacts of their alcohol use on family, social and work life and experiences of crime.

The qualitative interviews with people with alcohol dependence explored topics including respondents' understanding of the potential or actual price changes caused by MUP, their alcohol purchasing and consumption patterns, experiences of alcohol-

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related harm and the associated impact on themselves, their families and others around them.

The qualitative interviews with service providers covered the level and nature of demand for treatment services before and after the introduction of MUP, how service providers and the wider sector sought to assist clients in preparing for and adjusting to MUP, and their perspectives of how their clients responded to the effects of MUP.

We analysed the quantitative data using difference-in-difference analyses based around linear, ordinal or logistic regression models, depending on the outcome studied. These models estimate whether there was a significant change in the outcome in Scotland beyond what would be expected given the change in England.

We analysed the transcripts from the qualitative interviews using a multiple coding, team-based approach that identified key themes in the data. We compared findings across each wave of data to understand change and between countries to identify alternative explanations, beyond MUP, for any changes seen.

Methods for WP2 – Qualitative research in community settings

WP2 aimed to investigate the impact of implementing MUP on people who drink at harmful levels, with or without alcohol dependence, living in remote, rural and urban areas of Scotland. It also aimed to investigate the impact of the policy of the family members and carers of people drinking harmfully.

The methods for WP2 changed substantially across the course of the study due to a range of unforeseen challenges. The changes were agreed at the time with the project's advisory group. The summary below describes the final form of the study, with the main report providing the full details.

WP2 adopted a two wave before-and-after design that compared the months leading up to the introduction of MUP (broadly aligned with Wave 1 in WP1) to an extended period after the introduction of the policy (broadly aligned with Wave 2 in WP1 but extending beyond this). It collected qualitative data and this was mainly cross-sectional, although some individuals participated in the study at both waves.

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The study used participatory methods, and particularly Privileged Access Interviewers (PAIs), who we recruited through dependence recovery groups in remote, rural and urban areas of Scotland, and then trained to carry out and analyse qualitative interviews with their peers. PAIs and the wider research team recruited additional people drinking at harmful levels for individual or group interviews through the PAIs' networks in the community or recovery groups. We also used the same methods to recruit family members and carers of people drinking harmfully for interviews. The final dataset was generated across 21 interviews with 45 people:

- 12 individual interviews conducted by PAIs (11 before and one after MUP).
- Two individual and seven group interviews involving 15 people drinking at harmful levels, 15 family members of people drinking at harmful levels and three further family members who also identified themselves as previously drinking at harmful levels (all after MUP, with two group interviews facilitated by PAIs).

Interviews with both drinkers, family members and carers all explored recent and past alcohol and drugs use, changes in the price, type and location of alcohol purchases, the availability of alcohol products, changes in drinking patterns, wider impacts of MUP, minimising harm from MUP and other topics the interviewees wanted to address. We used thematic network analysis to analyse the data.

Methods for WP3 – Time series analyses of secondary data

WP3 aimed to evaluate the impact of MUP on the prevalence, patterns and characteristics of people drinking at harmful levels within the general population in Scotland.

The study used individual-level survey data, collected over a 12-year period, within a controlled interrupted time series design. This design allowed us to test whether MUP led to any changes in the outcomes of interest over time in Scotland that were not seen in England.

The data came from Alcovision, a commercial market research survey collected by Kantar. Alcovision uses a behavioural and attitudinal survey alongside a one week drinking diary to provide detailed information on the drinking behaviours of 30,000 adults living in Great Britain each year. The data collection methods are largely

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consistent from 2009 onwards, so we used Alcovision data collected between 1 January 2009 and 29 February 2020. The analyses treat these data as a monthly time series where feasible.

The analysis used SARIMA (Seasonal AutoRegressive Integrated Moving Average) models to estimate the impact of MUP on each of a set of outcomes. The primary outcome was the proportion of adults who reported consuming alcohol at harmful levels, defined as more than 35 units for women and more than 50 units for men during the diary week. The 10 secondary outcomes examined consumption at lower levels, the types of alcohol consumed by people drinking harmfully (e.g. strong cider, vodka) and the dynamics of those people's drinking occasions (e.g. number of drinking days, number of units per occasion and number of occasions involving drinking alone). We also explored whether the results for the primary outcome differed for key subpopulations of interest, namely those on living with a partner, living with children or of lower socioeconomic position.

Summary of findings

The text below summarises the key findings in each of our seven areas of interest. We encourage readers to note the distinctions between people drinking at harmful levels and people with alcohol dependence, findings expressed with greater or lesser certainty and findings where we report an absence of change as well as those reporting changes. These reflect important nuances within the findings with regard to the populations affected, the type and strength of evidence available and the interest in both positive and negative effects of the policy.

Impacts on alcohol purchasing and consumption patterns and alcohol dependence among people drinking harmfully

- MUP led to a marked increase in the prices paid for alcohol by people with alcohol dependence.
- There is some evidence that MUP led to people drinking at harmful levels switching from consuming stronger ciders to spirits, and particularly vodka, in response to these price increases.

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- There is no clear evidence that MUP led to an overall reduction in alcohol consumption among people drinking at harmful levels or those with alcohol dependence, although some individuals did report reducing their consumption.
- There is also no clear evidence that MUP led to a change in the severity of alcohol dependence symptoms among those presenting for treatment.

Strategies used by people drinking harmfully to respond to MUP

- People drinking at harmful levels who struggled to afford the higher prices arising from MUP coped by using, and often intensifying, strategies they were familiar with from previous periods when alcohol was unaffordable for them. These strategies typically included obtaining extra money, while reducing alcohol consumption was a last resort.
- In line with the above, MUP led to increased financial strain for a substantial minority of those with alcohol dependence as they obtained extra money via methods including reduced spending on food and utility bills, increased borrowing from family, friends or pawnbrokers, running down savings or other capital, and using foodbanks or other forms of charity.
- In some cases, this financial strain may have been exacerbated by the concurrent roll-out of Universal Credit, a new welfare benefit for people in financial need that replaced several older benefits and typically involved less frequent benefit payments.
- We found little evidence of the other potentially harmful responses to MUP that were discussed by stakeholders in the public debate around the policy, suggesting such concerns were misplaced:
    - Some people with alcohol dependence and their family members reported concerns about increased intoxication after they switched to consuming spirits rather than cider. In some of these cases, people also expressed concerns about increased violence. However, these were expressed as concerns only and our data contain no information on actual violent incidents. The existence and extent of these problems requires further assessment.
    - Few people reported substituting illicit drugs for alcohol and those doing so were already using other substances before the introduction of MUP.

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    - Few people reported consuming illicit produced alcohol, stealing alcohol or committing other crimes to obtain alcohol or the money to pay for it.
    - There were no reports of increased incidents of acute withdrawal symptoms.
- MUP did contribute to decisions to enter treatment for a small minority of people, but individuals described this as a modest contribution and one among many considerations. They also described this in ambivalent terms, recognising the benefits of reducing their drinking but also the financial strain caused by MUP.

Impacts on the health of people drinking at harmful levels:

- The termination of WP4 meant the project could not explore in detail the impact of MUP on the health of people drinking at harmful levels. However, the remaining WPs did not find any evidence of changes in the general health of people this group.
- There was also no evidence of increases in problems with acute withdrawal from alcohol following the introduction of MUP.

Impacts on the family members and carers of people drinking at harmful levels

The project identified only limited direct evidence in this area:

- Some family members echoed drinkers' accounts of increased financial strain.
- Some family members raised concerns about the potential for increased violence within their homes, either due to financial strain or the perceived higher levels of intoxication among those drinking spirits instead of cider. As noted above, there was no evidence that concerns about increased violence had been realised.

Impacts on those living in remote or rural areas of Scotland:

- There was little evidence that the impact of MUP varied substantially between urban, rural and remote areas.
- MUP led to increased purchasing of alcohol in England among people drinking at harmful levels who lived close to the Scotland-England border (e.g. within one hour's drive):

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- This appeared due to the closeness of the border rather than the rurality of the area.
- Increased cross-border trading included moving the weekly grocery shopping to England, buying alcohol when crossing the border for work or other reasons and travelling to England specifically to make bulk purchases of alcohol. Each of these typically involves the use of a private vehicle.
- There was no evidence of people purchasing alcohol in England to provide or sell to others.
- There was no evidence of cross-border purchasing among those living greater distances from the Scottish border, including in the Central Belt.

Responses to MUP by treatment services:

- People with alcohol dependence and or drinking at harmful levels had only a limited awareness and understanding of MUP. This included low understanding of the details of the policy, its purpose or the price increases it would cause.
- Most people with alcohol dependence received no additional information or support during or after the introduction from either treatment services or other sources of information.
- There was no evidence that the lack of support led to any harmful outcomes from the policy.

Effects of other factors on the impact of MUP

- The roll-out of Universal Credit intersected in problematic ways with the introduction of MUP for some people drinking at harmful levels or their family members. In particular, paying Universal Credit at monthly intervals made it difficult to manage household budgets that were already strained by increased spending on alcohol.
- There was no evidence that the introduction of MUP intersected substantially with other potentially relevant factors, including those driving the increase in drug-related deaths in Scotland and the early stages of the COVID-19 pandemic. This project did not use data collected after early March 2020, so it cannot provide information on how MUP intersected with the pandemic in general.

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Conclusions

The introduction of a £0.50 MUP in Scotland led to a marked increase in the prices paid for alcohol by people with alcohol dependence. There is no clear evidence that this led to reduced alcohol consumption or changes in the severity of alcohol dependence among people drinking at harmful levels. There is some evidence it increased financial strain among some economically vulnerable groups but no clear evidence that it caused wider negative consequences, such as increased criminality, illicit substance use or acute withdrawal. People with alcohol dependence received little information or support prior to the introduction of MUP, but there is no clear evidence this led directly to any harmful outcomes.

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1 Background

Increasing the price of alcohol is among the most effective and cost-effective ways to reduce alcohol consumption and the harm it causes.[2–4] Governments typically increase prices by raising taxes on alcohol. However, another option is to use minimum pricing policies, which set a minimum (or floor) price below which retailers cannot sell alcoholic drinks to consumers.

Minimum pricing policies can be designed in different ways (see Thompson et al for a discussion of Canadian minimum pricing policies[5]), but minimum **unit** pricing (MUP) has attracted a lot of attention from public health professionals and policy-makers. Under an MUP policy, the amount of alcohol in a drink determines its floor price. For example, a £0.50 MUP would mean a can of beer containing two units of alcohol* could not be sold for less than £1.00, a can of beer containing three units would need to cost at least £1.50 and a bottle of wine containing nine units would need to cost at least £4.50. Before 2018, no country had introduced a MUP for its whole alcohol market. However, Scotland introduced a MUP in May 2018, followed by the Australian Northern Territory in October 2019, Wales in March 2020 and Ireland in January 2022.†

Evidence from evaluation and modelling studies suggests that minimum pricing policies in general and MUP in particular are effective in reducing alcohol purchasing and subsequent consumption, alcohol-related hospital admissions and deaths and, with less certainty, alcohol-related crime.[6–17] Studies also suggest that minimum pricing policies lead to larger reductions in alcohol-related harm than comparable alcohol taxation policies.[18] There are two main reasons for this. First, minimum price policies limit the extent to which consumers can maintain their harmful consumption levels by switching to cheaper products when prices go up.[19] Second, minimum price policies target price increases on the cheaper and higher-strength products that are disproportionately purchased by those at greatest risk from their alcohol consumption, namely those of lower socioeconomic status who drink at harmful

* 1 UK unit = 8g or 10ml of pure ethanol

† These countries set the floor price at different levels. Scotland and Wales set their MUP at £0.50 per UK unit, the Northern Territory at AUD$1.30 per Australian standard drink (approximately £0.55 per UK unit) and Ireland at €0.10 per gram of alcohol (approximately £0.69 per UK unit).

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levels.[6,8,20–22] Given this targeting of price increases, there is also evidence that MUP may lead to larger reductions in alcohol-related health inequalities than other comparable pricing policies.[18]

Less is known, however, about the effects of MUP on people with alcohol dependence, who, for example, comprise approximately one per cent of the population of England[23] and 20 percent of those drinking at harmful levels.* Unlike others drinking at harmful levels, those with alcohol dependence have a physical or psychological dependence on alcohol and may experience acute withdrawal symptoms if they reduce their alcohol consumption. This is important as people with alcohol dependence also consume large amounts of cheap alcohol and are likely to be substantially affected by MUP.[20,24] One study found people receiving treatment related to alcohol problems in Scotland paid a mean price of £0.43 per unit of alcohol in 2008 and drank a mean of 197.7 units per week.[25] In contrast, the average adult drinker in Scotland pays £0.71 per unit for their alcohol and consumes a mean of 12.1 units per week.[25,26]

People with alcohol dependence are a diverse group who often experience multiple interacting health and social problems. They are therefore unlikely to respond to MUP in a single or simple way. Previous studies exploring how this population manages when alcohol becomes unaffordable suggest both positive (e.g. reducing drinking, seeking treatment) and problematic (e.g. spending less on essentials, using illicit drugs) strategies are commonplace.[27,28] These strategies typically reflect pre-existing patterns of behaviour rather than sudden shifts to new behaviours (e.g. using illicit drugs for the first time).[29] Researchers and practitioners have therefore highlighted that, while MUP policies may lead to reductions in alcohol consumption for some people with alcohol dependence, they may also lead to a range of detrimental health and social impacts.[29–31]

1.1 Scotland's minimum unit pricing policy

The Scottish Government introduced an MUP of £0.50 on the 1 May 2018. The enabling legislation includes a sunset clause, meaning the policy will expire after six

* In the UK, harmful drinking (sometimes referred to as high risk drinking) is defined as consuming more than 35 units per week for women and more than 50 units per week for men.

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years unless the Scottish Parliament votes for it to continue. The Scottish Government therefore commissioned NHS Health Scotland (now part of Public Health Scotland) to conduct an independent evaluation of the policy as part of their Monitoring and Evaluating Scotland's Alcohol Strategy programme. As part of this commission, PHS must present a report to the Scottish Government after the policy has been in place for five years. PHS designed a broad portfolio of evaluation studies informed by a theory of change that identified the potential effects of MUP across four outcome areas: implementation and compliance; the alcoholic drinks industry; alcohol consumption; and health and social harms.[32]

Evidence from the evaluation programme and other independent studies to date suggests that alcohol sales and purchasing decreased in Scotland after the introduction of MUP while increasing in England over the same period.[1,33] The largest changes were seen among households with the lowest incomes or which purchased the most alcohol each week.[34,35] Evidence to date also suggests there have been no major compliance problems among retailers and no large increase in Scottish residents buying alcohol in England.[36] The alcohol market in Scotland has changed however, with a study of small retailers finding fewer ciders available for purchase and some reductions in the alcoholic content and container size of other products previously sold below £0.50 per unit.[37] More generally, there has been a sharp increase in the proportion of alcohol sold for between £0.50 and £0.60 per unit.[38] There is little evidence to date regarding the impact of MUP on higher risk groups, but one study found practitioners working with families affected by alcohol had a positive view of MUP as they believed it would benefit people drinking at hazardous or harmful levels, although not necessarily those with alcohol dependence.[39]

1.2 The present study

As part of their evaluation programme, PHS commissioned the present study to investigate the impact of Scotland's MUP on people drinking at harmful levels, including those with alcohol dependence. The study originally comprised four work packages, which are described in Chapter 2, although the fourth was not completed due to problems accessing essential data. It aims to provide evidence in each of the following areas related to the impact of MUP on people who drink at harmful levels:

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1. Impacts on alcohol purchasing and consumption patterns and alcohol dependence.
2. Strategies used to respond to MUP, including any positive or negative secondary effects of the policy.*
3. Impacts on health.
4. Impacts on family members and carers.
5. Impacts on those living in remote or rural areas of Scotland.
6. Responses to MUP by alcohol treatment services.
7. Additional factors unrelated to MUP that affected the above areas (e.g. policy changes unrelated to alcohol).

1.3 Structure of this report

Chapter 2 summarises the overall project design and a theory of change describing the different pathways by which MUP may affect people who drink at harmful levels and how they might respond. The theory of change guides our analyses in each work package and our synthesis of the results. Chapters 3–6 describe the aims, research questions, methods and main results for each of the completed work packages. Chapter 7 summarises the planned work for WP4 and the reasons for not completing this work. Each of these chapters can be read as an independent research report without referring to material from other chapters, although the introduction and discussion sections are brief. Chapter 8 synthesises the results of the three completed work packages to identify the overall findings and Chapter 9 summarises these findings before discussing the strengths, limitations and implications of the study as a whole.

The report aims to provide a clear and accessible overview of a large programme of work. The accompanying appendix document provides additional methodological detail, more detailed results and other supplementary material for interested readers.

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* Secondary effects are those that are not part of the primary intended outcomes of the policy. Secondary effects are often, but not always, unintended and unanticipated by policy-makers. They include outcomes that are beneficial, harmful or unrelated to policy-makers' aims. Secondary effects can be wide-ranging and those under consideration are usually determined by researchers and their stakeholders.

2 Overall project design

This project originally comprised four work packages (WPs) although WP4 could not be completed due to problems accessing the necessary data. The WPs focus on different populations and use a range of research designs and methodologies to address the seven broad areas of interest outlined in **section 1.2**.

In summary:

- WP1 examines the impact of MUP on people accessing treatment services related to alcohol dependence. It analyses new data from surveys with service users and qualitative interviews with service users and providers.
- WP2 examines the impact of MUP on people with or without alcohol dependence in the community, and also their families or carers. It analyses new data from qualitative interviews and group discussions with this population. This includes data collected for the project by people in recovery from alcohol dependence.
- WP3 examines the impact of MUP on levels and patterns of harmful drinking in the general population. It uses statistical techniques to analyse time series data from a long-running market research survey.
- WP4 planned to examine the impact of MUP on health outcomes for people identified as drinking at harmful levels in primary care (i.e. by a general practitioner [GP] or practice nurse). It aimed to use statistical techniques to analyse a dataset created by linking electronic GP records to hospital and death records. However, problems linked to the COVID-19 pandemic meant the research team could not secure access to this dataset within the timeframe for the project.

As such, the project sought primarily to examine a wide range of potential impacts of MUP on people drinking at harmful levels, and particularly to identify and understand any impacts of the policy that might have negative consequences for people's health. The limitations of the available data, methods and resources mean that, from the outset, it did not aim to provide unequivocal evidence of the impact of MUP on any single outcome. Instead we designed the project to contribute substantial evidence to the wider evaluation programme to inform overall assessments of MUP's impact.

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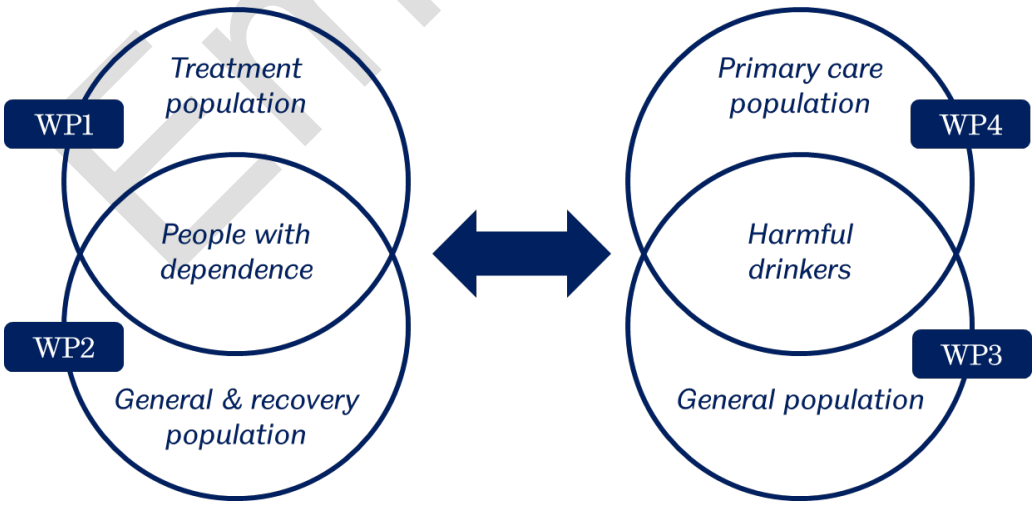
The study uses difference-in-difference or controlled interrupt time series designs in all WPs except WP2, which mainly uses a cross-sectional design. Difference-in-difference and controlled interrupted time series designs are common approaches to evaluating natural experiments (e.g. when a new policy is introduced in one country but not a similar neighbouring country). In this case, we use these designs to compare changes in outcomes in Scotland before and after the introduction of MUP to changes over the same time period in Northern England (i.e. the North-East, North-West and Yorkshire and Humberside regions that are geographically close to Scotland). This allows us to assess whether the changes seen in Scotland are due to MUP or to some other change that also affected Northern England. The key assumption of this design is that any change in outcomes in Scotland would have been similar to those in Northern England had MUP not been introduced.

2.1 Contribution of work packages

Each WP contributes different evidence to evaluating the impact of MUP on people drinking at harmful levels. The studies can broadly be understood as WP1 and WP2 studying the impact of MUP on people with alcohol dependence in treatment, in recovery and in the community, while WP3 and the incomplete WP4 study the impact of MUP on people drinking at harmful levels in the general population (Figure 2.1).

Figure 2.1: Populations studied by each work package (note: WP4 provided no results)



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Each WP informs the others throughout the research process (e.g. design, analysis, interpretation), although the closest interchanges are between WP1 and WP2, as these involved primary data collection and were carried out simultaneously. Chapter 8 presents a detailed description of how evidence from each of the completed WPs contributed to the project's overall conclusions.

It is important to note that, despite the project's broad scope, it includes data only from people who are in contact with treatment services or recovery groups and from members of online market research panels. This means a large number of people drinking at harmful levels were not able to participate in the study. This is an important limitation of the project and reflects the well-known challenges in accessing representative samples of people who drink harmfully for research purposes. The termination of WP4 adds to this limitation as it planned to study a large sample of people identified as drinking harmfully in primary care.

Table 2.1 summarises which WPs contribute to the seven areas for which the overall project aims to provide evidence. Broadly, WP1 and WP2 provide evidence across all areas of interest, while WP3 and the incomplete WP4 focus on impacts on consumption and health outcomes, and aimed to provide more robust evidence in these areas by using large datasets and statistical methods with fewer limitations.

Table 2.1: Contribution of work packages to areas of interest

Area of interest	WP1	WP2	WP3	WP4*
Purchasing, consumption and dependence	X	X	X	–
Positive and negative secondary effects	X	X	–	–
Impacts on health	X	X	–	X
Impacts on family and carers	X	X	X	–
Remote and rural areas	X	X	–	–
Service and policy response	X	X	–	–
Additional factors	X	X	–	–

*The planned contribution of WP4 is shown. WP4 could not be completed.

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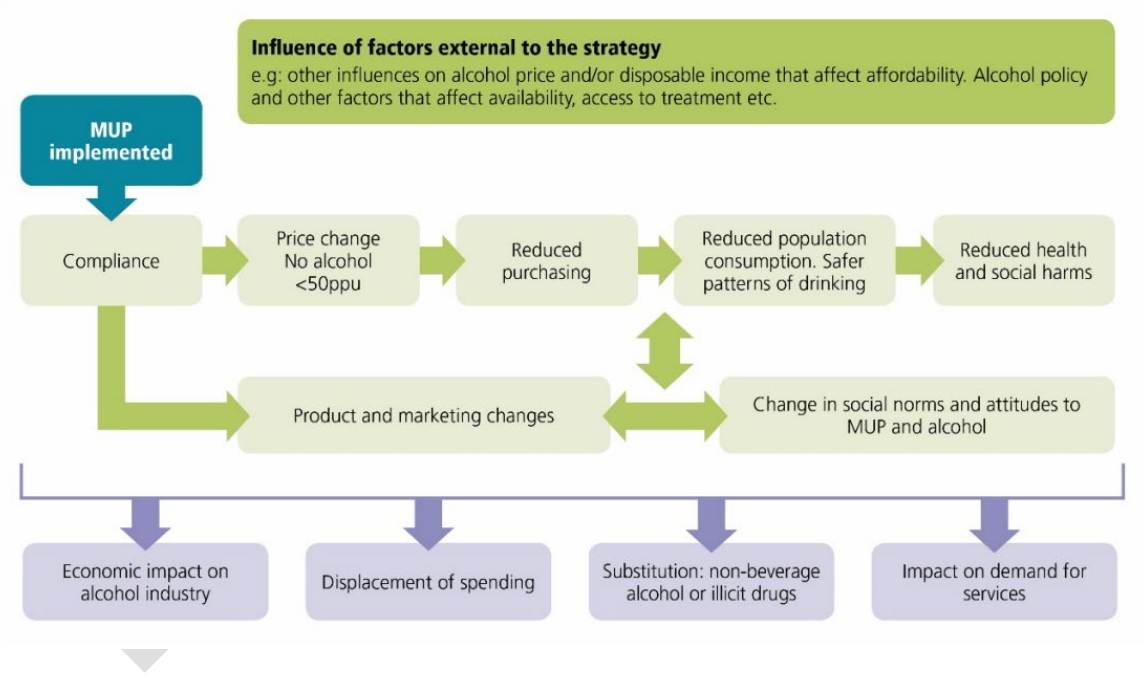
2.2 Theory of change

In addition to the areas of interest outlined in the original project brief by PHS, the project used a theory of change approach to deepen its understanding of these areas and guide development of the project beyond the initial proposal.[32]

PHS developed its theory of change for the MUP evaluation programme when the programme began (Figure 2.2). The theory describes the primary pathway by which the Scottish Government intends the policy to reduce alcohol consumption and alcohol-related harm. It also identifies several potential secondary outcomes that merit attention, including changes in demand for services (e.g. alcohol dependence treatment), substitution of drinkers' usual purchases for different alcoholic products or substances, and displacement of drinkers' spending to allow continued purchasing of alcohol.

Figure 2.2: Public Health Scotland's theory of change for MUP (reproduced from Beeston et al, 2019[40])

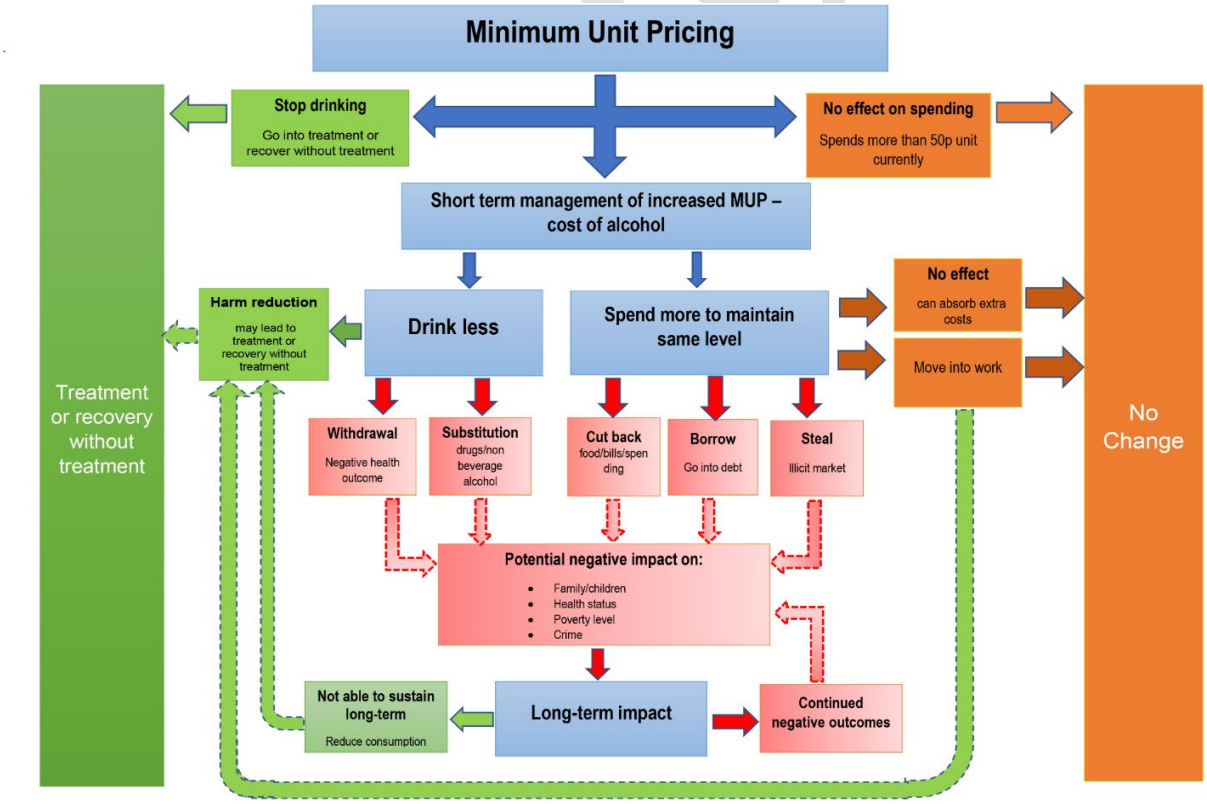


In common with other MUP studies, the current project developed a more detailed theory of change to address specific questions relevant to its work. This process was informed by the limited available literature on how people with alcohol dependence respond to alcohol being unaffordable, advice from our project advisory group, engagement with our patient and public involvement group (see **section 3.3.8**), and points raised by stakeholders during the extensive international policy debate around

MUP. The resulting theory of change describes how MUP may affect people with alcohol dependence and, to a lesser degree, others drinking harmfully (Figure 2.3). It identifies three main pathways that people may follow: (i) stopping drinking for an extended period; (ii) adopting short-term strategies, such as drinking less or obtaining additional money, to manage the increased cost of alcohol; and (iii) continuing as before because spending is unaffected by MUP. We describe each of these pathways and the ideas underpinning them below.

Stopping drinking for an extended period: people following this pathway will enter treatment for their alcohol problems or recover without treatment. Recovery without treatment is common for people with alcohol dependence,[41] but this may not be a common response to an immediate 'shock' caused by factors outside an individual's control, such as a large price increase. Therefore, it is more likely that any widespread cessation in drinking would arise through changes in the number of people accessing treatment for alcohol dependence and related problems.

Figure 2.3: Theory of change for the impact of MUP on people drinking at harmful levels



Adopting short-term strategies to manage the increased cost of alcohol: this pathway is more complicated and includes a large number of secondary outcomes of particular interest to the project. People following this pathway may drink less alcohol and experience fewer harmful consequences as a result. Drinking less may lead to them feeling more able to access treatment services or achieve recovery. Alternatively, drinking less may cause withdrawal symptoms or lead to people consuming other substances instead (e.g. illicit drugs or non-beverage alcohols such as methylated spirits). On a different branch of this pathway, people may maintain their alcohol consumption in the short-term by increasing their spending. For some, increased spending may be funded by disposable income or increasing earnings. Increased earnings may lead to reduced consumption or improved health in the long-term, given the association between socioeconomic position and risk of alcohol-related harm.[42] For other people, increased alcohol spending may be achieved by borrowing money, engaging in criminal behaviours (e.g. theft), or reducing spending on food, bills or other essentials. Where people experience alcohol withdrawal, substitute other substances for alcohol, reprioritise spending, borrow or commit crime, there may be negative impacts on their own health, social and economic well-being as well as that of their families, carers and others around them (e.g. victims of crime). Such strategies will often be unsustainable in the long-term, aggravating harms further, but this may also prompt later reductions in alcohol consumption that lead to health benefits.

Continuing as before because spending is unaffected by MUP: people who spend more than £0.50 per unit on all of their alcohol will not be affected directly by the policy, as there is no evidence to date of significant price rises above the MUP thresholds.[38]

Evidence on these pathways and the branches within them is generally scarce and low quality, meaning there is considerable uncertainty and justifiable concern regarding the impact of MUP on people with alcohol dependence. Nonetheless, the available evidence, which draws particularly on lived experiences of this population and practitioner expertise, does offer some indication of likely findings. It suggests reprioritising spending and changing consumption or purchasing behaviours are more likely responses to MUP, while criminal behaviour and seeking treatment are less likely.[27,29,30,43] Increased use of illicit drugs and consumption of non-beverage

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alcohol are only viewed as likely responses for those with more severe alcohol or social problems (e.g. homelessness) and those with previous experience of using these substances.

The theory of change guided the design of data collection instruments, analysis plans and interpretation of results in WP1 and WP2, while also supporting the synthesis of findings across all WPs.

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3 WP1: The impact of MUP on people who use alcohol treatment services (Part 1: Quantitative component)

3.1 Introduction

The Scottish Government's rationale for introducing MUP was to reduce alcohol-related harm in the general population and particularly among those drinking at harmful levels.[44] However, there is considerable uncertainty regarding how people with alcohol dependence will respond to and be affected by the policy. Practitioners working with this population highlight the potential for both positive and negative outcomes, although they also stress the diversity of the population and the likelihood that responses and impacts may vary markedly across individuals.[29,39]

There is little quantitative evidence available for the UK or internationally describing how people with alcohol dependence respond to and are affected by alcohol pricing policies or other changes in alcohol prices or affordability. The evidence that is available broadly supports the view of practitioners by suggesting both positive (e.g. reducing drinking, seeking treatment) and negative (e.g. spending less on essentials, using illicit drugs) responses are commonplace.[27,29,30,43,45] However, this evidence has significant limitations. For example, all of the available studies are cross-sectional, meaning there are no analyses of change over time or evaluations of natural experiments. In line with this, the studies only capture people's anticipated responses to hypothetical changes in alcohol prices or affordability, or their self-perceived responses to past changes. As such, any findings are subject to significant self-perception biases.

3.2 Aims and research questions

WP1 aimed to investigate the impact of implementing MUP on people who are alcohol dependent in terms of their alcohol consumption and expenditure, and any positive or negative secondary effects of the policy. It also aimed to identify potential strategies for minimising harms in this population. The research questions are:

1. How did alcohol consumption and spending reported by people entering treatment services with alcohol dependence change after the introduction of

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MUP, including levels of consumption and spending, products chosen, and prices paid?

2. How did characteristics of, and outcomes for, people entering treatment services with alcohol dependence change after the introduction of MUP – focusing particularly on those characteristics and outcomes related to potential positive or negative secondary effects of the policy?
3. What strategies did people entering treatment services with alcohol dependence employ in response to the reduced availability of 'cheap' alcohol?

3.3 Methods

A full description of the research methods for recruitment, data collection and preparation of data for analysis is provided in section 2 of the accompanying appendix and we provide a short summary below.

WP1 was a mixed method study and we focus on the quantitative component of WP1 in this chapter. We then present the qualitative component in Chapter 4 and synthesise the findings in Chapter 8. Readers interested in the qualitative study should familiarise themselves with the basic design of WP1, presented below, before reading Chapter 4.

3.3.1 Design

WP1 used a difference-in-difference design for which we collected three waves of repeat cross-sectional data in two countries. The three waves of data covered the period before and after the introduction of MUP in Scotland on 1 May 2018, as described below:

- wave 1: November 2017 – April 2018 (pre-implementation)
- wave 2: August 2018 – February 2019 (3–9 months post-implementation)
- wave 3: November 2019 – March 2020 (18–22 months post-implementation).*

The three-wave difference-in-difference design allowed us to explore shorter and longer-term effects of the introduction of MUP in Scotland and to compare any changes in our Scottish data with data from comparison sites in Northern England (hereafter England), where MUP did not apply. We used a repeat cross-sectional

* Data collection terminated in March 2020 due to COVID-19 restrictions.

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design rather than following a group of individuals over time because of the challenges of retaining respondents in a longitudinal study and of disentangling the effects of MUP from the effects of treatment on respondents.

3.3.2 Site selection

We collected data from 10 geographic areas. Six of these were NHS health board areas in Scotland, covering Glasgow, Edinburgh, Aberdeen, Dumfries and Galloway, the Highlands and Dundee. The remaining four were NHS Health Trust areas in England, covering Sheffield, Stockport, Newcastle and Liverpool. These areas provide geographic and socio-demographic diversity and insight into particular points of interest, including the Scottish border with England and remote or rural areas. They also enabled timely data collection by allowing our research team to draw on established relationships with key personnel working in potential research sites.

In total, 16 sites in Scotland and four sites in England participated, with between one and five sites in each geographic area. These included inpatient and community-based alcohol and drug services (including detoxification services and a low threshold methadone programme), gastroenterology and liver services and general practices.

3.3.3 Target sample

At each wave, we aimed to recruit 200 people across the sites in Scotland and 80 people across the sites in England. The following three considerations informed these sample sizes: (i) pragmatic considerations given the available time and resources; (ii) the research design; and (iii) statistical power calculations.

Pragmatic considerations: the study faced important time constraints at wave 1 that limited the achievable sample size. Data collection was delayed until November 2017, when the alcohol industry's six-year legal challenge to MUP concluded.[46] This meant the research team had only six months to arrange and complete wave 1 data collection before the introduction of the policy. The team anticipated particular challenges in England, as there were fewer established links with potential research sites to facilitate rapid data collection. We also anticipated challenges in smaller recruitment sites, where the number of new presentations to treatment limited the pace of data collection.

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Research design considerations: within WP1, it is difficult to separate changes in the composition of the treatment population from changes in the behaviours of that population. This means the study did not aim to provide unequivocal estimates of the impact of MUP specific outcomes, akin to the output of a randomised control trial. Instead, it sought to identify changes among people presenting to treatment that would be large enough to indicate potentially significant public health benefits or harmful outcomes from the policy that would not be detected by other studies within the evaluation programme. Such large effects would also be more likely to arise within the qualitative data presented in Chapter 4 and would therefore be easier to attribute to either MUP or other explanations.

Statistical power calculations: the above considerations informed the power calculations. We selected a sample size of 200 people per wave in Scotland. This would allow detection of a 20% reduction in consumption from a mean of 200 units per week (i.e. a large effect within a sample of achievable size), in line with estimated consumption levels in previous similar research.[25] The research team and PHS, in consultation with advisory group members, decided not to include England within the power calculations given the study's principal focus on Scotland, the mixed methods approach to attributing changes to MUP and the anticipated difficulties in collecting wave 1 data in England. As such, the English sample size of 80 people per wave largely reflects the pragmatic considerations above and the resources available after accounting for data collection in Scotland.

We recruited from a range of services and aimed for a sample that was broadly similar to treatment populations described in previous research in terms of age and gender. However, we did not seek a representative sample in terms of the proportion of respondents attending different treatment types or by geographic region due to the difficulties of achieving this within the time and resources available.

3.3.4 Recruitment procedures

Recruitment procedures varied across services and over time to fit in with working practices at each site. The basic model was for service providers to mention the study to potentially eligible clients, and if the person was interested, to refer them to the researcher for more information.

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To be eligible, people needed to be over 18 years old, able to understand and speak English, and assessed by the service provider as probably alcohol dependent. Service providers typically used the Alcohol Use Disorders Identification Test (AUDIT) to assess probable dependence.[47] AUDIT is a widely used, ten item tool with good reliability and validity when used to screen for alcohol problems. The tool scores individuals' responses to give a total ranging from 0 to 40 and used a threshold of 16+ as an indicator of probable dependence. This threshold was taken from the Adult Psychiatric Morbidity Survey, which provides national statistics data for England.[48] The survey considers AUDIT scores of 16 to 19 as indicative of 'harmful drinking and/or mild dependence' and scores of 20 or above as indicative of 'probable dependence' (see the Appendix, section 2.3.2 for more detail on assessment of dependence).

Treatment service staff excluded those judged unable to provide informed consent (e.g. due to cognitive impairment). We also asked service providers to focus on referring clients who had entered treatment within the last four weeks, as they were likely to have more recent experiences of alcohol purchasing and consumption. However, in practice, some services had more long-term than new clients and we included long-term clients who could recall their most recent typical drinking pattern (i.e. details of their typical alcohol purchasing and consumption prior to entering treatment).

Upon referral, the researcher at each site provided respondents with detailed written and verbal information about the study and gave them the opportunity to ask questions before deciding whether to take part. Interviews were then conducted in a suitable space within the service. This was usually a private interview room, but we conducted some bedside interviews with respondents in in-patient settings. In these instances, interviewers made additional efforts to ensure the respondent was comfortable being interviewed in that setting and gave informed, voluntary consent to do so.

Interviews involved completion of a researcher-administered structured interview. This took approximately 45 minutes to complete, although interview lengths varied substantially between about 30 minutes to over two hours. Respondents were offered a £10 voucher for one of two major high-street retailers in recognition of their time and expertise.

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3.3.5 Interview schedule

The structured interview schedule comprised eleven sections:

- sociodemographic information
- current health status
- past alcohol and drug use
- treatment history
- recent alcohol and drug use
- anticipated or actual responses to alcohol price changes
- impact of alcohol use on family, social and work life
- experiences of crime
- awareness of changes in alcohol prices and product availability
- how to minimise any harm arising from MUP
- other factors relevant to drinking.

Section 2.4 of the appendix includes a full description of the survey methods used and section 2.8 of the appendix includes a copy of the data collection instruments for wave 1. For brevity, this report describes only the methods used to establish recent alcohol and drug use.

Respondents' recent alcohol and drug use was measured via a seven-day retrospective alcohol and drug consumption diary using the Time Line Follow Back (TLFB) method.[49] Respondents reported on their drinking on the day before entering treatment or, if recruited from an outpatient liver clinic or GP practice, their last day of drinking starting from yesterday. For this day and each of the six preceding days, we asked respondents to recall the type, brand, volume and price paid for all of the alcohol they had consumed. Respondents were also asked where they purchased or acquired the alcohol (e.g. supermarket), in which country (to understand cross-border trading), whether it was ordered via the internet and whether it was home-delivered. Finally, we asked respondents whether they had consumed any of the following on each day: non-commercially produced alcohol (e.g. homebrew), alcohol substitutes (e.g. aftershave), tobacco, antidepressants, benzodiazepines, painkillers or illegal drugs. After completing the diary, we asked respondents to indicate on a

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five-point scale whether they drank more, less or the about same as usual in the TLFB week and to rate their memory of what they consumed on a 0–20 scale.

3.3.6 Analysis

The two theories of change described in **section 2.2** informed our analytical strategy, which was agreed with the project's advisory group. The analyses aimed to understand the effects of MUP on the alcohol-related characteristics and behaviours of the sample, potential positive and negative secondary effects of the policy, and the responses of the sample to reduced availability of 'cheap' alcohol. All analyses were undertaken using IBM Statistical Package for the Social Sciences (SPSSv27).

3.3.6.1 Population subgroups and key outcome measures

The analysis focused on **five population subgroups** within our sample and a set of **key outcome measures** (see Table 3.1 and Table 3.2). We agreed both of these in consultation with PHS and the project's advisory group prior to completing data collection.

The population subgroups are those who: drink 'cheap' alcohol; use illicit substances; are in poor health; are economically vulnerable; and have dependent children (see Table 3.1 for definitions). These subgroups are not mutually exclusive and they relate to alcohol use and other areas where MUP may have important positive or negative effects.

The key outcome measures are spread across five domains potentially affected by MUP: alcohol use and dependence; other substance use; health status; levels of deprivation; and negative parenting outcomes (see Table 3.2 for measures).

3.3.6.2 Weighting

Preliminary analysis of the number, age and sex of respondents recruited in each location revealed substantial differences between the samples collected at each wave in both Scotland and England. For example, a substantially higher proportion of the Scottish sample were recruited in Glasgow at wave 3 than at waves 1 and 2. Similarly, the proportion of respondents in the English samples who were male differed markedly between waves. The factors contributing to these differences are discussed in our interim report.[50] As the differences could affect our overall findings,

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we developed a set of survey weights to adjust for the uneven sampling in the analyses reported here.

Table 3.1: Definition of population subgroups used in analyses

People who:	Defined by:
1. Drink 'cheap' alcohol	• Mean expenditure in TLFB week is <£0.50 per unit. • Where missing data prevent calculation of overall mean expenditure, the definition is a mean expenditure of <£0.50 per unit on more days than not.
2. Use illicit substances	• Any illicit substance use in past 30 days. • This includes illicitly obtained benzodiazepines, antidepressants or painkillers.
3. Are in poor health	Scores 4–5 in any EQ-5D-5L domain.[a]
4. Are economically vulnerable[b]	Meets three or more of the following criteria: • Household income <£300 per week. • Benefits are the main source of income. • Finding it 'quite' or 'very' difficult to manage financially. • Acute housing problem in the past three months. • Foodbank or charity use in the past three months.
5. Have dependent children	Meets one or more of the following criteria: • Has dependent children (whether or not living in the same household). • Lives with children aged under 18 (whether or not they are the parent).

[a]EQ-5D-5L: A standardised instrument measuring quality of life across five domains (mobility, self-care, usual activities, pain/discomfort, and anxiety/depression) and a visual analogue scale where respondents rate their health today from 0 to 100.51,52

[b]We opted not to use Index of Multiple Deprivation data to define the economically vulnerable subgroup as more than 10% of respondents had missing data on this variable. For all other indicators of economic vulnerability, we counted missing values as zero in constructing the composite variable.

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Table 3.2: Definition of key outcome measures used in analyses

Outcome domain	Specific measures
1. Alcohol use & dependence a. Alcohol use in TLFB week	● Proportion reporting a price paid for the first drink of the TLFB week of <£0.50 per unit. ● Proportion whose average price paid per unit across all drinks was <£0.50 in TLFB week. ● Proportion reporting drinking high strength cider (7.5+% ABV). ● Total units consumed (mean, standard deviation).
b. Alcohol dependence (SADQ)[a]	● Proportion in each dependence category (mild, moderate, severe). ● SADQ scores (mean, standard deviation).
2. Other substance use (last 30 days)	● Proportion using illicit substance (excluding illicitly obtained benzodiazepines, antidepressants or painkillers). ● Proportion using illicitly obtained benzodiazepines, antidepressants or painkillers. ● Proportion using prescribed benzodiazepines, antidepressants or painkillers.
3. Health status (EQ-5D-5L)[b]	● Proportion scoring 4–5 in each of five health domains. ● Self-rating of health (0–100) (mean, standard deviation).
4. Level of deprivation	● Proportion reporting: o Household income <£300 per week. o Living in most deprived IMD quintile. o Acute housing problem in past 3 months. o Foodbank/charity use in past 3 months. o Benefits as main source of income. o Finding it 'quite' or 'very' difficult to manage financially.
5. Negative parenting outcomes	● Proportion of those in dependent children subgroup reporting negative impact of drinking on: o How they have felt about their parenting. o Getting children to school or appointments. o Children having treats. o Children having to act more grown up.

[a]SADQ: Severity of alcohol dependence questionnaire. Scores range from 0–60 with <16 indicating low dependency, 16–30 indicating moderate dependency and 31–60 indicating severe dependency.[53]

[b]EQ-5D-5L: A standardised instrument measuring quality of life across five domains (mobility, self-care, usual activities, pain/discomfort, and anxiety/depression) and a visual analogue scale where respondents rate their health today from 0 to 100.[51,52]

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We explored two approaches to weighting: iterative proportional fitting (or raking) and an approach based on logistic regression.[54] For both methods, weights were calculated separately for England and Scotland and were based on the following variables: sex, age group, geographic region and treatment setting (alcohol and drug services versus gastroenterology/liver or GP services). The wave 2 sample closely matched our original sampling plan, as it was not subject to the time pressures of wave 1 or the early termination of wave 3 due to the COVID-19 pandemic. We therefore used wave 2 data to provide target sample characteristics and calculated weights for wave 1 and wave 3.

For the iterative proportional fitting method, we used the **pewmethods** package in R version 3.6.1 to iteratively calculate and adjust weights for each of the variables above until they converged on a best-fitting solution.[55] For the logistic regression method, we pooled the wave 1 and 2 datasets and created a variable called 'sample', which was set equal to '0' for wave 2 and '1' for wave 1. This variable was then used as the dependent variable in a logistic regression, with each of the weighting characteristics (sex, age group, geographic region and treatment setting) set as independent variables. The software then saved the resulting predicted probabilities. This procedure was repeated for wave 3 and we then calculated the weights for both waves 1 and 3 as the inverse of the predicted probability for each case. There was a strong correlation between the weights calculated using the two methods for each sample (Scotland wave 1: r =0.893, p <0.001; Scotland wave 3: r =0.947, p <0.001; England wave 1: r =0.965, p <0.001; England wave 3: r =0.976, p <0.001), so we proceeded with the iterative proportional fitting method as the more commonly used approach.

We assessed the face validity of the weighted data for Scotland and England by comparing it to unweighted data in descriptive analyses using the following groups of variables: recruitment sites (geographic area, service type, service setting); sociodemographic characteristics (age, gender); AUDIT score; and population subgroup (Appendix Tables 2.3–2.6). As extreme weights can introduce instability into the analysis, we also explored the impact of 'trimming' the weights using the method outlined by Potter and Zheng.[56] This involved calculating the median and interquartile range of the weights, and capping them at five times the value of the IQR. Eight out of 430 weights required trimming. We used trimmed weights for all

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analyses as these were more stable and had only minimal impact on the findings of exploratory analyses when compared to the untrimmed weights.

3.3.6.3 Statistical techniques

We used difference-in-difference analyses to evaluate the impact of MUP on the prevalence of the five subgroups within the population, which respondents can belong to more than one of (Table 3.1), and on the key outcome measures (Table 3.2). The difference-in-difference analysis used regression models to compare the average change over time in the variable of interest in Scotland with the average change over time in the same variable in England and provide an estimate of the statistical significance of this change. The specific regression model varied between analyses. We used logistic regression for binary variables (e.g. drank cheap alcohol in the TLFB week), ordinal regression for ordered variables (e.g. mild, moderate or severe dependence scores on the SADQ) and linear regression for continuous variables (e.g. self-reported health on a scale of 0–100). We estimated separate models for changes between wave 1 and wave 2 and between wave 1 and wave 3. In all models, the dependent variable was the subgroup or outcome variable of interest and the independent variables were wave, country and the interaction of wave and country, with the latter being the parameter of interest. For ease of reading, the results tables below report only descriptive statistics for each country and wave and the p-value for each model. The appendix provides full model results in section 2.7.

To account for the large number of outcome variables, we made a Bonferroni adjustment to the p-value threshold used to assess statistical significance.[57] Specifically, we divided the conventional threshold of p=0.05 by the number of tests run (i.e. 108) to yield a revised significance threshold of p=0.0004630.

In addition to the difference-in-difference analyses, we also used descriptive analyses to explore the impact of MUP on key outcomes **within** population subgroups. We did not use formal statistical testing in these analyses as the sample sizes within subgroups are not large enough. We also used descriptive analyses to examine the following additional set of outcomes, exploring change across waves where appropriate: anticipated and actual responses to MUP; experiences of crime; product price and availability; and minimising harm arising from MUP.

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3.3.6.4 Data reporting

In the tables below, we suppress values if they are based on between 1 and 5 cases and replace them with a star (★). This is to minimise the likelihood of a respondent being identified from their data.

For questions that requested a short, free-text answer (e.g. naming products types for which the respondent noticed a price change), we report the most common responses in the text of the report.

3.3.7 Ethics and governance

Ethics approval for the project was received from the NHS Scotland West of Scotland Research Ethics Committee 3 (dated 01/09/2017).

Governance of the project was approved nationally by NHS Research Scotland Permissions Co-ordinating Centre in Scotland and the Health Research Authority in England. In addition, local approvals were received from the NHS Board for each of the regions in which recruitment occurred. The study sponsor is The University of Sheffield.

These ethics and governance arrangements covered the quantitative and qualitative components of WP1, reported here and in Chapter 4.

3.3.8 Patient and public involvement and pilot testing

The Sheffield Addiction Recovery Research Panel provided input to the development of the interview tools, participant information forms and consent forms for this project. The interview schedule was also piloted with two people in recovery who provided feedback on the proposed interview process and elements of the structured interview schedule. Pilot data were not included in the analyses. Please refer to the interim report for more detail regarding patient and public involvement (PPI) and pilot testing.[50]

3.4 Results

3.4.1 Sample characteristics and subgroups

Table 3.3 shows the number and proportion of respondents recruited in each location, service type and setting. In Scotland, we recruited the greatest proportion of

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respondents in Glasgow at all waves, followed by Edinburgh. In England, recruitment was split more evenly across the four recruitment locations. In both countries and at all three waves, we recruited a large majority of respondents from alcohol and drug services. A minority were recruited from gastroenterology/liver services and a small number (n=11) of the Scottish wave 1 and 2 sample were recruited from general Practice (GP) settings. The proportion of respondents recruited from inpatient settings increased in Scotland across the three waves, while all respondents in England were recruited in community/outpatient settings.

As discussed in **section 3.3.6.2**, there was uneven recruitment by location across the three waves in both countries. We addressed this by developing survey weights using wave 2 as the reference. Table 3.3 shows the effect of this weighting. For example, the unweighted proportion of Scottish respondents recruited in Glasgow is 41.2% at wave 1, 48.4% at wave 2 and 65.0% at wave 3. The weighted proportions are 49.3% at wave 1, 48.4% at wave 2 (no adjustment) and 50.6% at wave 3.

Table 3.4 shows the sex, age and AUDIT score of the respondents. In both countries and across all three waves, we recruited more males than females (ranging from 58.1% to 71.8% unweighted, and 58.1% to 67.4% once weighted). In England at Wave 2, there was a greater proportion of women recruited than at other waves or in Scotland. The majority of respondents were aged 30–59, with mean ages in each sample ranging between 43.3 years (England wave 3) and 48.7 years (Scotland wave 2). In both countries and across waves, over 90% of respondents had an AUDIT score in the 'probable dependence' range (of 20–40), with the remainder scoring in the 'harmful drinking or mild dependence' range (of 16–19). There was little variation in the sample by nationality/ethnicity. In Scotland at all three waves, more than eight out of 10 respondents self-identified as 'White Scottish', whereas in England, over 70% of respondents self-identified as 'White English'. In both countries, the remainder mostly identified as another white British ethnicity (data not shown).

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Table 3.3: Sample size, distribution and weighted distribution in each country and wave by geographic location of service and service type

Country and area	S:W1 N	S:W2 N	S:W3 N	S:W1 %	S:W2 %	S:W3 %	S:W1 %w	S:W3 %w	E:W1 N	E:W2 N	E:W3 N	E:W1 %	E:W2 %	E:W3 %	E:W1 %w	E:W3 %w
Scotland	**170**	**190**	**123**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**–**	**–**	**–**	**–**	**–**	**–**	**–**	**–**
Glasgow	70	92	80	41.2	48.4	65.0	49.3	50.6	–	–	–	–	–	–	–	–
Edinburgh (Lothian)	39	35	25	22.9	18.4	20.3	18.9	19.1	–	–	–	–	–	–	–	–
Aberdeen (Grampian)	30	30	6	17.6	15.8	4.9	16.2	14.4	–	–	–	–	–	–	–	–
Dumfries & Galloway	18	16	7	10.6	4.7	5.7	2.7	4.8	–	–	–	–	–	–	–	–
Highlands	11	8	1	6.5	8.4	0.8	8.6	8.6	–	–	–	–	–	–	–	–
Dundee (Tayside)	2	9	4	1.2	4.2	3.3	4.3	2.5	–	–	–	–	–	–	–	–
England	–	–	–	–	–	–	–	–	**85**	**86**	**52**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Sheffield	–	–	–	–	–	–	–	–	36	25	8	42.4	29.1	15.4	29.1	28.8
Stockport (Pennines)	–	–	–	–	–	–	–	–	20	16	5	23.5	18.6	9.6	18.6	18.6
Newcastle (Northumberland)	–	–	–	–	–	–	–	–	17	21	19	20.0	24.4	36.5	24.4	24.5
Liverpool	–	–	–	–	–	–	–	–	12	24	20	14.1	27.9	38.5	27.9	28.0
Service type and setting	**S:W1 N**	**S:W2 N**	**S:W3 N**	**S:W1 %**	**S:W2 %**	**S:W3 %**	**S:W1 %w**	**S:W3 %w**	**E:W1 N**	**E:W2 N**	**E:W3 N**	**E:W1 %**	**E:W2 %**	**E:W3 %**	**E:W1 %w**	**E:W3 %w**
Alcohol and drug	**126**	**154**	**107**	**74.1**	**81.1**	**87.0**	**82.6**	**80.6**	**81**	**77**	**47**	**95.3**	**89.5**	**89.5**	**89.5**	**89.5**
Community or outpatient	98	74	43	57.6	38.9	35.0	63.9	41.6	81	77	47	95.3	89.5	89.5	89.5	89.5
Inpatient	28	80	64	16.5	42.1	52.0	18.7	39.1	0	0	0	0.0	0.0	0.0	0.0	0.0

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Country and area	S:W1 N	S:W2 N	S:W3 N	S:W1 %	S:W2 %	S:W3 %	S:W1 %w	S:W3 %w	E:W1 N	E:W2 N	E:W3 N	E:W1 %	E:W2 %	E:W3 %	E:W1 %w	E:W3 %w
Gastroenterology or liver	**36**	**33**	**16**	**21.2**	**17.4**	**13.0**	**14.2**	**19.4**	**4**	**9**	**5**	**4.7**	**10.5**	**10.5**	**10.5**	**10.5**
Community or outpatient	8	12	0	4.7	6.3	0.0	3.1	0.0	4	9	5	4.7	10.5	10.5	10.5	10.5
Inpatient	28	21	16	16.5	11.1	13.0	11.1	19.4	0	0	0	0.0	0.0	0.0	0.0	0.0
General practitioner	**8**	**3**	**0**	**4.7**	**1.6**	**0.0**	**3.2**	**0.0**	**0**	**0**	**0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

Key: S: Scotland; E: England; W: wave; N: number of cases; %w: weighted percentage of cases. Vertical shading indicates target sample for weighting.

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Table 3.4: Sample size, distribution and weighted distribution in each country and wave by demographic characteristics and AUDIT score.

Sex	S:W1 N	S:W2 N	S:W3 N	S:W1 %	S:W2 %	S:W3 %	S:W1 %w	S:W3 %w	E:W1 N	E:W2 N	E:W3 N	E:W1 %	E:W2 %	E:W3 %	E:W1 %w	E:W3 %w
Male	118	128	80	69.4	67.4	65.0	66.7	66.4	61	50	35	71.8	58.1	67.3	58.1	58.4
Female	52	62	43	30.6	32.6	35.0	33.3	33.6	24	36	17	28.2	41.9	32.7	41.9	41.6

Age group	S:W1 N	S:W2 N	S:W3 N	S:W1 %	S:W2 %	S:W3 %	S:W1 %w	S:W3 %w	E:W1 N	E:W2 N	E:W3 N	E:W1 %	E:W2 %	E:W3 %	E:W1 %w	E:W3 %w
29 or less	11	10	3	6.5	5.3	2.4	5.5	3.1	10	11	3	11.8	12.8	5.8	13.0	5.2
30–39 years	37	33	28	21.8	17.4	22.8	17.0	20.0	19	19	19	22.4	22.1	36.5	21.9	29.8
40–49 years	47	61	33	27.6	32.1	26.8	31.3	31.9	28	25	15	32.9	29.1	28.8	29.1	29.2
50–59 years	59	54	39	34.7	28.4	31.7	35.9	26.9	23	21	13	27.1	24.4	25.0	29.4	30.5
60+ years	16	32	20	9.4	16.8	16.3	10.3	18.0	5	10	2	5.9	11.6	3.8	6.6	5.3

AUDIT score	S:W1 N	S:W2 N	S:W3 N	S:W1 %	S:W2 %	S:W3 %	S:W1 %w	S:W3 %w	E:W1 N	E:W2 N	E:W3 N	E:W1 %	E:W2 %	E:W3 %	E:W1 %w	E:W3 %w
16–19	6	11	6	3.5	5.8	4.9	3.0	6.7	5	7	3	5.9	8.1	5.8	8.3	6.6
20–40	164	179	117	96.5	94.2	95.1	97.0	93.3	80	79	49	94.1	91.9	94.2	91.7	93.4

Key: S: Scotland; E: England; W: wave; N: number of cases; %w: weighted percentage of cases. Vertical shading indicates target sample for weighting.

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3.4.1.1 Subgroups of interest

Table 3.5 shows the proportion of respondents in each subgroup of interest for each country and wave, alongside the significance test results for intervention effect in the difference-in-difference analyses. In Scotland, 60.6% of respondents drank cheap alcohol at wave 1, 37.3% had used illicit substances in the past 30 days, 47.0% were in poor health, 38.4% were economically vulnerable and 25.8% had dependent children.

The difference-in-difference analyses found the proportion of respondents reporting drinking cheap alcohol during the TLFB week in Scotland decreased after the introduction of MUP. It fell significantly between wave 1 and wave 2 from 60.6% to 6.3% ($p<0.0004$*) (see also Figure 3.1), and there was also a substantial but non-significant decrease between wave 1 and wave 3 from 60.6% to 14.4% ($p=0.008$). The non-significant change between wave 1 and wave 3 is partly due to the stringent significance threshold used to account for multiple testing and partly due to a simultaneous drop in the proportion of respondents in England reporting consumption of cheap alcohol, from 54.1% at wave 1 to 45.2% at wave 2 and 32.2% at wave 3. The proportion of respondents in the other four subgroups remained broadly stable over time and the difference-in-difference analyses found no significant changes.

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* The Bonferroni correction for multiple testing means our significance threshold is $p<0.0004630$ rather than the standard $p<0.05$. See **section 3.3.6.3** for further details.

Table 3.5: Proportion of respondents within subgroups of interest and significance test results for difference-in-difference analyses

Percentage of sample	S:W1	S:W2	S:W3	E:W1	E:W2	E:W3	P-value W1–W2	P-value W1–W3
Drank cheap alcohol [a]	**60.6**	**6.3**	**14.4**	**54.1**	**45.2**	**32.2**	***<0.0004****	**0.008**
Illicit substances	37.3	27.9	25.7	26.0	29.1	28.0	0.153	0.173
Poor health [b]	47.0	52.9	52.9	48.0	48.8	53.8	0.584	0.993
Economically vulnerable	38.4	34.7	36.8	25.4	33.7	33.0	0.164	0.334
Dependent children	25.8	24.2	34.3	40.8	41.9	46.6	0.748	0.697
Sample size (N)	**S:W1**	**S:W2**	**S:W3**	**E:W1**	**E:W2**	**E:W3**	**P-value W1–W2**	**P-value W1–W3**
Drank cheap alcohol	98	11	20	48	38	17	–	–
Illicit substances	58	53	38	25	25	20	–	–
Poor health	83	100	68	40	42	28	–	–
Economically vulnerable	70	66	51	26	29	20	–	–
Dependent children	44	46	44	35	36	25	–	–
Sample size (N)	**170**	**190**	**123**	**85**	**86**	**52**	–	–

Key: S: Scotland; E: England; W: wave; P-values are the significance of the intervention effect parameter from difference-in-difference models comparing wave 1 to wave 2 and wave 3 separately. See appendix for full results.

* Indicates p-value is significant at our Bonferroni corrected threshold of p<0.0004630.

[a] Number of cases missing due to missing price or volume data from TLFB: Scotland :W1=4, W2=14, W3=5; England: W1=2, W2=2, W3=6.[b] Number of cases missing due to missing EQ-5D-5L data: Scotland: W1=1, W2=1, W3=0; England: W1=0, W2=1, W3=0.

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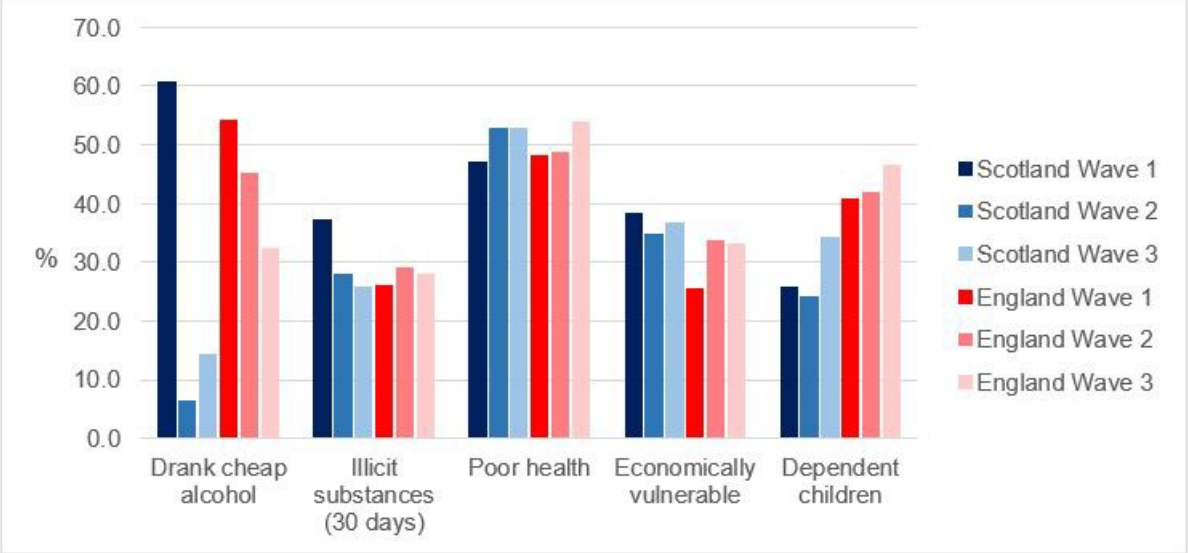
Figure 3.1: Proportion of respondents in each subgroup by wave and country



3.4.2 Key outcomes

3.4.2.1 Alcohol consumption, expenditure, and dependence

Table 3.6 and Table 3.7 show descriptive results for the consumption, expenditure and dependence outcomes for each country and wave. They also show the significance test results for the intervention effect in the difference-in-difference analyses.

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Table 3.6: Expenditure and dependence outcomes by country and wave, and significance test results for difference-in-difference analyses

Alcohol consumption	**S:W1**	**S:W2**	**S:W3**	**E:W1**	**E:W2**	**E:W3**	**P-value W1–W2**	**P-value W1–W3**
Mean units consumed	187.5	168.0	192.0	167.9	147.4	179.9	0.423	0.950
SD of units consumed	132.1	121.5	142.1	107.0	112.8	134.1	–	–
Alcohol expenditure	**S:W1**	**S:W2**	**S:W3**	**E:W1**	**E:W2**	**E:W3**	**P-value W1–W2**	**P-value W1–W3**
1st drink <£0.50pu (%)	**56.2**	**12.1**	**19.5**	**53.3**	**43.0**	**33.0**	***<0.0004****	**0.061**
Mean total spending (£)	82.6	95.2	106.9	77.3	68.7	89.9	0.032	0.376
SD of total spending	59.4	60.6	76.8	49.0	51.4	64.7	–	–
Mean ppu (£)	0.49	0.60	0.59	0.5	0.59	0.55	0.011	0.054
SD of ppu	0.25	0.18	0.19	0.2	0.33	0.21	–	–
% of all drinks <£0.50pu	**59.2**	**5.8**	**13.9**	**53.2**	**44.2**	**29.8**	***<0.0004****	**0.008**
Alcohol dependence	**S:W1**	**S:W2**	**S:W3**	**E:W1**	**E:W2**	**E:W3**	**P-value W1–W2**	**P-value W1–W3**
Mean SADQ score	39.4	36.1	37.3	29.5	30.1	37.3	0.178	0.415
SD of SADQ score	14.0	16.8	18.2	15.5	16.0	14.3	–	–
Mild (SADQ 0-15,%)	10.8	16.0	17.6	21.4	24.4	16.4	0.108	0.164

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Mod. (SADQ 16–30,%)	15.3	22.5	14.1	33.0	27.9	32.6	–	–
Severe (SADQ 31–60,%)	74.0	61.5	68.3	44.8	47.7	51.1	–	–

Key: S: Scotland; E: England; W: wave; P-values are the significance of the intervention effect parameter from difference-in-difference models comparing wave 1 to wave 2 and wave 3 separately; ppu: price per unit, pu: per unit.

* Indicates p-value is significant at our Bonferroni corrected threshold of p<0.0004630.

Table 3.7: Drink types consumed and place of purchase by country and wave, and significance test results for the difference-in-difference analyses

Drink types consumed [a]	S:W1 %	S:W2 %	S:W3 %	E:W1 %	E:W2 %	E:W3 %	P-value W1–W2	P-value W1–W3
Cider <7.5% ABV	20.8	21.1	10.6	17.1	19.8	6.2	0.736	0.633
Cider ≥7.5% ABV	25.0	9.5	6.7	19.4	12.8	8.0	0.204	0.470
Beer <7.5% ABV	38.7	30.0	38.3	41.2	39.5	31.6	0.412	0.366
Beer ≥7.5% ABV	7.9	3.7	2.2	7.9	3.5	4.2	0.952	0.513
Vodka	33.0	34.7	35.6	32.0	26.7	33.3	0.411	0.896
Wine	14.9	22.1	28.4	26.4	37.2	26.1	0.967	0.094
Whisky	14.5	7.9	4.2	11.1	2.3	9.0	0.262	0.151
Tonic Wine	5.3	7.9	7.1	0.0	1.2	0.0	0.997	1.000
Other	6.7	10.0	13.6	16.6	15.1	5.2	0.336	0.009

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Place of purchase[b]	S:W1 %	S:W2 %	S:W3 %	E:W1 %	E:W2 %	E:W3 %	P-value W1–W2	P-value W1–W3
Local shop/seller	45.7	46.8	49.4	30.9	33.7	32.8	–	–
Supermarket	23.6	34.2	39.7	28.1	39.5	29.8	–	–
Off-license chain	8.7	3.2	2.7	8.8	5.8	13.2	–	–
Other off-trade	2.8	0.5	1.8	4.5	2.3	9.9	–	–
On-trade	5.3	4.2	2.5	11.2	7.0	5.8	–	–
Social supply[c]	1.0	1.1	2.5	1.2	0.0	0.6	–	–

Key: S: Scotland; E: England; W: wave; P-values are the significance of the intervention effect parameter from difference-in-difference models comparing wave 1 to wave 2 and wave 3 separately.

[a] Whether drink type consumed at any point in TLFB week. [b] First drink of TLFB week. [c] Alcohol provided by family, friends or others.

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In Scotland, the mean number of units consumed by respondents during the TLFB week was 187.5 at wave 1. This fell to 168.0 at wave 2 and rose again to 192.0 at wave 3. The difference-in-difference analysis found no significant change in the mean number of units consumed between wave 1 and wave 2 (p=0.423) or wave 3 (p=0.950). The standard deviations were also large at each wave, indicating a continuing large degree of variation in consumption levels between individuals.

The proportion of respondents in Scotland reporting that their first drink of the TLFB cost less than £0.50 per unit decreased significantly between waves 1 and 2 from 56.2% to 12.1% (p<0.0004) and non-significantly between waves 1 and 3 from 56.2% to 19.5% (p=0.061). There was also a significant decrease between waves 1 and 2 in the proportion reporting all drinks in the TLFB cost less than £0.50 per unit, from 59.2% to 5.8% (p<0.0004) and a large but non-significant decrease between waves 1 and 3, from 59.2% to 13.9% (p=0.008). The large majority of reported purchases below £0.50 per unit at waves 2 and 3 appear due to minor reporting errors, as the reported price per unit is typically very close to the MUP (e.g. £0.49 per unit, data not shown).

The SADQ is scored on a scale from 0 to 60. Mean SADQ scores did not change significantly across waves in Scotland, with only a small decrease from 39.4 at wave 1 to 37.3 at wave 3 (p=0.415). Similarly, there were no significant changes in the proportion of respondents in SADQ score categories, with 74.0% of respondents in Scotland classed as severely dependent at wave 1, 61.5% at wave 2 and 68.3% at wave 3 (p=0.164).

The proportion of respondents consuming high strength cider (≥7.5% ABV) during the TLFB week decreased markedly in Scotland from 25.0% at wave 1, to 9.5% at wave 2 (p=0.204) and 6.7% at wave 3 (p=0.470), but these changes were not significant due to similar declines in England.

We also explored selected additional outcomes beyond those listed in Table 3.2. The mean price paid per unit by respondents in Scotland was £0.49 at wave 1, below the MUP threshold, and rose above the threshold to £0.60 at wave 2 (p=0.011) and £0.59 at wave 3 (p=0.054), although these changes were not significant. The mean total alcohol expenditure in the TLFB week also increased non-significantly among respondents in Scotland from £82.57 at Wave 1 to £106.88 at Wave 3 (p=0.376).

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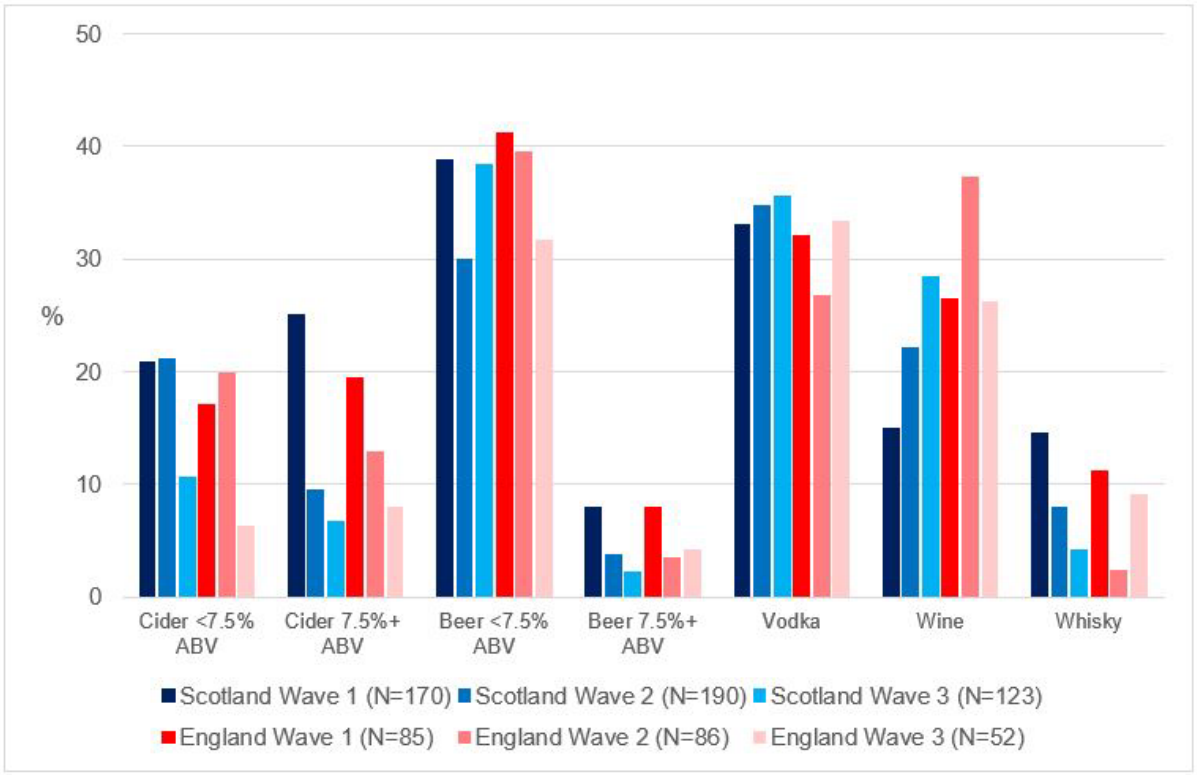
There was also no significant change in the proportion of respondents consuming any drink type during the TLFB week, although the proportion of respondents in Scotland consuming wine increased non-significantly from 14.9% at wave 1 to 28.4% at wave 3 (p=0.094). Beer below 7.5% ABV and vodka were the most commonly consumed beverage types at all waves, with 38.7% and 33.0% of respondents in Scotland doing so at wave 1 respectively (Figure 3.2). The most common source of the first alcohol consumed during the TLFB week was a local shop at all waves (e.g. 45.7% at wave 1) and did not change substantially, although the proportion purchasing from a supermarket increased from 23.6% at wave 1 to 39.7% at wave 3.

Figure 3.2: Proportion of respondents consuming alcohol types during the TLFB week by wave and country



3.4.2.2 Other substance use

Table 3.8 shows descriptive statistics and difference-in-difference significance test results for outcomes relating to use of psychoactive substances other than alcohol in the last 30 days prior to interview.

Table 3.8: Use of other substances by country and wave, and significance test results for the difference-in-difference analyses

Type of substance	S:W1 %	S:W2 %	S:W3 %	E:W1 %	E:W2 %	E:W3 %	P-value W1–W2	P-value W1–W3
Prescribed substances [a]	63.7	62.1	55.1	72.3	60.5	66.2	0.237	0.877
Illicitly obtained prescribed substances	14.9	13.2	9.8	2.5	10.5	2.9	0.046	0.580
Other illicit substances	30.9	22.1	24.1	25.4	26.7	26.8	0.214	0.386
Tobacco	30.9	36.3	26.3	40.7	44.2	34.7	0.792	0.951

Key: S: Scotland; E: England; W: Wave; P-values are the significance of the intervention effect parameter from difference-in-difference models comparing Wave 1 to Wave 2 and Wave 3 separately.

[a] Prescribed substances include benzodiazepines, antidepressants or painkillers.

There was no significant change in any substance use outcomes following the introduction of MUP in Scotland. Use of benzodiazepines, antidepressants or painkillers fell non-significantly among Scottish respondents from 63.7% at wave 1 to 55.1% at wave 3 (p=0.877). The prevalence of using illicitly obtained benzodiazepines, antidepressants or painkillers and of using other illicit substances was lower at all waves and decreased non-significantly to a similar degree. We also examined tobacco use as an additional outcome measure. The proportion of respondents in Scotland who used tobacco in the 30 days prior to interview decreased non-significantly from 30.9% at wave 1 to 26.3% at wave 3 (p=0.951).

3.4.2.3 Health

Table 3.9 shows the descriptive statistics and difference-in-difference significance test results for the health outcomes.

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Table 3.9: Respondents' self-reported health status (measured by EQ-5D-5L) by country and wave, and significance test results for the difference-in-difference analyses

Health domain [a]	S:W1	S:W2	S: W3	E:W1	E:W2	E:W3	P-value W1–W2	P-value W1–W3
Mobility (%)	18.9	16.8	12.5	12.3	8.1	7.9	0.585	0.989
Self-care (%)	7.4	6.3	10.5	3.8	2.3	0.9	0.735	0.259
Usual activities (%)	16.6	16.9	17.2	14.8	11.6	12.5	0.576	0.696
Pain/discomfort (%)	18.9	22.6	22.1	24.3	23.3	17.7	0.517	0.260
Anxiety/depression (%)	28.2	36.3	35.8	36.7	37.2	46.0	0.368	0.938
Self-rating of health (0–100) [b]	**S:W1**	**S:W2**	**S: W3**	**E:W1**	**E:W2**	**E:W3**	**P-value W1–W2**	**P-value W1–W3**
Mean rating	50.3	49.4	48.2	54.7	56.1	56.1	0.582	0.465
SD of rating	21.7	22.8	21.7	23.2	23.3	22.1		

Key: S: Scotland; E: England; W: wave; P-values are the significance of the intervention effect parameter from difference-in-difference models comparing Wave 1 to Wave 2 and Wave 3 separately.

[a] EQ-5D-5L – Score of 4 (severe problems) or 5 (extreme problems). [b] EQ-5D-5L Visual Analogue Scale.

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There was no significant change in any health outcome following the introduction of MUP. The highest prevalence health problem was anxiety or depression, with 28.2% of respondents in Scotland reporting severe or worse problems at wave 1. This increased non-significantly to 35.8% at wave 3 (p=0.938). The proportion reporting severe or worse problems on the other EQ-5D-5L domains also showed similar non-significant increases across waves, except for mobility. Self-rated health out of 100 fell non-significantly among respondents in Scotland from a mean of 50.3 at wave 1 to 48.2 at wave 3 (p=0.465).

3.4.2.4 Deprivation

Table 3.10 shows the descriptive statistics and difference-in-difference significance test results for the deprivation-related outcomes.

Table 3.10: Experiences of deprivation by country and wave, and significance test results for the difference-in-difference analyses

Experience of deprivation	S:W1 %	S:W2 %	S:W3 %	E:W1 %	E:W2 %	E:W3 %	P-value W1–W2	P-value W1–W3
Low household income [a]	82.3	75.8	68.2	64.4	57.0	51.6	0.834	0.585
Benefits are main income	75.7	66.8	62.6	44.9	55.8	55.4	0.024	0.017
Lowest IMD quintile [b]	37.3	33.2	31.8	46.5	46.5	45.1	0.633	0.673
Struggling financially [c]	32.1	35.3	38.4	31.4	38.4	29.8	0.672	0.439
Acute housing problems	9.1	10.5	14.8	9.9	18.6	20.2	0.318	0.643
Foodbank or charity use	22.7	17.9	22.3	13.1	19.8	25.8	0.113	0.108

Key: S: Scotland; E: England; W: Wave; P-values are the significance of the intervention effect parameter from difference-in-difference models comparing Wave 1 to Wave 2 and Wave 3 separately.

[a] Household income less than £300 per week; [b] Live in most deprived Index of Multiple Deprivation quintile for Scotland or England; [c] Finding it quite or very difficult to manage financially.

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There were no significant changes in any deprivation outcomes following the introduction of MUP. The proportion of respondents in Scotland reporting a household income below £300 per week decreased non-significantly from 82.3% at wave 1 to 68.2% at wave 3 (p=0.585), while the proportion reporting benefits as the main source of income decreased non-significantly from 75.7% at wave 1 to 62.6% at wave 3 (p=0.017). In contrast, the proportion saying they found it quite or very difficult to manage financially increased non-significantly from 32.1% at wave 1 to 38.4% at wave 3 (p=0.439), while the proportion reporting acute housing problems increased non-significantly from 9.1% at wave 1 to 14.8% at wave 3 (p=0.643).

3.4.2.5 Parenting

Table 3.11 shows the descriptive and difference-in-difference significance test results for the parenting-related outcomes.

Table 3.11: Respondents with children's perceptions of their parenting by country and wave, and significance test results for the difference-in-difference analyses

Negative impact of drinking on …	S:W1 %	S:W2 %	S:W3 %	E:W1 %	E:W2 %	E:W3 %	P-value W1–W2	P-value W1–W3
Feelings about parenting	17.3	16.8	22.0	13.8	19.8	24.6	0.348	0.439
Getting children to school / appointments	3.4	9.5	10.3	4.4	7.0	1.8	0.474	0.100
Children having treats	5.6	8.9	9.7	6.7	9.3	1.8	0.839	0.109
Children having to act more grown up	9.9	11.1	13.1	5.2	8.1	5.4	0.616	0.744

Key: S: Scotland; E: England; W: wave; P-values are the significance of the intervention effect parameter from difference-in-difference models comparing wave 1 to wave 2 and wave 3 separately.

There was no significant change in any parenting outcomes after the introduction of MUP. Among respondents who had dependent children, the most prevalent negative impact of drinking was on how respondents felt about their parenting, with 17.3% of respondents in Scotland reporting this at wave 1, rising non-significantly to 22.0% at wave 3 (p=0.439). The proportion of respondents in Scotland reporting a negative

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impact of drinking on their parenting also increased non-significantly across the waves for all other outcomes.

3.4.3 Additional outcomes

3.4.3.1 Anticipated and actual responses to MUP

Table 3.12 presents data on how the wave 1 sample in each country anticipated responding to the price increases that would occur under MUP (i.e. the proportion who indicated they were 'very likely' or 'likely' to adopt each of 12 different behaviours). It also provides data on how the wave 2 and 3 samples in Scotland actually behaved since the introduction of MUP and, where relevant, whether they attributed any changes to the policy.

Anticipated responses to MUP (Wave 1, Scotland and England): the most common consumption-related response was 'drink about the same as before', which 65.7% of respondents in Scotland and 63.8% of respondents in England anticipated doing. Less than one in three people anticipated doing any of the other consumption-related responses, which included drinking less each day, drinking on fewer days or giving up drinking.

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Table 3.12: Anticipated and actual changes following the introduction of MUP and whether respondents in Scotland said MUP was a minor or major reason for this change

Consumption	**S:W1 Anticipated change %**	**E:W1 Anticipated change %**	**S:W2 Actual change %**	**S:W2 Due to MUP[a] %**	**S:W3 Actual change %**	**S:W3 Due to MUP[a] %**
Drink the same as before	65.7	63.8	67.6	N/A	72.3	N/A
Drink less each day	24.6	28.2	21.3	41.0	12.5	★
Drink on fewer days	22.2	26.7	11.7	★	8.4	0.0
Give up drinking	12.7	18.8	20.7	20.5	15.3	★
Financial	**S:W1 Anticipated change %**	**E:W1 Anticipated change %**	**S:W2 Actual change %**	**S:W2 Due to MUP[a] %**	**S:W3 Actual change %**	**S:W3 Due to MUP[a] %**
Reduce other spending	53.4	57.4	19.8	69.4	32.4	81.9
Buy cheaper alcohol	46.0	56.9	16.5	85.7	11.4	87.7
Get more money	42.7	61.4	13.8	66.7	24.2	88.5
Help seeking	**S:W1 Anticipated change %**	**E:W1 Anticipated change %**	**S:W2 Actual change %**	**S:W2 Due to MUP[a] %**	**S:W3 Actual change %**	**S:W3 Due to MUP[a] %**
Seek treatment	34.3	35.9	43.9	11.1	53.7	16.2

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Illegal alcohol	S:W1 Anticipated change %	E:W1 Anticipated change %	S:W2 Actual change %	S:W2 Due to MUP[a] %	S:W3 Actual change %	S:W3 Due to MUP[a] %
Black market alcohol	17.2	39.7	4.3	★	3.7	★
Steal alcohol	16.1	13.2	3.2	★	6.3	89.8
Substitution	**S:W1 Anticipated change %**	**E:W1 Anticipated change %**	**S:W2 Actual change %**	**S:W2 Due to MUP[a] %**	**S:W3 Actual change %**	**S:W3 Due to MUP[a] %**
Change other substance use	13.5	19.5	6.9	66.7	8.5	100.0
Non beverage alcohol	5.8	★	0.0	N/A	0.0	N/A

Key: S: Scotland; E: England; W: wave; ★: figure suppressed due to small numbers.

[a] Respondent reported that MUP was a minor or major reason for the change

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Consistent with the financial implications of not changing their consumption, finance-related behaviours were the next most likely anticipated response to MUP. In Scotland, 53.4% of respondents said they would reduce spending on other things, 46.0% said they would buy cheaper alcohol and 42.7% said they would get more money, with higher proportions reporting each of these anticipated responses in England. When asked what they would spend less money on, the most common responses were food, clothes or utilities. When asked how they would obtain more money, the most common responses were to borrow from either family or friends.

Approximately one-third of respondents in both countries anticipated they would respond to MUP by seeking treatment. However, few respondents in Scotland anticipated using black market alcohol (compared to 39.7% in England), stealing alcohol, increasing use of other substances or consuming non-beverage alcohols (e.g. hand-sanitiser, methylated spirits).

Actual responses (waves 2 and 3, Scotland only): in line with the anticipated responses to MUP reported above, the most common actual behaviour following the introduction of MUP was 'drinking about the same as before'. This was reported by 67.6% of respondents at wave 2 and 72.3% at wave 3. Among those who indicated they had changed their consumption since the introduction of MUP by drinking less each day, drinking on fewer days or giving up drinking, the proportion reporting MUP was a reason for the change varied between 0.0% and 41.0%.

At wave 2, between 13.8% and 19.8% report using the three finance-related responses following the introduction of MUP, with this changing to between 11.4% and 32.4% at wave 3. Reducing spending on other things was the most common financial response at both waves. Among those who reported finance-related responses, between 66.7% and 88.5% said that MUP was either a minor or major reason for their change in behaviour.

Approximately half of wave 2 (43.9%) and wave 3 (53.7%) respondents reported seeking treatment since the introduction of MUP,[*] although less than 17% attributed this to MUP. Few respondents reported using black market alcohol, stealing alcohol,

[*] This finding is puzzling as we recruited most respondents on entry to treatment. Possible explanations include some respondents not being recruited in drug or alcohol treatment settings and different perceptions of the meaning of 'entering treatment' (e.g. in-patient versus out-patient, first versus later treatment episode).

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increasing their use of other substances or consuming non-beverage alcohol following the introduction of MUP, with no more than 8.5% reporting any of these responses. The proportions saying MUP was a reason for such changes cannot be reported due to small case numbers.

3.4.3.2 Crime

Table 3.13 provides data on respondents' experiences of crime in the three months before the survey and significance test results for the difference-in-difference analyses.

Table 3.13: Respondents' involvement in crime by country and wave, and significance test results for the difference-in-difference analyses

Involvement in crime	S:W1 %	S:W2 %	S:W3 %	E:W1 %	E:W2 %	E:W3 %	P-value W1–W2	P-value W1–W3
Illegal activity	**14.3**	**13.2**	**8.9**	**10.4**	**12.8**	**18.1**	**0.509**	**0.064**
Shoplifting	2.3	6.8	7.8	2.8	7.2	9.5	0.878	1.000
Selling drugs	6.0	1.6	1.6	2.1	1.2	0.0	0.560	0.998
Theft vehicle	0.6	0.0	0.0	2.7	1.2	0.0	0.996	1.000
Other theft/robbery	0.0	0.5	1.1	0.8	1.2	0.8	0.996	0.996
Fraud or forgery	0.7	0.0	0.0	0.8	0.0	0.0	1.000	1.000
Handling stolen goods	2.9	2.1	1.5	3.5	3.6	0.6	0.739	0.580
Assault or violence	4.7	5.3	4.2	5.4	6.0	9.8	0.989	0.387
Victim of crime	**15.4**	**10.0**	**12.9**	**15.1**	**16.3**	**13.2**	**0.230**	**0.917**
Assault or violence	11.7	6.8	6.2	8.9	13.3	8.4	0.097	0.411
Theft, burglary, robbery	3.9	5.3	8.0	8.1	8.4	4.8	0.722	0.152
Any other crime	1.8	0.0	3.1	1.3	0.0	0.0	1.000	0.998
Police called to domestic argument	**18.0**	**5.8**	**12.7**	**11.7**	**4.8**	**2.9**	**0.659**	**0.263**

Key: S: Scotland; E: England; W: wave; P-values are the significance of the intervention effect parameter from difference-in-difference models comparing wave 1 to wave 2 and wave 3 separately.

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Overall, the proportion of respondents in Scotland reporting involvement in illegal activity fell non-significantly from 14.3% at wave 1 to 13.2% at wave 2 (p=0.509) and 8.9% at wave 3 (p=0.064). Among the more commonly reported crimes, the proportion of respondents in Scotland reporting shoplifting in the past three months increased non-significantly from 2.3% at wave 1 to 7.8% at wave 3 (p=1.000), while the proportion reporting selling drugs fell from 6.0% to 1.6% (p=0.998). The proportion reporting involvement in assault or violence remained broadly stable.

The proportion of respondents in Scotland reporting being a victim of a crime decreased non-significantly from 15.4% at wave 1 to 10.0% at wave 2 (p=0.230) and 12.9% at wave 3 (p=0.917). At wave 1, 11.7% reported being a victim of assault or violence and this fell non-significantly to 6.2% at wave 3 (p=0.411). The most common report of involvement in crime was of the police being called to a domestic argument, and this fell non-significantly from 18.0% at wave 1 in Scotland to 5.8% at wave 2 (p=0.659) and 12.7% at wave 3 (p=0.263).

3.4.3.3 Changes in product price and availability

Table 3.14 provides data collected in both countries on whether respondents noticed changes in the availability and price of alcoholic products. In Scotland, respondents were asked about changes in the last three months at wave 1 and since the introduction of MUP at waves 2 and 3. In England, respondents were asked about changes in the last three months at all waves.

Table 3.14: Perceived impact of MUP on products and prices, and views on provision of support services around the introduction of MUP

Have noticed … [a]	**S:W1 %**	**S:W2 %**	**S:W3 %**	**E:W1 %**	**E:W2 %**	**E:W3 %**
Products disappearing	6.0	23.7	18.8	★	★	★
Prices changing	24.0	62.1	32.3	12.9	7.2	★
Impact of price change …[b]	**S:W1 %**	**S:W2 %**	**S:W3 %**	**E:W1 %**	**E:W2 %**	**E:W3 %**
Much or a little cheaper	11.8	0.9	5.0	8.5	★	★
A little more expensive	70.5	31.9	42.7	91.5	★	★

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Much more expensive	17.7	67.2	52.3	0.0	★	★

Support to prepare for MUP	S:W1 %	S:W2 %	S:W3 %	E:W1 %	E:W2 %	E:W3 %
Think support is needed	54.6	N/A	N/A	48.7	50.6	84.8
Not aware of support	96.1	96.3	95.0	100.0	100.0	96.5

Key: S: Scotland; E: England; W: wave; ★: figure suppressed due to small numbers.

[a] Reference periods: Scot W1: last three months; Scot W2–3: since the introduction of MUP; England all waves: last three months. [b] Base is respondents noticing a price change.

In Scotland, the proportion of respondents noticing products disappearing from sale increased from 6.0% at wave 1 to 23.7% at wave 2, while the proportion noticing prices changing rose from 24.0% at wave 1 to 62.1% at wave 2. The proportion who reported noticing product disappearances and price changes decreased somewhat at wave 3, but remained higher than at wave 1. At all waves, over 85% of those noticing price changes reported prices were more expensive. However, the proportion reporting prices were much more expensive increased from 17.7% at wave 1 to 67.2% at wave 2 and 52.3% at wave 3. The products respondents noticed disappearing were most commonly high-strength ciders, while price increases were noticed for high-strength ciders, spirits, high strength beers and wine (data not shown).

In England, only a very small number of respondents noticed products disappearing or prices changing, and the price changes they did note were generally described as making products ‘a little more expensive’.

3.4.3.4 Minimising harm arising from MUP

Table 3.14 also presents data on respondents’ perceptions of the need for awareness-raising and support for people drinking at harmful levels around the introduction of MUP to minimise any harmful outcomes.

In Scotland at wave 1, 54.6% of respondents said that support would need to be offered to help people prepare for the policy. However, over 95% of respondents said they were not aware of any such support being in place either before the

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introduction of MUP (wave 1) or afterwards (waves 2 and 3). The perceived need for and lack of actual provision of support is similar to that reported by respondents in England, which has not introduced MUP.

Among respondents who suggested a type of support that would be needed prior to implementation of MUP in Scotland (wave 1 only) and England (all waves), about half suggested treatment and related measures, such as increased access to detox as current waiting times for support after assessment are long (data not shown). Several respondents also indicated a need for financial support or advice, education and awareness-raising. Some also expressed concern regarding the impact of MUP on people who were poor and/or suggested there would be more crime.

After the introduction of MUP, respondents reported they would have welcomed support and awareness-raising before the policy was introduced, but this had not happened. Overall, there were very few specific examples of support being given and these generally involved awareness-raising (e.g. information provided by a treatment service).

3.4.4 Subgroup analysis

Tables 2.16 to 2.24 in the appendix provide descriptive results for each of our population subgroups across each of the outcome areas. We briefly summarise findings of note below, focusing on the Scottish sample only. Given the small number of respondents in each group, we did not conduct difference-in-difference analyses. All time trends should therefore be interpreted cautiously.

Consumption: respondents in most subgroups in Scotland reported consuming a higher mean number of units of alcohol in the TLFB week than respondents in the sample as a whole. This was particularly the case for the cheap alcohol group but not the group with dependent children. The non-significant declining trend in high strength cider consumption seen in the whole sample was also seen in most subgroups.

Expenditure: the mean price per unit of alcohol was £0.51 or lower in all subgroups in Scotland at wave 1, suggesting all would be affected substantially by MUP. Mean total expenditure in each subgroup followed the increasing trend across waves seen in the whole sample, with the illicit substance use group showing a particularly large increase.

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Dependence: as for the sample as a whole, there was no discernible trend in mean SADQ scores over time in most subgroups, although there was an increase in the illicit substance groups. SADQ scores were also higher in the illicit substance use group than in the whole sample.

Substance use: substance use behaviours in each subgroup in Scotland were generally similar to the whole sample with some exceptions. Respondents in the cheap alcohol group were slightly less likely to use illicitly obtained medications at wave 2 than the whole sample. In line with expectations, the illicit substance use subgroup were more likely to use illicitly obtained medications and other illicit substances at all waves, although they were slightly less likely to use prescribed medications. The economically vulnerable group were slightly more likely to use illicit substances. The cheap alcohol, illicit substance use and economically vulnerable groups were more likely to use tobacco across all three waves compared to the whole sample.

Health: health outcomes in each subgroup in Scotland were generally similar to the whole sample. In line with expectations, the poor health subgroup generally had a higher proportion of respondents reporting problems in each EQ-5D-5L domain and lower mean health ratings. The illicit substance use, economically vulnerable and dependent children subgroups all reported slightly higher anxiety or depression problems at either wave 2 or wave 3 compared to the full sample. The illicit substance use subgroup also reported slightly lower health ratings at wave 1.

Deprivation: at all waves, a larger proportion of those in the cheap alcohol, illicit substance use, and economically vulnerable subgroups in Scotland reported each of the deprivation characteristics, although the economically vulnerable subgroup was partially defined by these characteristics. The subgroups also replicated the non-significant rising trend in acute housing problems seen in the whole sample. This was particularly apparent in the drink ‘cheap’ alcohol and illicit substance use subgroups.

Parenting: we did not examine parenting outcomes by subgroup as only a small number of respondents had dependent children.

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3.5 Discussion

Chapter 8 provides a full discussion of all work packages. The text below provides a brief summary of the results and also the strengths and limitations specific to this component of WP1.

3.5.1 Summary of findings

There is little evidence in the quantitative findings for WP1 to suggest the introduction of MUP in Scotland had substantial positive or negative impacts on people with alcohol dependence presenting to treatment services. The policy had a large impact on the alcohol purchased by this population, leading to large increases in the prices paid per unit of alcohol. However, there was no evidence of a significant reduction in alcohol consumption or severity of alcohol dependence. There was also no evidence of significant negative responses or impacts of the policy. In particular, there was no significant deterioration in the health status of people presenting to services and no increase in deprivation, parenting problems, illicit substance use or crime. When asked about recent changes in their behaviour, a small minority of respondents did report drinking less each day, giving up drinking or seeking treatment due to MUP. A larger minority reported reducing spending on other things or seeking additional money to buy alcohol in response to MUP.

3.5.2 Strengths and limitations

The key strengths of this study compared to previous studies on similar topics are the large sample, which was collected across multiple recruitment sites, in two countries and at three time points. This allowed for a difference-in-difference design, which is among the most robust ways to evaluate natural experiments, such as the introduction of a government policy. It compares changes over time in a population affected by the policy and a control population that is not affected. The study also collected data on a wide range of outcomes that were discussed in the public debate around MUP and people with alcohol dependence. These data included highly detailed information on respondents' recent alcohol purchasing and consumption, which allowed for more accurate analyses of key outcomes in these areas.

The data are, however, limited to people with alcohol dependence who presented to treatment services. This is important as we cannot be sure whether any changes

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observed in our data are due to changes among people with dependence or changes in who is presenting to treatment services. Both of these changes could be caused by the introduction of MUP, but it is difficult to assess which is happening and whether MUP is definitely the cause. It is therefore important that our results are interpreted in the context of the supporting data from the qualitative component of WP1 and from the other work packages. Chapter 8 provides a synthesis of results from across the whole project and Chapter 9 discusses these and presents our overall conclusions.

The study used a repeat cross-sectional design, which is typically less robust than longitudinal panel methods for understanding causes of change over time. However, retaining a longitudinal sample of people with alcohol dependence in a study without substantial attrition is challenging (e.g. see Black et al[58]). Recruiting from treatment sites also means it is difficult to separate the effect of treatment from non-treatment interventions (e.g. MUP).

The representativeness of our sample was also constrained by the time and other resources available (see **section 3.3.3**). However, few studies of treatment populations use nationally representative samples and, as discussed above, we sought to reduce any major biases in our sample at each wave or across waves by recruiting across a wide range of sites and using the same sites at each wave. More generally, the basic demographic characteristics of our sample align broadly with those recorded in administrative data capturing the characteristics of people receiving treatment for alcohol dependence.[59]

The structured interview was also relatively long and relied on respondents recalling detailed information about their recent activities. We mitigated this by using the timeline follow-back technique, which is a well-established and validated approach with this population, and has been used in similar forms in previous studies of alcohol pricing.[25,60,61]

Several key outcomes showed notable changes over time, but these difference-in-difference analyses did not identify these as statistically significant. Although this suggests the study may have been under-powered, we selected the target sample size to allow detection of large effects within an achievable sample given the time and resources available. While the analyses may not have identified smaller

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changes in key outcomes as statistically significant, it would have identified as significant larger changes with major policy implications.

Finally, the wide range of outcomes examined means we conducted a large number of statistical tests, which increases the chances of results that are false positives. To account for this, we only consider changes over time as statistically significant if the p-value was below p=0.0004630, lower than the usual value of 0.05. This adjusted p-value was calculated using a standard approach known as Bonferroni correction.[57]

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4 WP1: The impact of MUP on people who use alcohol treatment services (Part 2: Qualitative component)

4.1 Introduction

As discussed in the introduction to Chapter 3, there is considerable uncertainty around how people with alcohol dependence will respond to and be affected by MUP and previous relevant research has important limitations. This chapter presents findings on this topic from the qualitative component of WP1. As WP1 was a mixed methods study with the quantitative component described in Chapter 3, readers may wish to familiarise themselves with the aims and research questions of WP1 (**section 3.2**) and its basic design (**section 3.3.1**) before reading the remainder of this chapter.

4.2 Purpose of qualitative component

The qualitative component of WP1 aimed to complement the quantitative component by providing additional findings on topics that are not easily explored using survey methods. It also aimed to validate and support interpretation and understanding of the quantitative findings by exploring how a subsample of the quantitative interviewees made sense of MUP in relation to their social and material circumstances, and their experiences, perspectives and life histories. In doing so, we sought to retain the complexity, nuance and uniqueness of each interviewee's case while also drawing on cross-cutting themes that recurred across interviews. We also drew on the expertise and experience of people providing treatment-related services to our interviewees by exploring these service providers' perspectives on how their clients were responding to MUP and the impact the policy was having.

4.3 Methods

4.3.1 Design

Data collection for the qualitative component of WP1 followed the same design as the quantitative study to explore change over time and compare between countries.

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As such, it collected repeat cross-sectional data in three waves, one pre-MUP and two post-MUP, across Scotland and Northern England (hereafter England).

4.3.2 Service users

4.3.2.1 Target sample

A sub-sample of interviewees to the structured interviews in the quantitative study also took part in an additional, separate in-depth qualitative interview. We aimed to recruit 20 interviewees in Scotland and 15–20 interviewees in England at each wave, and adopted a pragmatic, purposive sampling approach to ensure a study population that was broadly representative of the recruitment sites, and the gender, age and drinking behaviours of the underlying population. We particularly sought to ensure good representation of the five subgroups of interest for WP1 (see **section 3.3.6.1**); namely, those drinking cheap alcohol, using illicit substances, in poor health, who were economically vulnerable or who had dependent children.

4.3.2.2 Recruitment procedures

At the end of the structured interview, interviewers asked all interviewees whether they would be willing to participate in a subsequent qualitative interview and those consenting provided contact details for follow-up. The research team then contacted those interviewees to confirm their willingness to participate and to arrange an interview time and location. We conducted most interviews face-to-face in the setting we first recruited the interviewee, but interviewers arranged phone interviews in a small number of cases where this was not feasible.

In most cases, the interviewer who administered the qualitative survey also carried out the qualitative interview to build upon pre-established relationships. Interviews lasted between 20 and 70 minutes and were audio-recorded using a data-encrypted device. Interviewers also kept field-notes. Interviewees were offered a £10 gift token in appreciation of their time.

4.3.2.3 Achieved sample

Table 4.1 shows how many interviewees were recruited at each wave and in each of the five subgroups (interviewees could be in multiple subgroups). The Scottish sample comprised 49 interviewees and the English sample comprised 22

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interviewees. These figures are lower than the target sample size due to time constraints at Wave 1 and the COVID-19 pandemic at Wave 3 (see interim report for further details[50]).

Table 4.1: Number of service users recruited for WP1 qualitative interviews in each country and wave by population subgroup

Scotland: subgroup	Wave 1	Wave 2	Wave 3	Total
Drinking cheap alcohol	13	1*	2	16
Using illicit substances	8	4	6	18
In poor health	7	9	4	20
Economically vulnerable	7	6	6	19
Had dependent children	6	5	3	14
Total sample size (total in subgroups)	21 (20)	17 (15)	11 (11)	49 (46)
England: subgroup	**Wave 1**	**Wave 2**	**Wave 3**	**Total**
Drinking cheap alcohol	8	3	1	12
Using illicit substances	2	2	1	5
In poor health	3	5	1	9
Economically vulnerable	4	3	2	9
Had dependent children	2	6	2	10
Total sample size (total in subgroups)	8 (8)	11 (10)	3 (3)	22 (21)

4.2.3.4. Interview schedule

Interviewers used a semi-structured topic guide developed by the research team. This covered the broad focus of the research questions for WP1 and particularly addressed aspects of the theories of change presented in **section 2.2**. Where relevant, interviews also explored interviewees' responses to the structured questionnaire.

* Those drinking cheap alcohol at waves 2 and 3 reported non-compliance by retailers or a mean purchase price sufficiently below £0.50 that it could not be straightforwardly attributed to reporting error.

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Interviews began by exploring interviewees' understanding of potential or actual price changes caused by MUP for a range of products. Subsequent topics included interviewees' alcohol purchasing and consumption patterns and behaviours, their experiences of alcohol-related harms and the associated impacts on themselves, their families and others around them, and experiences with treatment support services. Interviewers also explored interviewees' awareness of MUP and how prepared they felt for its implementation at wave 1, as well as how they adapted to changes caused by the policy at waves 2 and 3 (Scottish interviewees only). We also sought interviewees' views on how the policy had affected them and others they considered to have alcohol dependence.

4.3.3 Service providers

4.3.3.1 Sampling and recruitment procedures

At each wave, we aimed to carry out 10 interviews with service providers in Scotland and five with service providers in England. Interviewers approached staff to request an interview within the recruitment sites used throughout WP1. We aimed to achieve broad representation across type and setting of service provision in both countries, as well as across staff roles, which included clinicians, counsellors and other treatment centre or hospital staff.

Most staff were interviewed on their own, but we also conducted four group interviews with a mixture of senior clinicians and frontline staff in Scotland (two at wave 1 and two at wave 3) to capture a broader range of experience. Eight staff were also interviewed at more than one wave. Early project findings and interviewer reflections suggested service providers in England were not providing additional information at wave 3. We therefore increased recruitment in Scotland and reduced recruitment in England.

The same factors that affected recruitment of service users (e.g. time constraints, COVID-19) also affected recruitment of service providers. We therefore interviewed 15 people in Scotland at wave 1, 19 at wave 2 and 10 at wave 3. In England, we interviewed six people at wave 1, five at wave 2 and none at wave 3.

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4.3.3.2 Interview schedule

The interviews with service providers covered the level and nature of demand for treatment services before the introduction of MUP and any perceived changes to this post-MUP. They also addressed how service providers and the wider sector sought to assist clients in preparing for and adjusting to MUP. Finally, we asked providers to discuss their perceptions on the responses of service users to the effects of MUP on alcohol prices, as well as their views on any wider social, economic and policy changes that might be affecting alcohol use among their clients.

4.3.4 Data Analysis

All interviews were transcribed verbatim, anonymised and then uploaded into Nvivo 12 for coding and analysis. We analysed interviews with service users and providers separately but followed the same multiple coding, team-based approach in each case.[62] As described below, this involved jointly developing a coding framework (i.e. a set of themes against which data can be organised) using *a priori* themes informed by the theory of change as well as thematic categories that emerged from the dataset across several readings.

Four researchers (PB, JHu, WL and AW) coded a small number of initial interviews separately. They then used an iterative process of cross-checking coding strategies and data interpretation to establish consensus and develop an initial coding frame. This process helped to ensure that the final extracted themes were robustly grounded in the data and not just the personal interpretation of one team member. The same researchers then further refined the coding using a constant comparative method, whereby each interpretation and finding was compared with existing findings, as more transcripts were analysed.[63]

At each wave, we analysed data for Scotland using the same multiple coding process to develop and refine separate coding frames and themes. These coding frames were then used to analyse data from England at the corresponding wave, with a view to detecting differences between countries in the data associated with each code. We repeated this method across all three waves of data for both service user and service provider transcripts. This enabled us to analyse each wave of data independently of data from other time-points, and also to enable analysis of

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convergent and divergent findings within and between waves, and within and between the two countries.

4.4 Results

The results begin with two brief explanatory notes, and then present the service user findings from each wave of data in Scotland and describe interviewees' anticipated and then actual responses to MUP and the impacts of the policy. We then compare our findings in Scotland to those in England. The final two sections explore service users' views on the wider effects of MUP on other people drinking at harmful levels and the perspectives of service providers.

4.4.1 Explanatory notes

While conducting the interviews and analysing the data, the research team noted that our difference-in-difference design did not align well with how interviewees discussed MUP and their own behaviour. We anticipated interviewees would discuss their recent behaviour and reflect on their personal experience. In practice, interviewees freely mixed descriptions of recent and more distant behaviour, and in some cases at waves 2 and 3 appeared unaware that MUP had already been introduced. They did this while drawing on personal experiences, other people's experiences that they had witnessed or heard about, and more speculative descriptions of what others were doing or might do in future. We have taken care in the results presented below to separate recent and personal experience from distant, second-hand or speculative information. However, this distinction was not always clear in the data. Furthermore, we do not exclude distant, second-hand or speculative information altogether as it reflects respondents' understanding of their own behaviours and those of their peers. We therefore encourage readers to pay close attention to the wording of quotes and surrounding text and interpret the quotes in light of these considerations.

Each quote below is accompanied by a brief description of the speaker. This includes a unique identifier, the country and wave in which they were interviewed

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and their AUDIT score.* It also an abbreviation for any of the five subgroups discussed above that they belonged to.

4.4.2 Wave 1 Service user findings (pre-MUP)

Wave 1 respondents expected to respond to MUP using the same strategies that they already used to ensure they could afford alcohol. Few interviewees expected to use new strategies post-MUP, although they often suggested that other people might do so.

The strategies discussed by interviewees fall into three broad types: (i) maintaining affordability; (ii) changing purchasing or consumption behaviour; and (iii) illicit activity. The type of strategy used pre-MUP was highly dependent on how personally affordable alcohol was perceived to be, and significant changes in consumption or purchasing behaviour were only anticipated if alcohol became unaffordable. Illicit activity was uncommon and largely seen as something others might do. Below, we discuss each of the three types of strategy in turn.

4.4.2.1 Maintaining affordability

Although managing the affordability of alcohol was a key consideration for our interviewees, it was not a universal concern. Some interviewees did not require strategies to manage affordability as their income was sufficient to afford higher prices or because they consumed alcohol that already cost more than £0.50 per unit. We focus instead on those facing greater problems with maintaining affordability after the introduction of MUP.

Interviewees interpreted the affordability of alcohol in a nuanced way, which led some individuals to express apparently contradictory views. For example, some said that their alcohol consumption was affordable even though they needed to borrow money at times:

> 'It has been affordable, but … the amount of money I was spending on it was a stress and certainly I was overspending on it. I mean I say it was

* AUDIT is the Alcohol Use Disorders Identification Test and a higher score broadly indicates a greater likelihood of more severe alcohol dependence.

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affordable, but looking back I would end up going into my overdraft at the end of every month.' [R16, Scotland wave 1, AUDIT 24, cheap alcohol]

Several interviewees also talked about using savings or inheritances to purchase alcohol, although it was less clear how they would manage in the longer term, once these sources were depleted:

'I've not run out of money yet. But my savings have taken a heck of a hit.' [R19, Scotland wave 1, AUDIT 25, economically vulnerable, health problems]

Others who lacked savings, redundancy payments or an inheritance frequently borrowed money as a short-term tactic to purchase alcohol between paydays or benefit payments. This includes some interviewees who nonetheless said they could afford alcohol. Interviewees also borrowed money from family or friends, went into debt or used high-interest cash loan services. They commonly envisaged continuing to use these strategies to manage the price rises caused by MUP.

Although wave 1 interviewees generally felt able to manage affordability before MUP, the volume of alcohol they purchased and consumed meant that many were already highly sensitive to price changes and had limited scope to afford increased prices. This was particularly true for those who were economically vulnerable or relied on purchasing the cheapest alcohol. These interviewees suggested they would need to cut back on heating, paying bills and particularly food to ensure alcohol remained affordable.

'I would cut back on food to afford it.' [R10, Scotland wave 1, AUDIT 40, economically vulnerable, dependent child]

'So food would go out the window very easily for me.' [R5, Scotland wave 1, AUDIT 33, cheap alcohol, drug use]

'I'd definitely stop buying food, because I don't eat when I'm drinking.' [R21, Scotland wave 1, AUDIT 24, cheap alcohol, drug use, dependent child]

Several individuals also said they would need to consider or continue using charity-supported free food schemes (e.g. food banks) to supplement their incomes.

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These accounts suggest that, before the introduction of MUP, many people with alcohol dependence routinely experienced financial strain when managing the affordability of alcohol and had strategies to combat this. Although MUP represented an acute addition to that strain, it was not a wholly new problem requiring unfamiliar solutions.

4.4.2.2 Changing purchasing or consumption behaviour

Those interviewees who did change their purchasing or consumption behaviour when alcohol became unaffordable, often switched temporarily to buying cheap, high-strength ciders rather than their usual products. Several commented that they would therefore respond to MUP by:

> '… shop[ping] around for something cheaper…[or] chang[ing] to a lower price to try and get the same sort of strength at a lower price.' [R10, Scotland wave 1, AUDIT 40, economically vulnerable, dependent child]

This suggests interviewees did not fully understand the policy or possibly anticipated a lack of compliance among retailers.

Others noted that MUP would reduce the price gap between the cheapest types of alcohol and spirits or premium brands. This introduced the possibility of 'trading up' to preferred drinks, such as vodka, and away from high-strength ciders that were purchased mostly for their effect and cheapness:

> 'But I certainly wouldn't go from £3 for 3 litres [of cider] to £11, where you could probably go and buy vodka or something similar.' [R11, Scotland wave 1, AUDIT 37]

Reducing alcohol consumption was a strategy used by some interviewees who were able to temporarily either cut back or go without alcohol at times. This was, however, usually seen as a 'last resort' and a short-term solution, after trying other strategies:

> 'One way or another I've found sufficient funds. Either that or I've just stopped! If the money runs out, then you make a decision either to go and borrow or to just stop.' [R15, Scotland wave 1, AUDIT 20, cheap alcohol]

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> ‘Well, there was tap money, aye. There was always somebody. Don’t get me wrong, there was times I couldn’t get the money and then I just had to rough it out and didn’t go out for a drink.’ [R14, Scotland wave 1, AUDIT 40, cheap alcohol, drug use]

Those who had cut down or stopped drinking previously when alcohol was unaffordable felt they would do the same post-MUP. Others, as they were already in the process of cutting back gradually as part of their treatment, felt that MUP would be an extra incentive during treatment and recovery:

> ‘I think that there will be people like myself who have maybe been going through the process of getting help and support ... probably will stop a lot sooner than they may have done had the price … minimum pricing not come into effect.’ [R16, Scotland wave 1, AUDIT 24, cheap alcohol]

However, the potential negative physical consequences of experiencing sudden withdrawal, if people were unable to purchase their usual volumes of alcohol, was a concern to some pre-MUP, including people with and without personal experience of withdrawal:

> ‘Aye, it’s … well for me personally, like for somebody who drinks heavily, it’s bad to stop suddenly, and so people like me that are trying to slowly come off it, it’s going to affect people like us.’ [R15, Scotland wave 1, AUDIT 20, cheap alcohol]

4.4.2.3 Illicit activity

Few interviewees mentioned illicit activity, such as theft, other crime and consuming either drugs or illicit alcohol, as a response to unaffordable alcohol. Those who had not previously used drugs said they would not consider doing so if alcohol became unaffordable. However, some interviewees who already used drugs said they might increase the amount of drugs they consumed if they had to reduce their alcohol consumption. No one interviewed for this study reported drinking illicit or non-beverage alcohol pre-MUP, but one interviewee felt they might purchase home brew or illicit alcohol post-MUP if they needed to.

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Some individuals who felt they would be impacted by MUP stated they would 'find the money somehow,' but were not sure how they would manage this. Only a small number of interviewees mentioned shoplifting or stealing as potential responses:

> 'Yes, I'd probably cut down, or if I couldn't afford it, I'd probably steal it.' [R4, Scotland wave 1, AUDIT 34, cheap alcohol, economically vulnerable]

Despite rarely seeing illicit activity as a potential response to MUP for themselves, interviewees did often believe, however, that 'others' might resort to illicit activity, including drug use, illicit alcohol consumption and crime.

4.4.2.4 Summary of wave 1 findings

Most interviewees expected to respond to MUP using strategies that were familiar from previous instances when alcohol was unaffordable. As such, they did not expect MUP to have a large impact on themselves or others with alcohol dependence. However, some of these strategies risked harming individuals' health or social wellbeing, for example, by increasing debt levels, reducing spending on food or increasing drug consumption among those already using drugs. Many strategies that interviewees used previously to manage short-term problems with affordability may also be unsustainable in the long-term, given the permanent price rises caused by MUP. This includes increasing debt, borrowing money or relying on savings, redundancy payments or inheritances. In some cases, interviewees also proposed strategies that would not be possible at all post-MUP, such as trading down to cheaper products.

Wave 1 results, therefore, point towards modest effects of MUP on people with alcohol dependence in the short-term, but there is a potential for more pronounced effects in the longer-term as initial strategies become unsustainable or produce beneficial or harmful outcomes.

4.4.3 Wave 2 service user findings (3–9 months post-MUP)

Overall, the key themes at wave 2 reflected those at wave 1. Interviewees said they had responded to the higher alcohol prices using similar strategies to those previously used to manage the affordability of alcohol, while those who had a higher income, or who purchased alcohol above £0.50 per unit, felt the policy had no

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significant effect on them. However, after the introduction of MUP, some interviewees showed increasing concern about their ability to manage the affordability of alcohol and others described significant changes in their purchasing and consumption patterns. These included small reductions in alcohol consumption and switching to different types of alcohol, particularly from cider to spirits. However, there was little clear evidence of illicit activity or other negative outcomes, despite some interviewees raising concerns around this.

4.4.3.1 Managing affordability after the introduction of MUP

Wave 2 interviewees suggested MUP had a greater impact on them than anticipated by interviewees at Wave 1. This was particularly evident for those on low incomes who had previously relied on purchasing alcohol priced below £0.50 per unit. For example, one interviewee who used begging to afford alcohol noted this had become more difficult:

> 'Well basically I was used to getting a bottle at £10, and now I'm having to actually find an extra £5, and that caused massive problems because … if you say you're sitting there from 8.30am and sometimes you're not finishing until 7pm, that's just to get £10 right?' [R25, Scotland wave 2, AUDIT 37, economically vulnerable, drug use]

Other interviewees highlighted a significant financial strain while arguing that any further price rises would be difficult to manage:

> 'The thing about it that worries me is everything is going on alcohol, you know what I mean? Not just my benefits, I was actually borrowing off my benefits before I got my next benefits, you know what I mean?' [R27, Scotland wave 2, AUDIT 37, economically vulnerable]

Interviewees also reported cutting back on food spending, while also mentioning increased used of food banks:

> 'The price is the biggest deal because it's really expensive. If I don't buy everything I need … because I've done it before, if I get drunk before I start buying everything in my house, I can go two weeks, and I'm back and

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forward to the foodbank more than I should. I'm causing that myself with my drinking.' [R35, Scotland wave 2, AUDIT 33, cheap alcohol, drug use]

Our interviewees were all accessing treatment related to their alcohol use and some felt that not being able to afford alcohol was a factor in their decision to seek treatment, although they did not view this in wholly positive terms:

> 'Well, I was needing help anyway, so I think it was just the final straw really.' [R23, Scotland wave 2, AUDIT 36, drug use, dependent child]

> 'It was a factor that helped, yeah … much to my dismay.' [R28, Scotland wave 2, AUDIT 23, cheap alcohol, drug use, dependent child]

In contrast, those on higher incomes or who previously purchased alcohol above the MUP, felt the price differences were relatively small and made little difference:

> 'I didn't really notice a massive difference in the price, because vodka was always … you know, say you could get it for what, £11 or £12, now it's gone up by, to me, £1 really, so it wasn't a big thing.' [R26, Scotland wave 2, AUDIT 33, health problems]

Overall, MUP appeared to reduce the affordability of alcohol for some of our interviewees and this often challenged the sustainability of their alcohol consumption patterns and associated spending.

4.4.3.2 Changing purchasing and consumption after the introduction of MUP

Interviewees could not switch to cheaper products after the introduction of MUP, but some did report switching to either a different type of alcohol (e.g. from cider to spirits) or to a lower-strength brand (e.g. from high-strength to normal-strength beer). Interviewees acknowledged that this meant they were probably consuming fewer units of alcohol overall:

> 'I think it's actually less. Some days I'll drink three bottles [of wine], some days I'll drink one bottle. But if I add up the units, or the percentage and stuff, it would be a lot more horrendous on the vodka [that I drank previously].' [R32, Scotland wave 2, AUDIT 28, health problems]

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One interviewee on a low income with a fixed budget to spend on alcohol, responded to MUP by spending the same amount of money on a smaller bottle of spirits, leading to a reduction in the number of units they consumed:

> 'It only costs me £9.38 to get a 50cl bottle, whereas if I wanted to get a 70cl bottle or a normal full bottle, that would cost me nearly £14.' [R25, Scotland wave 2, AUDIT 37, economically vulnerable, drug use]

Switching from lower strength drinks to spirits was more complex. Some interviewees indicated this may have led to a slight reduction in their overall alcohol consumption, but two interviewees also felt switching had impacted negatively on them. One individual who switched from Frosty Jack's cider, which is 7.5% alcohol-by-volume (ABV), to a combination of drinking vodka and 9% ABV ciders noted:

> 'Oh aye. It's had an impact, but it's changed the way I drink. Before [MUP], my 3-day bender wouldn't have been so severe. I'm buying stuff [now] that's making me black out, I never used to black out as much as that.' [R35, Scotland wave 2, AUDIT 33, cheap alcohol, drug use]

We detected little clear evidence of interviewees starting or increasing purchasing in England (i.e. cross-border shopping) as a response to MUP, but some interviewees were considering this strategy:

> 'So then we both hit on the idea of the Carlisle run, which is horrific for the brain to work in that way, it's such a craving for it, but as long as I can get it cheaper I'll drink it.' [R22, Scotland wave 2, AUDIT 28]

4.4.3.3 Illicit activity and other negative outcomes after the introduction of MUP

At wave 1, many interviewees outlined concerns about how others with alcohol dependence might have negative responses or experiences after the introduction of MUP. These included increased use of illicit drugs, increased involvement in crime or having withdrawal symptoms. A small number of interviewees also suggested this might happen to them. However, there was little evidence of such responses at wave 2.

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Substitution of drugs for alcohol appeared to be very limited. The only evidence of this came from two interviewees who already used drugs. Although they had not increased their drug use after the introduction of MUP, they still suggested it might be an option if their spending on alcohol became unsustainable:

> 'Yeah, I tried heroin for … and I've not even taken that in years and years and years so ... I was in my mate's house but he was injecting it, it's just like "nah, don't lead me down that path!" I don't want to go down that route but … if the price of alcohol keeps going up, the cheaper I can get it [drugs].' [R35, Scotland wave 2, AUDIT 33, cheap alcohol, drug use]

None of our interviewees reported consuming non-beverage alcohol and none expected to in the future as a response to MUP. One interviewee described stealing at times to fund alcohol purchases, but this was not specifically as a result of MUP. Instead, it was a strategy they had used several times in the past when they had run out of money. Similarly, none of those interviewed at wave 2 reported experiencing withdrawal symptoms as a result of being unable to purchase alcohol after the introduction of MUP.

4.4.3.4 Summary of wave 2 findings

The wave 2 findings suggest that a number of interviewees felt MUP had impacted them to some degree, often by creating additional financial pressures to change their purchasing and consumption patterns. Interviewees managed this using similar strategies to those used pre-MUP, such as borrowing or cutting back on other spending, and in some cases, this led to slight reductions in their alcohol consumption. Interviewees who switched to drinking spirits did, however, voice some concerns around potential risks associated with the resulting behavioural patterns, such as increased intoxication.

Overall, although there was evidence of changes in behaviour and some positive and negative impacts for some individuals, there was no widespread sense of transformative change across the population. There was also no evidence of severe negative effects.

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4.4.4 Wave 3 findings (18–22 months post-MUP)

Interviewees at wave 3 described similar responses to MUP as their counterparts at wave 2 and there were few differences in reported behaviours between the two waves.

4.4.4.1 Persistence of themes from wave 2

The strategies interviewees used to manage alcohol costs were similar to those at wave 2. The impacts of MUP were minimal for those who could afford the price rises or who already paid above the MUP for their alcohol:

> 'The brands that I drink, there was literally no change, apart from the offers that you would get from supermarkets, that had all stopped, you know, because it was less than 50p a unit. But other than that, no, not at all.' [R33, Scotland wave 3 AUDIT 38, health problems]

Similar to wave 2, interviewees commonly borrowed money or went into debt to maintain their alcohol consumption. The policy therefore particularly impacted those already experiencing financial strain:

> 'Aye, because I even tapped my big sisters which I'd never done before, and ... I says "aye well I need to get a drink", I've told them the truth.' [R48, Scotland wave 3, AUDIT 40, health, drug use]

> 'I've got myself in debt over gas and electric and everything, and rent. Yeah.' [R44, Scotland wave 3, AUDIT 35, drug use, dependent child]

Similarly, interviewees reported cutting down on food spending and cutting back on essentials at times, including heating and other bills. Some increased their use of foodbanks to enable them to absorb the higher cost of alcohol. One described needing to go to foodbanks so that they and their partner could continue purchasing Frosty Jack's at its higher post-MUP price:

> 'So we went to … quite a few food banks, which I feel bad for, do you know what I mean? But I was always honest with them [food bank staff] that we spent it all on drink.' [R40, Scotland wave 3, AUDIT 40, cheap alcohol, economically vulnerable, drug use]

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As with wave 2, wave 3 interviewees also reported spending the same amount of money on alcohol as they had before the introduction of MUP and acknowledged that this meant they were consuming fewer units overall:

> ‘It makes you buy less and drink less, which is what I started doing.’ [R41, Scotland wave 3, AUDIT 32, economically vulnerable]

The increased price of alcohol post-MUP seems to have acted as a ‘nudge’ for interviewees who were already considering accessing treatment or going back into treatment. As with wave 2, interviewees acknowledged the role of MUP in their decision to enter treatment, but expressed ambivalence about this:

> ‘I’d say it’s … it’s been a good thing … in a way, but not so good in some ways, know what I mean, because in some ways for me, it’s not been good for me financially! But I suppose it’s a good thing to help me try and stop.’ [R43, Scotland wave 3, AUDIT 40, economically vulnerable, health, drugs]

Two interviewees at wave 3 also mentioned shoplifting, buying stolen alcohol or stealing at times, but, as at wave 2, both interviewees used this as a last resort when all other financial options had failed. This behaviour was also not specifically associated with the post-MUP time period or linked by the interviewees to MUP. One interviewee described the things they had done before stealing from relatives’ drinking supplies:

> ‘I’ve sold pretty much everything I had. I’ve no tools left, I’ve no life left, all my clothes are bogging [disgusting]. I’ve lost everything, if you want an honest answer, there you go.’ [R46, Scotland wave 3, cheap alcohol, economically vulnerable]

Finally, cross-border shopping was used by one interviewee to maintain their consumption levels as they already worked in England and commuted there regularly:

> ‘Go down to England; you still get it. So … you just buy all the beer down there! Yeah, I work a lot down in England.’ [R44, Scotland wave 3, drug use, dependent child]

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4.4.4.2 New responses detected at wave 3 for service users

Interviewees at wave 3 described one behaviour not reported at previous waves. This involved pooling money with peers at different times to cover shortfalls in money to buy alcohol. Two interviewees discussed this as a means of maintaining alcohol consumption that they adopted immediately post-MUP, although both interviewees had also used this strategy in the past:

> 'Yeah. Well, financially it practically crippled me. Suddenly, a two-day supply [of alcohol] lasted one. You know what I mean? I'm on benefits. So, this is pretty, pretty hard. It's pretty hard going. That's when ... I suppose, then, we started the bouncy £20 notes [taking it in turns to buy alcohol when they have the money].' [R50, Scotland wave 3, AUDIT 34, cheap alcohol, economically vulnerable]

4.4.4.3 Summary of wave 3 findings

Wave 3 findings largely echo those at wave 2, with interviewees experiencing increased financial strain, responding by adjusting their purchasing and consumption patterns to a degree, but providing little evidence of large-scale shifts in behaviour leading to either positive or negative consequences.

4.4.5 Comparison with England

The primary reason for collecting data in Scotland and England was to identify differences between the two countries that might help us to understand the impact of MUP in Scotland. In particular, we were interested in any changes across the waves that were seen in both England and Scotland, as these would suggest a cause other than MUP. In practice, however, the English data showed few changes across waves and largely aligned with the wave 1 data in Scotland.

4.4.5.1 Comparison with England at wave 1

The strategies described by interviewees in England for managing short-term difficulties with affording alcohol or responding to MUP aligned closely with the Scottish sample. These included trading down to cheaper alcohol, borrowing money, cutting back on essentials and going without alcohol at times. Similar views were also expressed by wave 2 and wave 3 interviewees in England:

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> ‘In the past it’s been whisky and when the money’s been short it’s been your white cider, your Diamond White cider.’ [R8, England wave 1, AUDIT 35, cheap alcohol, economically vulnerable, health problems, drug use]
>
> ‘I would’ve cut back on other things.’ [R4, England wave 1, AUDIT 35, cheap alcohol, health problems]
>
> ‘There was always a way, even if it kind of impacts on going “well I’ve lumped a load on my credit card and I’ve now got to pay it back” kind of thing.’ [R14, England wave 2, AUDIT 23, health problems]
>
> ‘I can afford to do it financially in the short term.’ [R25, England wave 3, AUDIT 25, cheap alcohol]

As in Scotland, there were few reports of illicit activity in response to past or potential changes in the affordability of alcohol, and no-one in the England sample discussed drug substitution as a potential option. Only one interviewee in England considered stealing as a potential response to MUP:

> ‘God, I probably would’ve pinched it.’ [R20, England wave 3, health problems, drug use, dependent child]

This individual already used theft to cope with financial strain. As with the examples above, interviewees in England followed those in Scotland by drawing on their past experiences and strategies when considering how they would respond to MUP, rather than considering adopting wholly new behaviours.

4.4.5.2 Comparison with England at waves 2 and 3

Findings at waves 2 and 3 in England were similar to wave 1. There were no discernible changes in drinking behaviour and consumption or in how people felt they would respond to a hypothetical MUP.

At both waves 2 and 3 in Scotland, there were some references to increased financial problems due to the change-over from the previous benefits system to Universal Credit. This was not discussed by interviewees in England, despite it being a UK-wide policy. This may be because the change-over happened at different times in different areas, but may also suggest the overlapping introduction of MUP and

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Universal Credit exacerbated the financial difficulties for interviewees that arose from each individual policy:

> ‘You can’t just live with … you can’t balance anything whatsoever, and I mean it like … for food-wise, for clothing-wise, and just everyday general living. It’s ridiculous. When I was on ESA [Employment Support Allowance], right, when I was on ESA, I was getting £236 per fortnight, right, do you know I now only get £206 per month, which is … It’s put me in rent arrears, debt. I’ve went days without any electricity.’ [R39, Scotland wave 3, AUDIT 40, economically vulnerable, health problems]

Overall, the lack of distinct findings for England means there was no evidence of alternative explanations, beyond MUP, that might explain the changes seen across the three waves in Scotland.

4.4.6 Wider effects of MUP on people drinking at harmful levels and those with alcohol dependence

After considering the direct effects of MUP on their own lives, we asked interviewees to consider the effects of MUP on people drinking harmfully in general, and particularly those with alcohol dependence. We also asked interviewees about the levels of awareness and preparedness for the policy among people they knew with alcohol dependence. The following sections present our findings on these topics.

4.4.6.1 Overall effectiveness of MUP

The interviewees’ views of MUP and their levels of support for the policy were fairly similar across all three waves of data in Scotland, and also aligned with findings in England. Any potential positive effects of MUP were viewed as highly contingent on a person’s existing level of alcohol dependence. Interviewees who self-described as ‘an alcoholic’ or needing to drink every day pre-treatment felt that price changes would not influence their behaviour. They also thought this would be the case for others, who they considered alcoholics or ‘heavily addicted’:

> ‘If an alcoholic is an alcoholic, they’re going to pay the prices. I would. If that was me two months ago and they said Frosty Jack’s … was going to go up [in price], I would make sure I made that money, because I need that … That’s

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my whole life at this moment in time.' [R13, Scotland wave 1, AUDIT 40, health problems]

Interviewees continued to express similar views in Scotland even after the introduction of MUP and, as described above, some interviewees began to report changes in their behaviour:

> 'But … I just generally think that if you're an alcoholic and you're wanting a drink, you'll get that drink by hook or by crook.' [R24, Scotland wave 2, AUDIT 19]

> 'Once you're an alcoholic you're going to pay whatever it costs. That's what I do anyway. I mean I'll just find something else to cut back on. I mean if I … if it went right up, I'll just whack all my credit cards out.' [R43, Scotland wave 3, AUDIT 40, economically vulnerable, health problems, drug use]

MUP was viewed as particularly problematic for people with both a low income and a high level of dependence. Interviewees believed these individuals managed mainly by purchasing high-strength cider and other low-cost alcohol. They were described as being 'hit hard' and 'punish[ed] unfairly' [R15, Scotland wave 1, AUDIT 20, cheap alcohol].

At the individual-level, for consumption reductions to occur among those with higher levels of dependence, interviewees felt there needed to be a stage of 'readiness to change', described as a 'contemplation phase of wanting to change' [R18, Scotland wave 1]. Achieving this state of readiness, with associated reduced severity of dependence, was viewed as necessary for MUP to have an impact:

> 'See it could be good and it could be bad, it depends on people their-self, if they want to change. If they're like me, I want to change and this is … a big step for people who want to change, and it's a good step.' [R21, Scotland wave 1, AUDIT 24, cheap alcohol, drug use, dependent child]

In line with this, interviewees throughout the study often considered the potential effects of MUP in the context of their views on the complex nature of alcohol dependence. For many, their dependence was a product of using alcohol to cope

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with depression and negative life experiences, such as job losses, illness and relationship breakdowns:

> ‘My brother was murdered in 2016, May 2016 ... I went back on it [alcohol] again. So, I was 2 years’ clean, completely clean with no drink, no mental health tablets or nothing, and then when the wee man passed away, that’s when I hit the drink again.’ [R13, Scotland wave 1, AUDIT 40, health problems]

> ‘Aye, it’s like trying to block things out, but it doesn’t really, because … at the time it does a bit, the minute your head hits the pillow things just start coming flooding back in, and ... then if something comes on your TV and it’s to do with abuse, it sort of, it hits home.’ [R4, Scotland wave 1, AUDIT 40, cheap alcohol. economically vulnerable]

> ‘My relationship broke down and I lost contact with my kids for a wee while, and it’s all my fault, and I couldn’t deal with it. I fell into a heavy depression started to drink more and more and more.’ [R30, Scotland wave 2, AUDIT 34, economically vulnerable, health problems]

These underlying issues were often cited as the reason why it was felt MUP by itself would not be effective, unless placed within a range of economic, financial and social support measures.

Despite their scepticism about whether MUP would reduce alcohol consumption among people with dependence in the short-term, some did believe that MUP would be beneficial in the longer-term, particularly for those who had not yet developed alcohol dependence. Interviewees reflected on the start of their own drinking careers, suggesting that if the price of alcohol, and particularly cider and high-strength lagers, had been higher in the past, it may have changed the pattern of their drinking behaviour:

> ‘For the young generation coming up, I think so. I think it is a good idea. But for the likes of myself and other ones that’s been drinking heavily, it’s a wee bit late. But it’s still good. It’s still a good idea. A younger man, aye, I’d have

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thought twice, aye.' [R10, Scotland wave 1, AUDIT 40, economically vulnerable, dependent child]

'I think that long term, the minimum unit pricing will have a huge impact … beneficial impact in future, you know, in reducing the amount of people who are drawn into alcoholism from sometimes a very young age.' [R16, Scotland wave 1, AUDIT 24, cheap alcohol]

Despite this support for MUP and its potential for future benefits, there remained wider criticisms of the policy. Several interviewees wrongly thought that MUP was a way of raising tax revenue for the government. Others, reflecting on the difficulties of being surrounded by readily available alcohol, argued that the effectiveness of MUP might be limited because of this availability:

'But if somebody is suffering from the alcohol, you go to the supermarket and the drink is all facing you and it's like saying "there you go".' [R10, Scotland wave 1, AUDIT 40, economically vulnerable, dependent child]

Interviewees' views on MUP were therefore equivocal at best and often fatalistic. They expressed a wide range of concerns regarding the effectiveness, fairness and motivations of the policy, and only identified benefits for those yet to develop alcohol dependence. These views persisted in the Scottish interviews after the policy was introduced.

4.4.6.2 Awareness of and preparedness for MUP

We conducted the Scottish eave 1 shortly before the introduction of MUP. However, interviewees all agreed that there had been very little awareness-raising or information-provision by government agencies targeting people with alcohol dependence to explain what the policy would mean for them. Interviewees felt this left little opportunity for people to prepare for and manage the changes:

'So, the word is not on the street. Your guys that are standing up the high street drinking cans of beer, they don't know yet.' [R1, Scotland wave 1, AUDIT 20, health problems, dependent child]

Interviewees mentioned news stories as an information source, but felt these were too brief and general:

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> ‘I’ve just heard about it in the news once or twice but they never went into depth about it?’ [R17, Scotland wave 1, AUDIT 39, cheap alcohol, economically vulnerable, health problems, drug use]

While there was little evidence of public agencies raising awareness of MUP, there was some evidence of informal awareness-raising by retailers. For example, shopkeepers made two interviewees aware that Frosty Jack’s, the low-priced cider they purchased, would soon see a large increase in the price. One shopkeeper was also letting customers know that he planned to stop selling this product:

> ‘He’s [local shopkeeper] not going to stock it anymore. He says, “I don’t expect anybody to pay that for that”, you know?’ [R14, Scotland wave 1, AUDIT 40, cheap alcohol, drug use]

There was also evidence of some awareness-raising and support from treatment services. One interviewee mentioned that a local service provided leaflets detailing the date of implementation of MUP along with a list of anticipated new prices.

Interviewees also discussed their difficulty in understanding the policy once they were aware of it. They expressed confusion regarding how a unit of alcohol related to the volume of liquid, alcoholic strength and price. This meant even those who were aware of MUP had mixed levels of understanding of what it meant for their personal budget:

> ‘And they’ve worked it out, as in per unit. It was a wee bit complicated for me! I don’t bother with units, I’m just bothered about the volume.’ [R14, Scotland wave 1, AUDIT 40, cheap alcohol, drug use]

This confusion was also evident in beliefs mentioned above about the ability to trade-down to cheaper products post-MUP or that MUP was a tax.

4.4.6.3 Impact on treatment services and service provision

Provision of support services was viewed by many interviewees as key to preparing and supporting people in treatment to adapt to the impacts of MUP. Interviewees at all waves expressed concern about levels of service provision, particularly for residential detoxification treatment. They also had reservations about how any

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increased demand on treatment services would be met, given the time delays they had experienced in accessing support:

> ‘It’s sad that it takes weeks, even months, to actually get seen when you’re crying out for help, and then they’re so swamped or understaffed … you get that seven day assessment, and then you wait for two months for anything else to happen.’ [R8, Scotland wave 1, AUDIT 37, economically vulnerable]

> ‘There’s never been the services needed for alcoholics, you know, you’ve got your AA and that, which I do believe they do a lot of good work … But there’s not a lot of help as far as it goes for alcohol and it’s very hard to get into the detoxes.’ [R28, Scotland wave 2, AUDIT 23, drug use, dependent child]

Interviewees also linked concerns around the insufficient provision of treatment services focused on alcohol dependence to the need for additional services that would address the underlying causes of addiction, such as mental illness. Some felt these two types of services would be needed at the same time:

> ‘We would have to get more alcohol support, we’d have to have more CPNs [Community Psychiatric Nurses], because it isn’t just the fact that people are drinking, they drink for a reason.’ [R42, Scotland wave 3, AUDIT 23]

4.4.7 Findings from interviews with service providers

The interviews with service providers largely produced findings that echo those from their clients and we therefore provide only a brief summary of findings from analyses of their data. Interviews with service providers tended to focus on individuals with the most severe alcohol problems and the quotes below reflect this.

Service providers in both Scotland and England at wave 1 emphasised the prominence of high-strength ciders, vodka and other cheap alcohol products in their discussions with clients:

> ‘We hear a lot about cheap cider, 9 litres of white cider, cheap vodka.’ (SP7, hospital and community consultant, Central Belt)

> ‘They’re much more likely to drink the strong ciders and the vodka.’ (SP11, community consultant, North and rural)

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> ‘Yeah, so I think it’s best summed by the word “cheap” … would cover it. So, what we’re talking about is the cheaper end of the spectrum, so we don’t have many patients who are presenting to either the outpatients or the inpatients, and certainly not the inpatients, who are drinking high quality wines etc.’ (SP8, hospital consultant, England)

The introduction of MUP caused large price increases in these products but, despite this, service providers in Scotland observed only small or individualised impacts from the policy. This aligns with the accounts provided above by the service users and includes some reductions in alcohol consumption and changes in products sizes, but little evidence of transformative change involving a large number of clients:

> ‘So, they are still drinking the same they have always drunk, but they are drinking less of it … There was a young guy drinking less because he said he couldn’t afford it.’ (SP23, community consultant, North and rural)

> ‘One patient did say to me, they were drinking half bottles instead of whole bottles as they couldn’t afford whole bottles.’ (SP14, hospital consultant, Central Belt)

> ‘The short answer is no obvious changes, I don’t think you would expect to see big changes in the numbers at the stage.’ (SP14, hospital consultant, Central Belt)

The exception to this was an immediate switch away from high-strength ciders after the introduction of MUP:

> ‘The only real change I’ve seen is the strong cider, the three-litre bottles of cheap cider, has disappeared.’ (SP25, community consultant, North and rural)

> ‘I mean, as I said, you know, the alcohol of choice is seen as sort of vodka and the sort of unbranded sort of stuff, super lagers. The strong cider, I think, has sort of slipped down kind of with … I mean you just don’t hear as much of the white sort of cider being sort of the drink of choice, as it was six months ago.’ (SP12, community consultant, North and rural)

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Consuming large volumes of alcohol requires a significant amount of money. Service providers therefore echoed their clients' accounts of borrowing money, using foodbanks and cutting back on other spending. They also argued that this was likely to continue after the introduction of MUP:

> 'It's very hand-to-mouth. So, they'll come in, they'll get a food parcel, and then they'll go to the shop and buy their cans … They rely heavily on food parcels.' (SP26, associate practitioner, North and rural)

> 'Historically what it was, and what we've always seen is people … they've always had the payday loans, they've always had the money lenders, they've always gone without certain other things, yeah they just cut their cloth accordingly.' (SP18, hospital senior nurse, Central Belt)

Substituting increased drug use for alcohol was also a concern for providers before the introduction of MUP, but they observed few instances of this at waves 2 and 3 in Scotland:

> 'I haven't heard of people drinking more or changing to anything else; I haven't heard of people particularly using more of another substance – maybe I am just not hearing it, but from what I have heard it has little chinks of positive impact.' (SP19, community consultant, Central Belt)

However, two interviewees did mention hearing of more Valium and benzodiazepine use:

> 'I think there is a bit of where you do hear people, more so now, going, "I couldn't get a drink so I got cheap Vallies and" … Everything's interchangeable.' (SP27, hospital senior nurse, Central Belt)

Overall though, there were few reports of illicit activity increasing in response to the introduction of MUP, and this included theft and other forms of criminal activity.

The only other area that some providers pointed to was a possible increase in cross-border purchasing, particularly among those living close to the Scotland-England border. For example, one provider said that, since the introduction of MUP, a relative was driving to Carlisle each fortnight to stock-up on alcohol. Another individual described a conversation they had overhead:

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> ‘This couple making the point that a bottle of wine in the supermarket there was about £1.50 less than here, and the husband was telling his wife, you know, “We’re not going to buy here. This is ridiculous. Over in Carlisle [an English border town] we’ll get the ...’ (SP25, consultant, North and rural)

4.4.7.1 Policy support and considerations

Service providers broadly viewed the Scottish Government’s attempts to tackle alcohol-related harm as a welcome change:

> ‘Well, first of all, I have to say I was so glad when alcohol started to be mentioned politically because having worked in the addictions and particularly … To do something, because it’s about putting it on the agenda after it’s not … you know, been on the agenda for a long time … that I’m so glad that it became part of a political agenda, you know, whereas before, it wasn’t really mentioned and what was it we said … I heard somebody say it’s so big it’s invisible, the alcohol problem, and I think that that was absolutely correct. So, I see this as a very significant part of beginning … of making these changes.’ (SP15, hospital senior nurse, Central Belt)

> ‘I think it’s great that the policy is in place. I think, you know, I don’t see any negative sort of outcomes as a result of the policy in terms of wellbeing, you know? Physical, psychological, societal level. There’s no harms. I think there are some benefits.’ (SP25, consultant, North and rural)

However, when discussing the effectiveness of the policy, providers offered nuanced views. Some questioned the effectiveness of MUP, particularly after it was introduced, but suggested any lack of impact may be due to the minimum price not being high enough:

> ‘I suppose a bit sort of surprised that the signal hasn’t … isn’t sort of more sort of evident or obvious in the drinking population. It has impacted on some people, but it hasn’t seemed to have had a very strong effect, that maybe is just down to the 50p minimum. If it had been … I don’t know what level.’ (SP12, community consultant, North and rural)

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> ‘I mean the thing is, in terms of the price level, I know that that was the price level that was suggested quite some time ago, and I do wonder if it should maybe be higher, yeah, but that’s my own … you know, not hugely higher, but I wondered if it’s maybe something … I didn’t expect with such an intervention.’ (SP15, hospital senior nurse, Central Belt)

Others suggested people should view the policy as a population-level measure, rather than considering its impact on specific individuals, even where those individuals were negatively affected:

> ‘If you were to reduce the price of the bottle of whisky by a couple of pence you will think that is going to make minimal impact you can’t imagine one person drinking one measure less, but if for the whole country the price of alcohol falls by a small amount deaths definitely rise by a small amount so there are some people who don’t die when you make that adjustment.’ (SP14, hospital consultant, Central Belt)

> ‘There are some arguments that … depending on your socio-economic status, that it is punishing people, but I think you’d have to be probably a utilitarian I think.’ (SP17, hospital senior nurse, Central Belt)

A different interviewee suggested the policy had produced a discernible but limited effect among service users:

> ‘I think ultimately it has to be a good thing, because I think it has taken away … But it’s only a small percentage of people that it’s maybe been a good thing for. As I say, when you go back to those white cider drinkers that are notching up 90 units a day or whatever, they can’t do that anymore. I suppose that’s a small section of society I suppose. The rest is relatively unaffected, or the effect has been minimal I think.’ (SP27, hospital senior nurse, Central Belt)

Overall, therefore, providers recognised some positive effects from MUP, but viewed these benefits as having limited impact on their everyday work. In this sense, their perspectives echoed those of service users in seeing MUP as a potentially beneficial policy, but not one that would have a large positive impact on people with alcohol dependence.

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4.5 Discussion

Chapter 8 provides a full discussion of all work packages. The text below provides a brief summary of the results and also the strengths and limitations specific to this component of WP1.

4.5.1 Summary of findings

The qualitative findings from WP1 largely align with those of the quantitative component. There is little evidence that the introduction of MUP had a widespread and largescale positive or negative impact on people with alcohol dependence presenting to treatment services. The qualitative data do, however, provide some additional nuance that suggests that individuals within this population experienced a range of smaller effects.

Both service users and providers described instances where the policy led to small reductions in alcohol consumption, particularly where people switched to products that contained fewer units of alcohol. Others suggested the reduced affordability of alcohol was one among several factors that led to them seeking treatment. Interviewees also described significant financial strain arising from the policy, which led people to borrow money, cut-back spending on food or other essentials, seek help from charities or use up savings and other sources of money. In some cases, this strain was compounded by changes in the wider social context, particularly the introduction of Universal Credit. However, there remained little evidence of increased illicit activity, including drug use, arising from the introduction of MUP.

People with alcohol dependence often face challenging circumstances in their wider lives, including economic vulnerability, comorbid mental health conditions and strained relationships. These circumstances frequently interacted with difficulties in managing the affordability of alcohol and, as such, the price increases caused by MUP were an acute but not necessarily new problem. Few interviewees adopted wholly new behaviours to solve this problem and most drew on familiar strategies that they had used previously. But these strategies were not always sustainable and the wave 3 interviews captured the resulting increase in physical, social and financial strain.

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4.5.2 Strengths and limitations

This is the largest study to date exploring the perspectives of people with alcohol dependence on the impact of alcohol pricing policies. It is also the only study to directly evaluate the impact of MUP on this population using qualitative methods. The multi-country and three-wave design increases the reliability of our findings by allowing comparative analyses of data from interviewees not exposed to the policy and also capturing the Scottish population's emerging responses to the policy at different points in time. We also sought to capture perspectives from a range of subgroups anticipated to experience substantial effects from the policy and of particular interest to stakeholders. These included people using illicit drugs, with economic vulnerabilities or with dependent children.

The key limitations of this component of the wider project are the use of a repeat cross-sectional design rather than a longitudinal panel design, which would have permitted more direct insights into how individuals responded to the policy over time. Recruiting interviewees in treatment settings makes such longitudinal methods challenging as it is difficult to separate the effects of treatment from the effects of MUP. Retaining even a small number of individuals with alcohol dependence in a longitudinal study is also challenging, as described in WP2 of this project (see Chapter 5).

Our aim to compare data over time and across countries was also not fully realised. This was partly because changes were ultimately modest. However, it was also because interviewees' accounts did not consistently focus on the period of interest and those accounts mixed personal experience, second-hand experience and speculation in ways that made it difficult to clearly identify effects of MUP. This is not a criticism of the interviewees but a reflection of the complex nature of both alcohol dependence and the system of interacting factors into which MUP is introduced for this population.

Most surveys underestimate the level of alcohol consumption among respondents for reasons including sampling biases, measurement error and inaccurate reporting by respondents.[64] This may be particularly problematic when studying people who consume large amounts of alcohol due to the volume of information they need to recall, the impact of intoxication on recall and the cognitive difficulties experienced by

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some people with alcohol dependence. We mitigated this problem in WP1 by using the Timeline Follow-Back Method, which is an established and well-evidence data collection technique that is specifically designed for use with people who drink heavily. We also asked respondents to rate their memory of their drinking and most rated this highly, reflecting consumption patterns that were often easy to recall as they varied little from day-to-day.

Finally, the study faced a number of challenges in recruiting the intended sample (see our interim report for details[50]). Although we still generated a rich dataset that addressed the topics and population of interest, the challenges did constrain our ability to fully target recruitment on key populations and individuals of interest.

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5 WP2: The impact of MUP on people with and without alcohol dependence drinking at harmful levels in the community

5.1 Introduction

As discussed in Chapters 3 and 4, there is little evidence available describing how people with alcohol dependence respond to alcohol price increases in general or to MUP in particular. WP1 addressed this topic by focusing on people presenting to treatment services with alcohol dependence. However, only a small minority of people with alcohol dependence receive treatment.[65] WP2 therefore focused on the larger group of people who drink at harmful levels, who may or may not be dependent on alcohol, and recruited interviewees in settings including the community and recovery groups for people with alcohol dependence.

WP2 also sought to address concerns about the impact of MUP in three other areas.

First, it addressed people living in different areas of Scotland, particularly those living in remote or rural areas. The Scottish population is concentrated in a small number of large urban centres. This means estimates of the overall effect of the policy, such as those from aggregate sales data or general population samples,[1,66] will largely reflect effects seen in urban areas. It is therefore important that the MUP evaluation programme assesses whether different effects occur in other parts of Scotland. This ensures an equitable approach to understanding the impact of public policy and recognises that small communities are sometimes more vulnerable to any adverse consequences of policies that affect only a small number of people. Rural and remote areas of Scotland also face economic, social and health problems that are connected to their geographic isolation.[67] Monitoring the effects of MUP in these areas is important to ensure such problems are not exacerbated by the policy or, conversely, to detect any wider benefits in areas beyond alcohol that may arise from positive outcomes of MUP.

Second, it addressed the potential for cross-border purchasing by those living close to the Scotland-England border. There is previous evidence from Northern European countries showing that people living close to national borders may travel to

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neighbouring countries to purchase alcohol at lower prices and that this behaviour increases when the price difference increases.[68–70] This includes purchasing small amounts of alcohol on a regular basis, large amounts on irregular trips and also second-hand purchases from others who have brought alcohol across the border. WP2 therefore sought to collect data from people in the rural areas of Scotland close to the English border to understand whether and under what circumstances any increase in cross-border purchasing took place.

Third, it addressed the experiences of families or carers of people with alcohol dependence. Alcohol consumption risks harm not only to the drinker but also to those around them.[71,72] The potential for such harms is particularly acute for those living with people who drink at harmful levels and includes risks to mental, physical and social well-being.[73–75] WP2 therefore also sought to examine the experiences of families and carers of people with alcohol dependence around the introduction of MUP, both to understand the impact on themselves and to provide an additional perspective on the impact on the drinker.

5.2 Aims and research questions

WP2 aimed to investigate the impact of implementing MUP on people who drink at harmful levels, with or without alcohol dependence, and their families or carers, in remote and rural areas of Scotland. The scope expanded to include urban areas during early discussions with the project's advisory group. This ensured that the wider MUP evaluation programme included people with alcohol dependence in the community who lived in urban areas.

The research questions for WP2 were:

1. How did self-reported alcohol consumption by those who drink at harmful levels change after the introduction of MUP, including consumption level, products drunk and prices paid?
2. Do those who drink at harmful levels in remote and rural areas face additional challenges after the introduction of MUP and do they employ different strategies to those used in other areas to respond to the reduced availability of cheap alcohol?

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3. Do those living in the Scottish Borders who drink at harmful levels engage in cross-border purchasing after the introduction of MUP?
4. How are the lives of family members or carers of those who drink at harmful levels affected by this drinking; how does this change after the introduction of MUP; and what impact do any observed changes in behaviour have on the lives of family members or carers?
5. What strategies have policy-makers used, or could they use, to minimise any negative effects arising from MUP for drinkers, their families or their carers, in both remote and rural populations and the general population?

5.3. Methods

5.2.1 Research design

WP2 adopted an approach consistent with Participant Action Research methodology. This included using researchers recruited from within the population of interest, referred to here as Privileged Access Interviewers (PAIs).[76–78] Like other participatory approaches, peer research using PAIs recognises that individuals within a community are capable of participating in research in a variety of ways, including as researchers. It aims to empower people to effect positive change by leading research in their own communities. The approach involves establishing a group of peers who actively contribute on research design, developing research tools, collecting and analysing data, and/or writing up and disseminating findings, for specific studies. The research team leading WP2 therefore included one researcher with lived experience, alongside two experienced qualitative researchers. The research team supported PAIs throughout the project with ongoing training and supervision. To ensure PAI wellbeing, researchers also made themselves available during and after data collection periods to discuss experiences, review any problems encountered and offer additional support as required.

The research design for WP2 was longitudinal, with several qualitative data collection points. Initially, this design replicated the three waves of data collection used in WP1 and planned to use a panel design, with the same participants

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followed-up at each wave. However, this evolved across the course of the research and the following section describes the changes and the reasons behind them.

5.2.1.1 Changes to the WP2 research design

The original longitudinal panel design for WP2 involved recruiting potential PAIs at wave 1 using convenience sampling via purposeful targeted appeals and adverts (e.g. via local Alcohol and Drug Partnerships, other local services and addiction recovery or support groups). We also planned to use snowballing techniques to recruit additional PAIs from any positive contacts. In each of three recruitment areas (see **section 5.2.2**), we aimed to recruit up to six PAIs, comprising four drinkers and two family members or carers (hereafter family members for brevity). Once recruited, PAIs would receive skills-based training in research methods. PAIs would then conduct pilot interviews at waves 1 and 2 with each other to practice and refresh these skills. Finally, PAIs would aim to conduct up to three semi-structured interviews with members of their communities at waves 1, 2 and 3. This would deliver 18 interviews between PAIs and up to 54 interviews with non-PAIs at each wave.

This early stage of the design proved difficult to realise due to a high rate of PAI drop-out and a lack of supportive community activity in recruitment areas. As a result, there were a smaller number of PAIs engaged with the research at the end of wave 1 than envisaged and, consequently, a smaller number of completed interviews than planned. The research team discussed this in detail with PHS and the project's advisory group during 2018 and 2019. This led to three sets of pragmatic changes that reflected reasonable adaptations to the challenges of conducting participatory research of this nature.

First, we moved from three separate waves of data collection to a two-wave design with one pre-MUP wave and then a single continuous post-MUP wave spanning a longer time period than WP1.[*] The revised post-MUP design allowed the research team to engage with the PAIs and other key stakeholders in a more flexible way that better reflected their capabilities and resources. Second, we closed active recruitment of PAIs in one recruitment area (Argyll and Bute) as all of the previously

[*] Agreed by advisory group in January 2018.

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recruited PAIs had disengaged with the study. We then added new recruitment areas covering Dundee, the Forth Valley, Glasgow and Inverness.* Third, we involved professional researchers in the interview processes to complement the PAI interviews and added small group discussions co-facilitated by PAIs as a data collection method.

These changes affected some aspects of data collection and effectively scaled back the volume of data we anticipated collecting, but they did not change the fundamental principles of the research design. The study remained a qualitative, peer-involved, co-produced exploration of experiences and changes in behaviours following the introduction of MUP among non-treatment-seeking harmful drinkers, people in recovery from alcohol dependence and family members of both these groups.

5.2.2 Sampling and recruitment

Initial recruitment for the study took place via PAIs and recovery groups in three diverse areas. Two of these were rural and/or geographically remote areas (Argyll and Bute and Scottish Borders) and the other was urban (Edinburgh). Following the changes to the research described in **section 5.2.1.1**, we added four further recruitment areas: Dundee, Forth Valley, Glasgow and Inverness (as an additional rural area covering the surrounding Highlands).

Initial recruitment focused on people drinking harmfully with and without alcohol dependence and targeted those who were not currently in treatment or had never sought it. PAIs took the lead in identifying potential participants, given their knowledge of local sub-cultures and target populations. Snowballing out from a PAI's close contacts was a common strategy. We additionally recruited family members of those drinking harmfully via the same PAIs and also via recovery groups.

The PAIs or research team sought written informed consent from participants prior to each individual or group interview, and then reiterated key information verbally at the start of the interview.

* Agreed by advisory group in March 2019.

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5.2.2.1 Summary of recruitment activity

A total of 75 individuals expressed interest in the research project and in becoming a PAI, with 69 attending a research awareness session and 22 completing the PAI training and being supported to the point of being ready to conduct research.

In total, PAIs completed 12 interviews. Members of the research team interviewed a further 15 people who drank at harmful levels, 15 family members and three further family members who identified themselves as previously drinking at harmful levels across two individual and seven group interview sessions after the introduction of MUP. A PAI facilitated two of the group interview sessions.

The final dataset therefore comprised 14 individual and seven group interviews with 45 people, 18 of whom were family members of someone drinking at harmful levels (see Table 5.1). Appendix section 3.1 provides a full breakdown of recruitment activity.

Table 5.1: Number of interviews in WP2 by interview and interviewee type

Interviewee type	Individual interview with PAI[a]	Individual interview with professional researcher	Group interview with professional researcher	Total
Drinking at harmful levels	10	2	13	**25**
Family member	0	0	15	**15**
Both[b]	2	0	3	**5**
Total	**12**	**2**	**31**	**45**

[a]PAI: Privileged access interviewer; [b]family members who also drank at harmful levels themselves.

5.2.3 Data collection

The project used separate topic guides for drinkers and family members. These were initially developed by the research team and then adapted by PAIs following training sessions and pilot interviews (see Appendix sections 3.2 and 3.3 for final versions).

In keeping with PAI methods, we organised the semi-structured interview schedules around key areas of interest. PAIs were trained to use the schedules and then only prompt participants further when appropriate and necessary. Key issues explored

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with both people drinking at harmful levels and family members included: history of drink and drug use; recent alcohol use; changes (if any) in the price, type and location of alcohol purchases; availability of alcohol products; changes to drinking patterns; wider impacts of MUP; minimising harm from MUP; and any related topics the interviewee wished to explore. Unlike WP1, we did not collect data on participants' level of dependence, partly because many were in recovery.

Extensive time was allocated to each interview (i.e. up to 90 minutes) to allow the participant to disclose relevant information at their own pace. All interviews were digitally recorded.

In addition to the interviews, the research team also recorded three meetings at different stages of the data collection process where they discussed the data and emerging findings. Team members also wrote reflective notes at intervals throughout the project to update key stakeholders (i.e. PHS, the project's advisory group and the project's lead investigator).

5.2.4 Data analysis

All individual and group interviews were transcribed verbatim and anonymised for analysis, with any identifying information removed (e.g. names, locations).

We used thematic network analysis as the primary framework of data analysis.[79] Thematic analyses seek to unearth the most notable themes in a text at different levels, and thematic networks aim to facilitate the structuring and depiction of these themes. Thematic networks therefore offer a web-like hierarchical network as a structure for organising and representing findings. They also make explicit the procedures that may be employed in going from text to interpretation. In doing so, thematic networks systematise the extraction of:

- Basic themes: the lowest-order premises evident in the text.
- Organising themes: categories of basic themes grouped together to summarise more abstract principles.
- Global themes: superior categories that encapsulate the principal messages in the text as a whole.

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These three levels of theme are then represented as web-like maps depicting the most important themes at each of the three levels and illustrating the relationships between them.

The research team agreed from the outset that the project would adopt manual rather than computer-assisted coding of data, as this supported our efforts to involve PAIs in the research process. Coding initially involved aural analysis of all recordings and subsequently involved analysing the transcripts of each group interview to enable separation of individual contributions to group discussions. The researcher with lived experience and one of the experienced researchers undertook initial coding of interview and focus group data respectively into Word document frameworks, and swapped data sets for double coding to check for consistency. The experienced researcher then established an initial thematic analysis. This was developed further in discussion with the other experienced researcher before a fuller testing in a session with two of the PAIs. The two experienced researchers then produced the write-up of the agreed thematic framework and the supporting data examples.

The research team also drew on the recorded meetings and reflective notes to inform interpretation of the data, assess its contribution to answering the research questions and draw comparisons with the findings from WP1.

5.2.5 Ethics

The research ethics committee at Glyndŵr University provided ethical approval for WP2 (dated 8 August 2017).

5.3 Results

Figure 5.1 shows the thematic network developed from the WP2 data. After two brief explanatory notes, the text below discusses each of the six organising themes (A–F) in turn.

5.3.1 Explanatory notes

As with the WP1 qualitative interviews, the ways participants discussed MUP and its effects did not align well with our research design, which assumed an emphasis on personal experience and a clear separation of the pre- and post-MUP periods.

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Instead, participants often combined personal experience with second-hand or speculative accounts regarding the impact of MUP, drew on both their recent and more distant behaviour and were not always fully aware of the introduction of MUP in post-implementation interviews. We therefore do not separate analysis of pre- and post-MUP data in the results below and encourage readers to pay close attention to the wording of quotes and surrounding text in light of these considerations.

We have assigned a unique number to all participants quoted within the report.[*] To aid readers' understanding of the participants' context, we also include a set of descriptors indicating their gender, urban/rural setting, whether they are a current or former drinker, a drug user and/or a family member, whether we interviewed them pre- or post-MUP, and the month and year of the interview.

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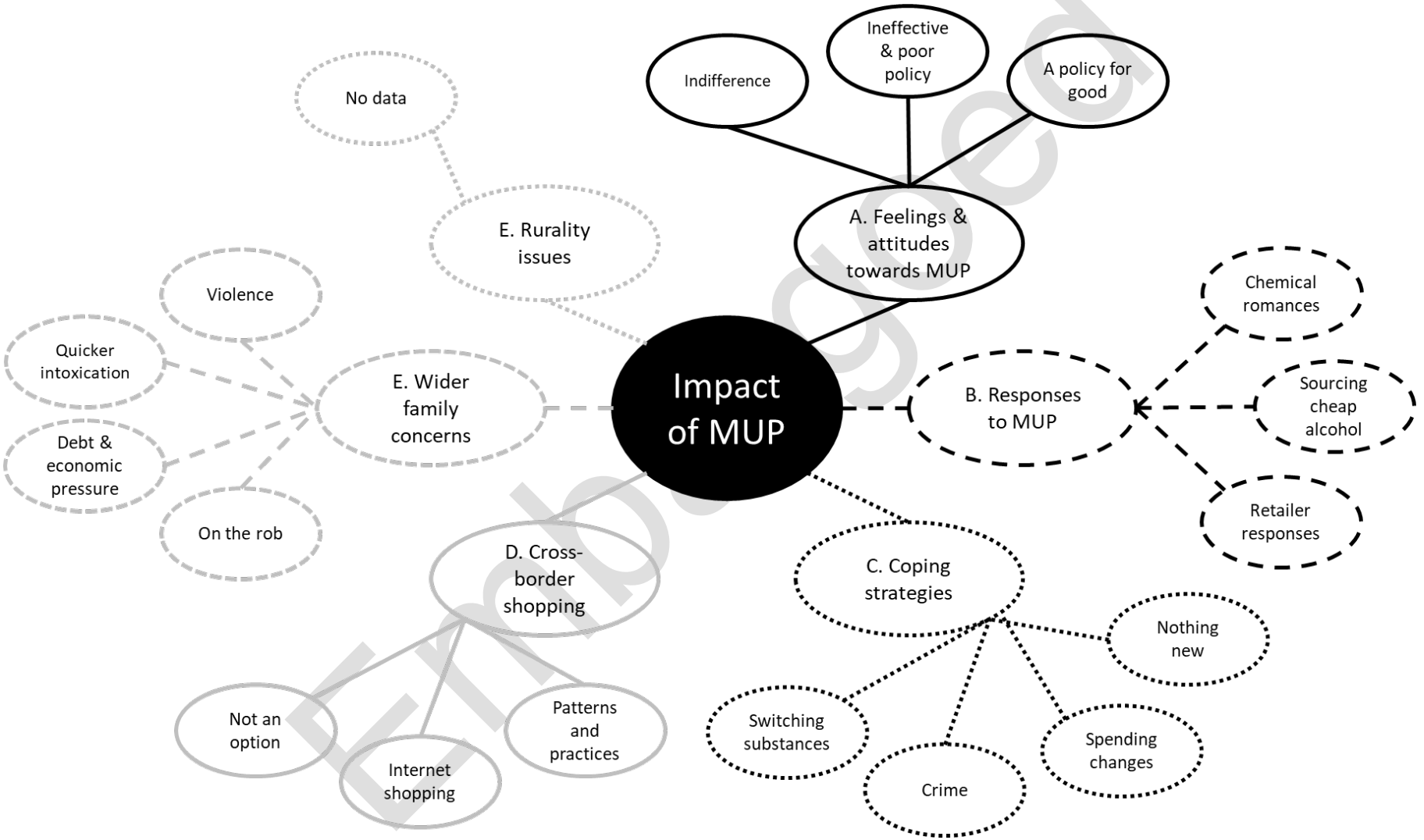
[*] Individual interviews are simply two digits (i.e. 01, 02, 03, etc.) whereas a group interview is denoted with the letter G before the two digits (i.e. G01, G02, G03, etc.) followed, after a colon, by the group respondent number (i.e. R1, R2, R3 etc.). Therefore, GO1:R1 is the label for the first respondent in the first group.

Figure 5.1: Summary of findings from thematic network analysis of WP2 data on the impact of MUP on people drinking at harmful levels in the community



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5.3.2 Organising theme A: Feelings and attitudes towards the policy

Direct discussion of MUP included three basic themes (or subthemes). First, the **indifference** arising from an overall lack of awareness of MUP and the policy simply not being a priority concern for many participants. Second, and the dominant narrative, participants believed that **MUP would not, and was not, working** with respect to people drinking harmfully or dependent on alcohol. Third, despite this, participants expressed **good will towards, and hope for, MUP**. Participants in urban and rural settings and both drinkers and family members shared these sentiments.

5.3.2.1 Policy indifference

The pre-MUP interviews highlighted that many participants had only a limited awareness of the forthcoming policy. Awareness of MUP came predominantly from news reports or discussions between themselves, but detailed understanding was scarce:

> 'To be fair, I have not heard much on the news or social media. To be fair, I am not sure it has been advertised for the layman.' [07, male, urban, former drinker, pre-MUP interview, November 2017]

Even in post-MUP interviews, many participants had not yet fully absorbed the detail of the policy. Indeed, some families talked about the policy as something in the future rather than the present. Some cynicism, misunderstanding and myths also prevailed, including viewing MUP as a vote-catching exercise or a tax-raising policy. The research interviews, particularly those involving peer-to-peer communication, therefore became a way by which some participants worked through and developed their understanding of the policy and how they would respond. In this sense, there was no strong, single or coherent message about MUP absorbed from the Government or news media. Participants sometimes compared this to other policies they considered better publicised, such as the mandatory charge for plastic carrier bags:

> 'There's never really a mention of unit pricing. If anything, I have heard more people whining about 5p on a carrier bag rather than unit pricing.' [04, male, urban, former drinker, post-MUP interview, February 2019]

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Connected to this was a sense that, whilst MUP might feel important to politicians, workers or researchers, it was not a key priority for drinkers or the drinking community.

> ‘The MUP is just vote-catching, it’s making some people think that it will take the drunks off the street but no way. It may have a big impact on the retailers and the alcohol industry, more so than it’s having on society. I stand to be convinced that it will make a difference.’ [G04:R1, female, urban, family member of current drinker, post-MUP interview, May 2019]

5.3.2.2 An ineffective and poor policy

The vast majority of participants, both pre- and post-MUP, had a clear view that MUP would not result in those drinking harmfully reducing their alcohol intake:

> ‘As I said before, I don’t think price makes any difference … an addiction they’ll find any way to get it … I don’t think it will affect anyone’s drinking, I think they’ll just switch alcohol.’ [11, male, urban, family member of current drinker and former drinker, pre-MUP interview, March 2018]

Participants articulated this through several key considerations. First, they highlighted the compulsion or power of alcohol dependence and the associated drinking:

> ‘It’s in the nature of addiction that you will get it one way or another, or if you can’t get your chosen tipple or hit, or whatever you want to call it, you get the nearest equivalent. And certainly judging by the bottles and cans that I pick up on a daily basis, it’s not made any difference.’ [G02:R2, female, urban, family member of current drinker, post-MUP interview, May 2019]

There was also a sense that drinkers were drinkers. They needed alcohol to get drunk and were unable to go without or unlikely to substitute with other substances:

> ‘That was the main attraction [of choosing cheap cider], definitely. The first initial kick you got off it as well, because it’s quite strong. Very deceiving I felt considering it was only supposed to be 7.5% volume. It used to blow your rockets … your head off. Of course, when I was still drinking, I would mix it with my prescription medication and everything as well … But aye, I wouldn’t say that anybody particularly enjoyed the taste of it.’ [G01:R1, male, rural,

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former drug user/drinker and family member, post-MUP interview, March 2019]

Consistent with these views were arguments that increased pricing will not get to the root cause of problematic alcohol use or solve the underlying inequalities, such as poverty and mental health issues, which contribute to many people's difficulties with alcohol. In some instances, this indifference to MUP extended to dismay or annoyance with the policy, while others saw it as unjust and directed at already marginalised groups:

> 'I'm frustrated with the government's inability to address the roots of the problem … it's nearly a thousand people dying every year, and by the time you add it up year on year on year – and my son is one of them, and so, I'm looking for more from the Scottish Government, rather than 50p on alcohol and it's … they're just not addressing the problem.' [G02:R2, female, urban, family member of current drinker, post-MUP interview, May 2019]

> 'The first thing I ever saw when the price changed was there was an alcoholic that went into Tesco and he was literally … He couldn't find anything that he could afford, and I know he's an alcoholic, but I felt sorry for him, because how is he going to get through that day? I felt really bad because there's mental health to do with that and all the rest that comes with it. I just felt really bad for him. I wanted to buy some for him, but I thought, "No. I can't do that."' [G05:R2, male, rural, current drinker, post-MUP group interview, March 2019]

In one group discussion, this was even expressed as anger, which was being heard in some shops and support groups.

> 'It was very important and people [in a service user support group] were really, really angry about it … They were all mad that they couldn't get their alcohol for the price that they wanted it to be before, especially the cider drinkers. [Interviewer: Where was the anger placed?] The Scottish Government. They're basically pointing the finger at the drinkers and it's not fair.' [G05:R2, male, rural, current drinker, post-MUP group interview, March 2019]

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> ‘I’ve heard the shopkeepers saying that they’ve had anger targeted at them because people have went in and said, “Why have you put our drink up to this price?” They’ve needed somebody to vent their anger at, and it’s the shopkeeper that’s got it.’ [G05:R3, female, rural, current drug user/drinker, post-MUP group interview, March 2019]

The overall impression therefore was that participants thought alcohol consumption among most people drinking harmfully, and particularly among those with alcohol dependence, would not respond to price changes:

> ‘Aye, you’re feart [afraid] to die, but you’re feart to live. It’s a very, very frightening experience to live through. [Price makes] no difference at all.’ [G01:R1, male, rural, former drug user/drinker and family member of current drinker, post-MUP interview, Mar 2019]

5.3.2.3 A policy for good – changing the Scottish psyche

The third overall attitude expressed towards the policy included elements of support for MUP, despite the reservations above. Supportive views were often framed by the notion of a nation with a drink problem that needed reducing, the need to protect future generations and general support for a government addressing the problems caused by cheap cider:

> ‘The other thing I like about it is that our children and young people won’t have access to cheap nasty cider, like other generations have.’ [G07:R5, female, rural, former drug user/drinker and family member of current drinker, post-MUP group interview, September 2019]

> ‘There must be a connection in our Scottish psyche that you work hard you play hard, and by “play hard” [I mean] you get tanked up on alcohol. I don’t think that has disappeared. It’s just taken a different form.’ [G04:R3, female, urban, family member of current drinker, post-MUP interview, May 2019]

> ‘I think the politicians have got it right. It’s practical and reasonable. I think it’s good and it is reeling out [removing] the unhealthiest alcoholic drinks.’ [04, male, urban, former drinker, post-MUP interview, February 2019]

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These more positive perspectives were not an immediate reaction but emerged gradually across the course of interviews as participants uncovered and explored the impact of the policy on them personally, before reflecting on the role price had played in their individual journey with alcohol.

Some participants also drew comparisons with other policy changes, most notably around smoking:

> 'Parallel with tobacco – it's less socially acceptable. That was gradual. It was a positive, because it was a societal change, the prices have went up. There are many measures supporting people to stop smoking, but there isn't that with alcohol.' [G04:R1, female, urban, family member of current drinker, post-MUP interview, May 2019]

Others argued that MUP could potentially make, alongside other measures, a positive impact on reducing harmful drinking, as an extra nudge towards change.

> 'It's not going to stop someone dead, "oh I'm going to stop", but it might slow people down … I see it as one prong and I think that education … a wee bit of effort put into addiction services, have a multipronged approach in Scotland.' [04, male, urban, former drinker, post-MUP interview, February 2019]

> 'We've seen it [MUP] change people's patterns of drinking and coming and getting support. So, somebody that had been drinking dependently can't afford to anymore, and drinking three or four days, and then phoning or accessing for support because they're feeling unwell. We've seen that a few times, and it's changed their pattern of drinking and actually reduced their drinking.' [G07:R5, female, rural, former drug user/drinker and family member of current drinker, post-MUP group interview, September 2019]

5.3.3 Organising theme B: Potential and actual responses to MUP

The potential and actual responses to MUP discussed by participants centred around three key themes. The first was about **adaptation or changes in drink-related behaviour and possible use of other drugs**. The second addressed considerations for sourcing alcohol and other drugs, particularly **changes in**

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shopping behaviour. The third related to the second and focused on observed **changes in retailing** post-MUP.

5.3.3.1 Maintaining chemical romances

As discussed above, participants generally viewed MUP as unlikely to prompt the majority of those drinking harmfully to reduce their intake. We heard various accounts suggesting participants did not notice or pay much attention to alcohol prices and, by consequence, the introduction of MUP. Instead, people said they went directly to a specific product or part of the shelf or store:

> 'I havnae really noticed to be honest … I just go out, going in to get what I am going to get.' [08, female, urban, current drinker, pre-MUP interview, March 2018]

> 'I never really noticed at all … not particularly. As long as my half bottle was on the shelf I wouldnae take notice.' [16, male, rural, current drinker, post-MUP interview]

Others realised in pre-MUP interviews or commented post-MUP that the policy did not affect price of their preferred products. This was the case for those buying smaller bottles of spirits, Buckfast or more expensive brands. However, within this, those who were dependent upon cheap cider were seen as most likely to feel the impact of the policy:

> 'I used to call cider my chemical romance, it's funny, but it's not funny.' [G01:R1, male, rural, former drug user/drinker and family member, post-MUP interview, March 2019]

> [No impact on self, then discussion of friend who regularly buys a multi-pack of cider] '… he might have to think about it yer ... I'd be changing mae drink if that's the case ... I think it will change people's habits, yer.' [07, male, urban, former drinker, pre-MUP interview, November 2017]

Cheap cider facilitated the maintenance of drinking habits and the steep increase in price prompted reflection among participants. There was explicit reference in our pre-MUP interviews to cheap cider brands (e.g. Barnstormer and Frosty Jack's). After the introduction of MUP, cheap cider drinkers appeared to have changed to

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other alcohol types and brands, notably vodka. However, while this switch may mean participants consumed fewer units, they described it as causing greater drunkenness and producing more of a 'hit':

> 'Basically, they are going on to vodka and whisky, stuff like that. They're going onto spirits, because obviously you're getting more out of your head for the same kind of price as you were with that three-litre bottle of cider.' [G01:R1, male, rural, former drug user/drinker and family member, post-MUP interview, March 2019]

In addition to vodka, participants reported switching to whisky, wine and other drinks or brands:

> 'Eldorado* is another one that I wouldn't want to switch to. Eldorado is … the Scottish version of Buckfast [tonic wine]. A lot of them have been drinking that, Eldorado because it's a wee bit cheaper.' [G01:R1, male, rural, former drug user/drinker and family member of drinker, post-MUP interview, March 2019]

> 'That's what it's like in the small shops as well [white ciders no longer available], in the village and that. It's not there, but what you see is young ones coming out with bottles of wine. [G02:R1, female, urban, family member of drinker, post-MUP interview, May 2019]

> '[My friends] they drink all the time – they're always steaming, on the cheapest booze … Obviously the ones that drank cider and that, it's quite poor cider, it's never seen an apple in its life – they now buy Strongbow [a cheaper but standard-strength cider] and all sorts because it's only £5.50 a bottle [2 litres].' [G07:R2, female, rural, former drinker, post-MUP group interview, September 2019]

Those participants who bought alcohol based on strength and not on price discussed how the rise in cheap cider prices led to them focusing instead on how to get the most bang for their buck. We heard repeated references to cheap vodkas (particularly Glen's) as the preferred solution:

* Eldorado is a fortified (tonic) wine.

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> ‘I normally drink a small Glen’s and the price is not changing … that much … I don’t think it is really going to affect me, I don’t drink cider, mostly beers and [good] whiskey [Bourbon].’ [12, male, urban, former drug user/drinker, pre-MUP interview, November 2017]

> ‘As I have noticed there is nae been much difference on the spirits … there has been no change on the half bottles whatsoever.’ [16, male, rural, current drinker, post-MUP interview]

A small proportion of those drinking harmfully in the communities studied had histories of illicit drug use, or readily swapped between drugs and alcohol. While changing between alcoholic drinks was the predominant adaptation arising from MUP, there were also some accounts of switching from alcohol to other substances, particularly illicit use of benzodiazepines.

> ‘The drugs on the streets are even more rife now, and it’s the cheaper street Valiums and stuff that everybody’s buying and people that were heavy drinkers are actually going on to buy a cheaper fix … I’ve seen a lot of friends … actually, sadly they’re not here now … mixing and taking drugs. So, their drinking has went from drinking, to heavier drug use, or just from drinking to drug use … because it’s cheaper.’ [G01:R1, male, rural, former drug user/drinker and family member of drinker, post-MUP interview, March 2019]

In most cases, those switching from alcohol to other substances had previous experience of other substances. This was, however, unclear in a minority of cases.

5.3.3.2 Sourcing the cheapest alcohol

MUP prompted participants to consider, and in some cases enact, a range of behavioural changes to continue obtaining alcohol at the cheapest possible price. For some, a mixture of incomplete understanding of MUP and low confidence in retailer compliance meant that participants often believed cheap alcohol would still be available post-MUP. Indeed, some participants noted that they could still source bargains, while others mentioned under-the-counter or black-market sales:

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> ‘Price doesnae make a difference. There’s always offers on in the [name of shop]. I paid £16 a bottle [of whisky] at the [name of shop].’ [G07:R4, male, rural, former drinker, post-MUP group interview, September 2019]

> ‘You can go really early [to the local shop], before 10:00 … you can get cheap tobacco and things, and you can also get cheap alcohol.’ [G07:R2, female, rural, former drinker, post-MUP group interview, September 2019]

The notion of clubbing together or pooling purchasing was also discussed on a number of occasions.

> ‘They always seem to borrow money from somebody, not necessarily a friend who’s got money, but somewhere … their own kind. He’s got his benefits two days before him, and he’ll fork out £20 for him to get his drink, and that gets paid back and it’s the other way round the next week. They’ve got a system that they’re supporting each other. Again, food’s the last thing they think off. It’s just keeping the drink going, or the drugs, or whatever they’re on.’ [G05:R1, male, rural, current drug user/drinker, post-MUP group interview, March 2019]

Other potential responses arose more sporadically. For example, we heard occasional references, both pre- and post-MUP, to the possibility of increased take-up of home brewing. One participant discussed this after seeing equipment and hearing friends discuss it:

> ‘I’d just have to make my own … maybe it’s the way forward … Probably make my own, I do not really want to drink less.’ [06, male, urban, former drinker, pre-MUP interview, November 2017]

Another participant believed home-brewing was becoming more common:

> ‘I know two or three [name of profession] who have made their own brew. That’s something that we didnae hear often, but we hear it more now, and a couple of the young yins are into it. One of the shops has got an actual home brew kit for sale … It’s interesting as they didn’t have them before.’ [G06:R4, female, rural, former drug user/drinker and family member of current drinker, post-MUP group interview, August 2019]

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In contrast, there was only one suggestion of people consuming non-beverage alcohol, and most participants believed this would not happen.

> ‘Your hardened drinker will find something. Sadly, I was talking to someone recently and they were in hospital for alcohol issues and the nurses were not happy because they were drinking hand cleaner, so you’re always going to find something.’ [04, male, urban, former drinker, post-MUP interview, February 2019]

> ‘Honestly, I could not imagine anyone drinking mouthwash.’ [06, male, urban, former drinker, pre-MUP interview, November 2017]

In the Scottish Borders, we also heard consistent reports of people starting to buy alcohol in England and discuss this further in **section 5.3.5**.

5.3.3.3 Observed retailer responses

Despite most participants saying they did not notice price changes, they nonetheless provided some evidence on the extent to which retailers were complying with MUP and broader alcohol legislation, as well as on changes in the price and availability of certain products. One participant provided a first-hand account of non-compliance by a retailer:

> ‘Half six in the morning, you can get … If you’re an alchy [alcoholic], he’ll give you booze … That guy that owns the shop, he’s bad for it like.’ [G07:R2, female, rural, former drinker, post-MUP group interview, September 2019]

Several participants noted that Frosty Jack’s cider and other strong white ciders had disappeared from shops, especially small shops:

> ‘What I’ve noticed is the smaller shops don’t stock these [cheap] ciders and all this. Yeah, they don’t stock that anymore because people are not going to buy that because they’re actually just going to buy a bottle of red wine at 13.5% or whatever, the strongest they can get for the least price.’ [G02:R1, female, urban, family member of current drinker, post-MUP interview, May 2019]

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> ‘Cheap ciders have went off the shelves now.’ [G04:R3, female, urban, family member of current drinker, post-MUP interview, May 2019]

> ‘You don’t see a lot of Frosty’s [Frosty Jack cider] hardly any more.’ [G07:R2, female, rural, former drinker, post-MUP group interview, September 2019]

Participants also reported changes to the manner in which shops displayed alcohol post-MUP:

> ‘The small shops are putting [out] free coke now to entice you to buy [name of whisky] because they are losing out.’ [G05:R2, male, rural, current drinker, post-MUP group interview, March 2019]

> ‘Labels have got larger.’ [G05:R1, male, rural, current drug user/drinker, post-MUP group interview, March 2019]

> ‘I’ve noticed more things of higher value, like bottled or whatever … are security tagged. There’s more security tags … but the posher stuff … it’s the anything over £9.’ [G07:R6, female, rural, recent drinker, post-MUP group interview, September 2019]

Others noted changes to the alcoholic content of certain products, such as a drop in the alcohol-by-volume (ABV) of K cider, from 8.4% to 8.0%.

5.3.4 Organising theme C: Drinkers’ coping strategies

Many of the coping strategies that drinkers anticipated using or enacted in response to MUP were similar to those discussed in the qualitative component of WP1 (see **section 4.4**).

5.3.4.1 MUP is nothing new

Participants regularly noted that having to find additional money to purchase alcohol post-MUP was no different to the challenges they faced pre-MUP. They considered MUP to be an intensifying of financial pressures, which they would, or did, respond to using their existing coping strategies, such as borrowing money or spending less on food or clothing.

> ‘When I was in this deep hole, you don’t care. You don’t care. You just pick it off the shelf. You just see the size of the bottle, and you just take it home …

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> I'd look at the prices and I knew what I was paying before and I knew what I was paying afterwards, but in that moment in time I didn't care how much it was. I'd get the money from somewhere.' [G05:R2, male, rural, current drinker, post-MUP group interview, March 2019]

5.3.4.2 Switching substances

As discussed in **section 5.3.3**, switching to other types of alcohol was the most common response. However, individuals and groups spoke often about the risks associated with increased intoxication after switching from cheap cider or beer to spirits, which have higher alcohol content and can be consumed more quickly:

> 'That's how you see them staggering about a lot more now, because they're having to go back and forward to the shop. Whereas when they had, like three litres, like 12 litres to do them a day, they spaced it out. So, you never seen them staggering about the streets.' [G01:R1, male, rural, former drug user/drinker and family member, post-MUP interview, March 2019]

> 'I used to [drink Frosty Jack's cider] but … I burnt my oesophagus, so I stopped that about ten years ago. But I have noticed, the guys who used to drink it, I know all the guys, and they're all on the vodka and the gin now and you see them stoating [tottering] about and you and you never saw them stoating as much as they are now.' [G01:R2, male, urban, former drinker, post-MUP interview, March 2019]

This sense of heightened intoxication also prompted concern about increased risk of accidents:

> 'Mobility issues, all that sort of stuff, I would imagine that slips trips and falls are going to potentially [increase].' [G02:R4, female, urban, family member of current drinker, post-MUP interview, May 2019]

5.3.4.3 Spending changes

The most commonly reported coping mechanism was to realign budgets and finances to sustain drinking levels:

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> ‘I cannae afford the drink so I do not pay the bills.’ [G06:R1, male, rural, former drinker/drug user, post-MUP group interview, August 2019]

> ‘I’ll go and get a half bottle instead of getting something to eat.’ [G06:R2, male, rural, former drinker, post-MUP group interview, August 2019]

Some participants also said they had made increased use of foodbanks when alcohol was unaffordable or knew others who had. Coping with MUP was sometimes expressed as just another pressure or strain for those already struggling to cope with poverty:

> ‘Heavily in debt … been skint a few times … yeah gone to foodbanks’ [06, male, urban, former drinker, pre-MUP interview, November 2017]

> ‘You get in the line for food parcels, and you get three or four big bags of food which can keep you going for a month, and instead of spending money on food, you just spend the money on drink. That helps you to fund it [alcohol].’ [G05:R1, male, rural, current drug user/drinker, post-MUP group interview, March 2019]

Participants in this situation therefore sought to manage the alcohol they purchased or eke it out:

> ‘It’s like being on a desert island and you have a flask of water. And there is no more … You need to conserve it. People will do that with alcohol.’ [08, female, urban, current drinker, pre-MUP interview, March 2018]

5.3.4.4 Crime

Participants did discuss the likelihood of increased criminal behaviour, including shoplifting or other stealing. However, this was usually expressed as a possibility or something that others might do rather than giving specific examples of it happening:

> ‘I just think folk are going to get into trouble … if they are going to put it up to that … people are just going to steal it … or get it through their family.’ [08, female, urban, current drinker, pre-MUP interview, March 2018]

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5.3.5 Organising theme D: Cross-border shopping

WP2 included the Scottish Borders as a recruitment area to provide data on cross-border shopping for comparison with WP1.[*] It was clear from all interviews in the Borders that cross-border shopping had quickly become established as a means of mitigating or ameliorating the impact of MUP. However, this was only possible for those with a sufficient income and means of travel. Furthermore, participants did not consider cross-border shopping an option in any of our other recruitment areas.

5.3.5.1 Patterns and practices of cross-border shopping

Participants discussed the possibility of an increase in cross-border shopping, and doing so post-MUP, in individual and group interviews:

> 'It was not too bad for me because I drunk beer, but for my wife it was mostly cider she drunk and that just shot up, you noticed the big increase, from £3 to £11, so eventually she encouraged us to do the shopping across in Berwick just over the border because it was cheaper in the long run for her to get drunk and I have heard others are making trips to Berwick to get cheaper alcohol.' [G05:R2, male, rural, current drinker, post-MUP group interview, March 2019]

> 'I was looking at the price angle of it as, "Well in Scotland I would buy a case of this," and I would try to make it last because of the price it was, whereas I've bought like maybe a case and a half when I went to Berwick for about the same price so it just seemed to make me drink it quicker.' [G05:R3, female, rural, current drug user/drinker, post-MUP group interview, March 2019]

Cross-border shopping included people deliberately reorganising or rescheduling their weekly food shopping, purchasing alcohol in passing during a commute or other trip, and buying alcohol in bulk as part of a 'booze cruise':

> 'For us it was food shopping as well. It was amazing, you could almost tell which people were from Scotland by the amount of drink stuff that was put in the trolley. We spoke to a few people and people said they were from

[*] The Scottish Borders and Dumfries and Galloway (which was a recruitment site for WP1 only), have small towns that are within an hour or less of the Scottish-English border.

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Galashiels, Jedburgh and Kelso.' [G05:R3, female, rural, current drug user/drinker, post-MUP group interview, March 2019]

'Let's be truthful, if you're staying at Berwick-upon-Tweed and you're wanting this and it's a lot cheaper … because of where the border was, you could just basically walk across the road and go to that shop. The sales in that shop went "whoosh".' [G06:R2, male, rural, former drinker, post-MUP group interview, August 2019]

'I've heard of a lot of other people that have done that, they're now making trips to Berwick because they can get cheaper alcohol. It's a bit like when they use to say about the booze cruises down south.' [G05:R3, female, rural, current drug user/drinker, post-MUP group interview, March 2019]

5.3.5.2 Internet shopping

Internet shopping provides an alternative way to shop cross-border and some participants discussed this.

'Well, in the [name of Addiction Support Group], we were talking about internet shopping, saying it can be delivered to your door, it's at the price that it is in England, not Scotland. Yes, some of them are doing that.' [G05:R2, male, rural, current drinker, post-MUP group interview, March 2019]

5.3.5.3 Not an option

Unsurprisingly, in the other project recruitment areas (beyond the Scottish Borders), there was no indication of cross-border activity. When those away from the Scottish Borders discussed the subject, it was simply not an option for them, other than stocking up if or when taking a trip to England.

5.3.6 Organising theme E: Wider family concerns

Both people drinking harmfully and family members discussed the impacts of harmful drinking on families. This was perhaps most strongly expressed through arguments that MUP might marginalise those whose alcohol dependence means they cannot stop drinking and that their families experience the brunt of this, especially families

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that are already feeling other pressures, such as a lack of specialist services or support:

> ‘It doesn’t matter how much you exclude them from society and make them an unclean group, because they’re doing something that’s not socially acceptable. All that happens is the people who can’t move out of that pattern become more and more excluded from society and they’re the people whose lives are being lost. So, this [MUP] might be in the long-term and for society in general, might have some beneficial impact. But for the people who are caught in the grip and the nightmare of addiction, and having tried to help my son … it was not within my power to alleviate his pain. And basically, nobody cared. The doctors sure as hell didn’t care. I spent seven years phoning round different agencies trying to get help for him, and I know he had to get help for himself. But he wasn’t able to get help for himself.’ [G02:R2, female, urban, family member of current drinker, post-MUP interview, May 2019]

Other accounts focused on the social and economic pressures that an increase in alcohol prices places on families through a range of general and specific concerns discussed below.

5.3.6.1 ‘On the rob’

One group interview discussed the idea of people drinking harmfully being ‘on the rob’. This focused on MUP leading to a continuation of already problematic activity, rather than a drift into increasingly negative and potentially criminal activity. Being on the rob included putting belongings into ‘Cash Converters’, a pawnbrokers or eating less to drink more. Participants expressed concern that these behaviours may put extra strain on family members, and particularly that the change to monthly payments of benefits following the introduction of Universal Credit might compound this strain for some:

> ‘So it’s going to make folk go on the rob, I would imagine, and steal off family members and all of that. They just have to have their funding because it’s not cheap. If you’re substituting it, you’re substituting it, but you have to buy the dearer stuff then you’re talking about £100 a week. And if you’re not working, on benefits and that, there’ll be folk sitting without electricity and gas or

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feeding themselves.' [G01:R3, female, urban, former drinker and family member of current drinker, post-MUP interview, March 2019]

'You can get into a lot of debt as well … Their benefits won't last them because they've got the new [monthly or fortnightly] Universal Credit … Before. It used to be weekly. I think that has definitely got an impact in the price increase because you have people that are illiterate, they're not good with social circumstances, some people can't add, things like that. They would probably spend all their money at the very beginning of the month or they would get it again and spend it all in the first two weeks and they would … They're borrowing or stealing or whatever, and then they would get it again, pay all that money back, and then it's obviously just like a credit card ... I think families would find that very, very hard to budget.' [G05:R2, male, rural, current drinker, post-MUP group interview, March 2019]

5.3.6.2 Debt and increased economic pressures on families

Concerns about increased economic pressures arising from MUP, and the impact of these on already pressured families, were common across most interviews. A particular concern was increased tensions between family members in relation to money:

'People with addiction issues are … they are massive manipulators. So, if they don't have the money for it, they'll find the money from somewhere, and even if it's harassing family members or something, to get the money.' [G02:R3, female, urban, family member of current drinker, post-MUP interview, May 2019]

5.3.6.3 Quicker intoxication

Family members also raised some concerns about changes in purchasing and consumption patterns among those drinking harmfully after the introduction MUP, and particularly people switching from cheap cider or lager to spirits. They suggested that their loved ones appeared to get more drunk, more quickly, even though they may consume fewer units overall:

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‘They’re not sipping it in the way that … I’m not advocating that cider should come back, absolutely not, but …!’ [G02:R4, female, urban, family member of current drinker, post-MUP interview, May 2019]

‘I was a vodka drinker for many years, and I know what damage that does to you compared to cider … It turns me into an evil person … and cider doesnae do that.’ [G06:R2, male, rural, former drinker, post-MUP group interview, August 2019]

5.3.6.4 Violence

Perceived increases in drunkenness and wider family pressures also prompted concerns about the potential for an increase in domestic abuse*:

‘I can see [MUP] being a source of trouble. A lot of households, the wife does the finances, the husband gets his pocket money sort of thing.’ [G05:R1, male, rural, current drug user/drinker, post-MUP group interview, March 2019]

‘In a deprived area where you’ve got no money, there will be crime where people are trying to steal money from, say, their mum, their dad, their brother, their sister, their friend. There might be domestic abuse because maybe the wife doesn’t want the husband, or the other way round ... There might be fights amongst the family. The kids will get involved in that. There’s also animal cruelty … people forget about them.’ [G05:R2, male, rural, current drinker, post-MUP group interview, March 2019]

This concern was widespread across participants and was often based on past experiences of intoxication and violence. However, an increase in violence attributable to MUP was primarily a concern for participants rather than something they reported happening.

* It is important for us to emphasise the very small numbers of individuals reporting this – all though within this sample, and especially the family members, it was a repeated and majority expressed concern.

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5.3.7 Organising theme F: Rurality issues

Although we designed WP2 to provide insights into the impacts of MUP in rural and remote areas, we encountered recruitment and data collection challenges in two of the three relevant recruitment sites, namely Inverness (and the surrounding rural Highlands) and Argyll and Bute. Therefore, the only data under this theme came from the third site in the Scottish Borders.

We detected little evidence that the effects of the policy differed in rural and remote areas. The exception to this was the evidence of cross-border trading in the Scottish Borders, but this reflected the area's proximity to the border rather than its rurality. The lack of evidence may also reflect the methodological changes discussed in **section 5.2.1.1**. These changed led to us removing rural area from the project and then dropping a further area due to all PAIs leaving the project.

5.4 Discussion

Chapter 9 provides a full discussion of all work packages. The text below provides a brief summary of the results and also the strengths and limitations specific to this component of WP1.

5.4.1 Summary of findings

The findings of WP2 suggest that people drinking harmfully in the community and their family members had only a partial understanding or awareness of MUP before it was introduced or, in some cases, for many months afterwards. After the research team explained the policy to them, participants did not believe it would prompt substantial changes in the purchasing or consumption behaviours of people drinking harmfully and would not tackle the root causes of alcohol problems. Although participants did see potential benefits for younger generations at risk of developing alcohol problems, they also expressed concern, annoyance and sometimes anger at the impact on marginalised groups. The main perceived barrier to effects for those currently drinking at harmful levels was that this population reacts to price changes by obtaining additional money rather than buying less alcohol. As a result, family members in particular emphasised the desperation, compulsion and harmful impacts associated with alcohol dependence.

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Participants did, however, describe some behavioural shifts following the introduction of MUP. Drinkers often switched from purchasing cheap ciders to instead buying spirits, notably vodka, or wine, as they sought to maximise the 'bang for their buck'. Although this may have led to reduced alcohol consumption, it also prompted concerns about increased intoxication and violence among family members. Participants also emphasised the increased financial pressure created by the policy. This led some people to reduce spending on food or utilities, make increased use of foodbanks or borrow money. There were also occasional mentions of home-brewing, pooling resources with other drinkers, purchasing alcohol for less than the MUP from licensed retailers and illicit drug use, although many of these were speculating about others' behaviour or were not clearly linked to MUP. Some of those living near the Scottish borders did start, or increase, purchasing of alcohol at lower prices in England as part of their regular grocery shopping, when passing through or as a planned 'booze cruise'. This was, however, the only evidence specific to a particular rural or remote location and appeared more related to the proximity of the border than the rural location.

Overall, MUP appeared to be one additional 'nudge' among many interacting factors influencing those drinking at harmful levels. As such, there was little sense that MUP fundamentally changed the behaviour of this population despite some more modest shifts. Instead, MUP prompted individuals to draw on their existing strategies for managing their drinking. This meant that participants did not expect or observe marked shifts, such as those with no history of illicit drug use switching from alcohol consumption to illicit drugs use. It also meant some pre-existing problems became more severe, with people drinking harmfully and family members reporting increased difficulties for those already subject to economic pressure. This pressure came from the burden harmful drinking placed on family finances and relationships, but also from other financial pressures unrelated to alcohol, particularly the monthly payment of Universal Credit, which was introduced during the study period and exacerbated difficulties in household budgeting.

5.4.2 Strengths and limitations

The research team trained 22 PAIs and eight of these successfully conducted 12 interviews for the study, covering the pre- and post-MUP periods. We analysed these

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interviews for their content, but also for the data quality and skills displayed by the interviewer. The contribution of PAIs was assessed as very good, with clear evidence that they used their skills appropriately and displayed insightful understanding of the information provided by interviewees. Given practice and support, the PAIs consistently reached the minimum standard expected of professional researchers and we therefore consider their engagement in the study as a key strength that provided access to different participants and perspectives. It also ensured that those affected by our research were meaningfully involved in the research process.

In line with this, WP2 helped to raise awareness of MUP and its potential impacts within the communities studied. The group interviews in particular generated informative and rich conversations in which people with alcohol dependence explored and made sense of MUP and its implications, and updated their views on the policy as this understanding developed. Through these conversations, we heard some variations on previous findings from WP1 and previous studies, alongside previously unheard perspectives.

The research team, including the PAIs, also interviewed 20 family members of people drinking at harmful levels. The voices of family members are often unheard within research on alcohol dependence and are not included in other parts of the MUP evaluation programme commissioned by PHS. In this study, they provided perspectives on the wider impacts of MUP on their families, relationships and home environments, deepening our understanding of the policy's impact. However, the extent and depth of these accounts were limited by the challenges that led to a redesign of the data collection methods. In particular, we collected more data in group settings and fewer individual interviews with family members than originally intended. Five of those family members we did speak to also had personal experience of drinking harmfully themselves. Although this reflects the complex nature of family experiences with alcohol, it does mean these individuals often spoke as both drinkers and family members rather than providing a wholly distinct 'family' perspective.

Finally, the pre- and post-MUP design, allowed insights into the changing views on MUP among people drinking harmfully in the community and their family members.

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In particular, how the initial view that MUP would have no effect evolved into accounts of modest but definite changes in behaviour.

The key limitations of WP2 relate to the difficulties in executing the initial research design, described in **section 5.2.1.1**. There was insufficient time to involve community members in the development of the project and this meant we did not identify and react to the difficulties of imposing a PHS and researcher-led agenda on the community. Ultimately, we established that MUP and its effects were of less importance to people drinking harmfully and their families than we assumed. This impacted recruitment and retention of PAIs, although incorrect assumptions by the research team when developing the project about the scale and depth of recovery communities across Scotland were also an important factor.

The study also faced challenges in retaining momentum and the participation of PAIs. The three waves across three years design was particularly problematic for the PAIs and we received clear feedback from the community that this extensive commitment was unsuitable. It also proved difficult to convert training sessions into pilot interviews and further data collection activity. Many potential PAIs had competing pressures on their time, while others, despite interest in the policy, did not view it as a priority topic for their attention. Nonetheless, a small core group of PAIs sustained an interest in MUP despite the challenges faced in maintaining their involvement in our work.

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6. WP3: The impact of MUP on harmful drinking in the general population: an interrupted time series analysis

6.1. Introduction

Harmful (or high risk) drinking is defined in the UK as consuming more than 35 units of alcohol per week for women and more than 50 units per week for men. MUP targets price increases on the cheaper and higher strength alcohol that is often sold in larger packages and favoured by those drinking at harmful levels.[18,20,21] Evidence from before and after the introduction of MUP suggests this targeted approach reduces alcohol consumption or purchasing among people drinking at harmful levels, and that the reductions are larger than those seen among moderate drinkers.[*,13,21,66,80] There is, however, debate in the wider scientific literature regarding the impact of more general alcohol price changes on heavier drinkers. Systematic reviews find that heavy drinkers do reduce their drinking in response to price increases, but this reduction is smaller than seen for lighter drinkers.[81] But the underlying primary studies show mixed results, with different studies finding larger, smaller and non-significant changes among heavier drinkers when compared to lighter drinkers.[82–86] These studies also identify significant challenges or limitations in the data and methods used when investigating this question.[87] Given these uncertainties, it is therefore important to use a range of datasets and analytical techniques to explore the impact of MUP in Scotland on harmful drinking.

WP1 and WP2 of this project focused primarily on people with alcohol dependence. However, only around one in five people drinking at harmful levels are dependent on alcohol and the remainder may respond very differently to MUP.[88] WP3 therefore focuses on the wider population of people drinking at harmful levels using data collected from the general population. It uses **individual-level** data on alcohol **consumption**, rather than the **household-level** data on alcohol **purchasing** used in a previous evaluation study that suggested the households buying the most alcohol

[*] Moderate (or low risk) drinkers are those consuming up to 14 units per week, in line with the UK Chief Medical Officers' guidelines. Some of the referenced studies use an earlier definition, with moderate drinking defined as up to 14 units per week for women and up to 21 units per week for men.

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reduced their purchasing by more than other households after the introduction of MUP.[66]

6.2. Aims and research questions

WP3 aimed to evaluate the impact of MUP on the prevalence, patterns and characteristics of people drinking at harmful levels within the general population in Scotland. The research questions were:

Following the introduction of MUP:

1. Did fewer drinkers consume alcohol at harmful levels?
2. Did the drinking practices of those drinking at harmful levels change, including the alcohol products they drank, the location, the timing of drinking, and the type of drinking occasion?
3. Was this reduction seen in key population groups of interest, namely those living with a partner, children or in lower socioeconomic groups?

6.3. Methods

6.3.1. Design

WP3 used individual-level survey data collected across a 12-year period within a controlled interrupted time series design. This design allows us to test for an effect of MUP by assessing whether the policy led to any changes in the trend over time in the Scottish data that were not seen in the same data for Northern England. Previous evaluations of the impact of MUP on alcohol sales and purchasing use a similar design.[1,66]

6.3.2. Data

The data come from Alcovision, a commercial market research survey collected by Kantar. Alcovision is a continuously collected, cross-sectional, online survey of adults (18+) resident in Great Britain. We originally planned to use Alcovision data collected between 1 January 2009 and 31 December 2019, but delays in undertaking the analysis and a further unplanned data purchase allowed us to extend this to include data to 29 February 2020. We did not include data from March 2020 onwards

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due to the disruptive impact of the COVID-19 pandemic on the time series. The evaluation analyses treat the data as a monthly time series where feasible.

6.3.2.1. Sampling

Alcovision collects data from approximately 30,000 individuals per year using weekly quota samples of Kantar's online managed access panels based on age, sex, socioeconomic status and geographic region. Invitations to participate are sent to panel members at regular intervals to ensure that every day of the year is represented in the drinking diaries that are the main component of the dataset.*

A key strength of Alcovision for our purposes is the survey oversamples residents of Scotland, and also 18–34-year-olds, to allow detailed analyses of these smaller populations. Kantar then construct sampling weights based on age-gender groups, socioeconomic status and geographic region using targets based on UK census data. We further developed these weights using a raking technique. This involved applying a weight to individuals so the proportion of people in each of a set of our socioeconomic groups matched proportions taken from the UK census. We then used an algorithm to iteratively adjust these proportions to also match targets based on geographic region, age and sex.[89]

Data collection procedures were largely consistent across the study period with two significant exceptions. First, a computing failure within Kantar led to the loss of all data collected in July 2017, so this month is missing from our analysis. Second, Kantar started sampling from several additional managed access panels in 2017. The sampling quotas and method remained the same but this change may have introduced a change in the characteristics of the sample if the additional panels included different kinds of people to the original panel.

6.3.2.2. Survey design

The Alcovision survey contains two main components. Participants first answer questions on their typical alcohol-related behaviours and alcohol-related attitudes. They then complete a one-week retrospective drinking diary. This captures detailed

* Further information is unavailable as, in line with other providers of market research datasets, Kantar do not provide detailed data on sampling procedures (e.g. responses rates, survey completion rates).

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information on each of their drinking occasions in the last seven days, including the alcohol consumed on the occasion and its location, timing, purpose, participants and accompanying activities. Alcovision defines an occasion for participants as a significant period of time, such as lunchtime, early evening or late evening, and participants can report a maximum of two on-trade occasions (e.g. in pubs or restaurants) and two off-trade occasions (e.g. at home) per day.

The resulting dataset also contains sociodemographic information on participants that is collected separately and updated routinely by the managed access panels.

6.3.2.3. Analytical sample

The analytical sample comprises Alcovision respondents between 1 January 2009 and 29 February 2020 (excluding July 2017) who report drinking at least once per year in the survey of typical alcohol-related behaviours and who are resident in Scotland or Northern England, defined as the North-East, North-West or Yorkshire and Humberside regions (hereafter England). This provides a sample of N=38,674 individuals in Scotland (average monthly N=267) and N=71,687 individuals in England (average monthly N=494).

6.3.3. Measures

6.3.3.1. Intervention point

The Scottish Government introduced MUP on 1 May 2018. We therefore created a binary variable indicating whether Alcovision respondents' diary week began before or after this date. This means we treat diary weeks including the 1 May 2018 as pre-intervention data if they include any days before this date. We chose this assumption because of the likelihood that a significant proportion of the alcohol consumed in the first few days of May 2018 would have been purchased before the introduction of MUP.

6.3.3.2. Outcome measures

The analysis used one primary outcome and 10 secondary outcomes.

The primary outcome was the proportion of adult drinkers (i.e. those in the analytical sample) who drank at harmful levels in each month. Harmful drinking was defined as

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consuming more than 35 units in the diary week for women and more than 50 units for men. This necessarily differs from the standard definition of harmful drinking, which is based on individuals' average weekly consumption rather than consumption in the last week, as Alcovision does not provide data on average weekly consumption.

We calculated respondents' alcohol consumption in the diary week by summing the units they consumed across all reported occasions. For each occasion, respondents reported the brand or beverage type (e.g. Gordon's gin, Carlsberg Export, white wine), container or serving size (e.g. 750ml bottle, pint) and number of servings consumed of each of their alcoholic drinks. We combined this information with brand-level alcohol-by-volume (ABV) data compiled from external sources to convert servings into units. Where brand was not reported or ABV data for the brand was unavailable, we used beverage-specific ABV assumptions.

The 10 secondary outcomes fall into three groups:

- **Consumption groups:** we examined changes in: (i) the proportion of adult drinkers who drank at moderate levels during the diary week; and (ii) the proportion who drank at hazardous levels. Moderate drinking was defined as consuming less than 14 units for women and men while hazardous drinking was defined as consumed 14–35 units for women and 14–50 units for women.
- **Beverage types:** we examined changes in the average proportion of consumption among those drinking at harmful levels that was accounted for by: (iii) strong beer at least 6% ABV; (iv) strong cider at least 6% ABV; (v) vodka; and (vi) drinking in the off-trade.
- **Occasion dynamics:** we examined changes in the average values among those drinking at harmful levels for: (vii) number of drinking days during the diary week; (viii) number of units drunk per occasion; (ix) maximum number of units in a single occasion during the diary week; and (x) number of occasions involving drinking on their own during the diary week.

A small number of respondents report unrealistically high levels of consumption during occasions, days or the diary week. We therefore cap consumption at 280 units per week based on consultation with clinicians (see Stevely et al for further

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details of capping procedure[89]). The capping procedure 'removes' units from individual drinks within occasions. This does not affect the primary outcome (i.e. proportion of respondents drinking at harmful levels), but it does affect beverage type outcomes and some of the occasion dynamic outcomes. We therefore test whether the capping procedure affects our results in the sensitivity analyses described in **section 6.3.4.1**.

6.3.3.3. Subgroups

We also examined changes in the primary outcome within the following three subgroups: those married or living with a partner, those with one or more children aged under 18 living with them and those of lower socioeconomic status (i.e. social grade DE, defined as semi-skilled and unskilled manual workers, pensioners receiving only the state pension, casual and lowest grade workers, those unemployed with state benefits only[90]).

6.3.4. Analysis

The analyses used SARIMA (Seasonal AutoRegressive Integrated Moving Average) models to estimate the impact of MUP on each outcome measure and on the primary outcome within the three subgroups.

We aimed to use monthly time series for each country to analyse all of the outcome measures. However, we had zero observations for strong beer consumption and strong cider consumption among those drinking at harmful levels in some months. We therefore aggregated the time series to bimonthly data for strong beer and quarterly data for strong cider.

We then fitted separate SARIMA models for each outcome and subgroup analysis, Each model estimates the size of any step-change in the outcome following the introduction of MUP. The models controlled for the contemporaneous trend in England and included terms for autocorrelation, seasonality and the trend over time. We used autocorrelation and partial autocorrelation plots to identify autocorrelation in the model residuals. This informed selection of AR, MA and seasonal terms. Akaike Information Criterion (AIC) and the Bayesian Information Criteria (BIC) statistics informed selection of the best-fitting model and we used Q-tests (also known as portmanteau tests) to confirm that the model residuals resembled white noise. We

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then visually inspected the outcome data series to identify any outliers or breakpoints and included terms to adjust for these if this improved model parsimony. Finally, we calculated sharped q-values to adjust for multiple testing (i.e. to check whether statistically significant results might be arising by chance due to the number of tests conducted).[91]

6.3.4.1. Sensitivity analyses

Analysis of the primary outcome included three sensitivity analyses. First, we changed the intervention point to 1 June 2018 to address any effects of people in Scotland stockpiling alcohol before the introduction of MUP. Second, we identified the introduction of Universal Credit (UC) as a potential source of change in the time series. This is supported by WP1 and WP2 findings, which suggest that UC led to significant changes in the financial situations of low-income households (see **section 4.4.5.2** for example). We therefore included a control variable that captured the number of households in each month registered for UC in Scotland.[92] Third, we included an additional term within the SARIMA model to capture any change in the time trend of the primary outcome after the implementation of MUP. We also reran analyses of the secondary outcomes affected by the capping procedure using the uncapped data.

6.3.5. Ethics and governance

All respondents to Alcovision gave informed consent prior to starting the survey. Ethical permission for this study was provided by the University of Sheffield's Research Ethics Committee (ref: 017910).

Use of the Alcovision data is governed by a contract and non-disclosure agreement between Kantar and the University of Sheffield. The contract requires the University of Sheffield to provide Kantar with sight of research outputs ahead of publication to ensure accurate description of Alcovision, which is a commercial product. Kantar played no other role in the research, including in the conception, design, analysis, interpretation, write-up or decision to publish.

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6.4. Results

6.4.1. Descriptive statistics

Tables 6.1a and 6.1b show the annual sample size and mean values of the primary outcome across the time series for the whole population and the population subgroups. Table 6.2 shows the same information for the secondary outcomes. The only outcomes to show an obvious change in level or trend in after the introduction of MUP are the prevalence of hazardous drinking, which drops by approximately three percentage points between 2017 and 2018, and the prevalence of moderate drinking, which rises by approximately three percentage points over the same period. However, these outcomes and the mean units per occasion and mean units on heaviest occasion outcomes also show step-changes in 2017, when some inconsistencies were introduced into the data series (see **section 6.3.2.2**).

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Table 6.1a: Annual descriptive sample sizes

Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020[1]
Sample size of adult drinkers (ADs) – Scotland	3,500	3,586	3,683	3,605	3,604	3,614	3,547	3,502	3,024	3,267	3,191	551
Sample size of adult drinkers (ADs) – England[2]	6,489	6,508	6,604	6,879	6,781	6,724	6,615	6,565	5,687	6,023	5,860	952

[1]January and February only in 2020; [2]England is the North-West, North-East and Yorkshire and Humberside regions only (i.e. Northern England).

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Table 6.1b: Annual values for primary outcome variable in the full sample and population subgroups

% of ADs drinking at harmful levels[1]	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020[4]
All adult drinkers - Scotland	11.9	12.1	13.1	13.5	10.8	9.7	11.2	11.9	9.1	8.8	10.1	9.0
All adult drinkers – England[3]	13.5	11.7	13.3	13.2	11.8	11.6	11.6	11.2	10.6	10.0	9.7	9.7
ADs married or living with partner - Scotland	11.4	11.7	12.8	12.7	10.5	8.5	10.4	11.4	9.9	8.5	9.6	8.4
ADs married or living with partner - England	12.8	12.1	13.1	12.7	11.6	10.8	11.0	10.8	9.5	8.7	9.1	9.3
ADs with ≥1 child in household - Scotland	12.2	12.5	14.6	16.9	12.0	8.6	11.1	12.4	9.8	9.1	10.4	9.3
ADs with ≥1 child in household - England	13.3	13.2	13.8	14.8	12.6	12.1	11.4	10.1	10.6	9.9	11.9	9.7
ADs in lower socioeconomic group[2] – Scotland	11.4	12.9	13.4	13.2	12.1	10.2	10.9	9.6	7.7	7.7	8.4	11.8
ADs in lower socioeconomic group[2] – England	12.6	11.2	14.1	13.4	12.9	9.7	11.6	10.7	9.9	11.7	10.9	9.9

[1]Harmful levels: >35/50 units in diary week for women/men; [2]Lower socioeconomic group: social grade DE as defined by the National Readership Survey (i.e. semi-skilled and unskilled manual workers, state pensioners, casual and lowest grade workers, unemployed with state benefits only; [3]England is the North-West, North-East and Yorkshire & Humberside regions only (i.e. Northern England); [4]January and February only in 2020.

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Table 6.2: Annual descriptive sample sizes and values for secondary outcomes (all outcomes for within harmful drinkers unless stated)

Secondary outcomes	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020[6]
% ADs drinking at hazardous levels: Scotland[1]	29.9	28.2	27.7	29.0	28.6	29.3	26.7	29.1	26.7	23.8	23.5	25.9
% ADs drinking at hazardous levels: England[1,5]	31.7	30.2	30.8	31.1	29.9	29.8	28.2	28.3	28.4	25.2	26.5	25.9
% ADs drinking at moderate levels: Scotland[2]	58.1	59.7	59.2	57.4	60.6	61.0	62.1	59.0	64.2	67.4	66.4	65.1
% ADs drinking at moderate levels: England[2]	54.8	58.1	55.9	55.7	58.3	58.7	60.2	60.5	61.0	64.8	63.8	64.4
% of consumption that is strong beer: Scotland[3]	0.9	0.9	1.2	0.5	2.3	0.4	0.3	0.8	0.9	0.6	1.1	0.1
% of consumption that is strong beer: England[3]	1.3	1.4	1.5	0.7	0.9	1.1	0.5	1.0	0.8	0.8	1.0	0.3
% of consumption that is strong cider: Scotland[4]	0.5	0.4	0.8	0.5	0.9	0.8	0.9	1.2	0.5	0.8	0.6	0.2
% of consumption that is strong cider: England[4]	0.8	0.7	0.6	1.0	1.1	1.0	1.9	1.1	0.8	0.8	1.1	1.0
% of consumption that is vodka: Scotland	14.9	16.3	14.5	16.3	15.4	11.7	11.9	12.3	14.8	15.3	14.1	20.2
% of consumption that is vodka: England	6.5	6.9	8.8	8.1	6.9	7.9	7.1	7.2	9.8	9.5	7.8	10.4
% of consumption that is off-trade: Scotland	67.4	72.9	72.8	67.0	66.8	69.3	67.1	66.4	69.3	71.0	72.4	69.0

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Secondary outcomes	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020[6]
% of consumption that is off-trade: England	68.5	67.6	65.4	67.3	66.8	69.0	69.6	67.2	68.8	69.9	71.5	70.5
Mean drinking days in diary week: Scotland	4.2	4.5	4.2	4.0	4.0	4.0	4.1	3.8	3.6	3.4	3.6	3.2
Mean drinking days in diary week: England	4.8	4.9	4.5	4.6	4.5	4.6	4.5	4.5	4.1	4.0	4.0	4.0
Mean units per occasion: Scotland	12.9	12.4	12.5	12.8	13.2	12.6	12.5	13.0	15.0	17.0	14.4	16.5
Mean units per occasion: England	10.9	10.9	11.7	11.3	11.4	11.2	11.5	11.7	13.0	14.0	14.2	13.8
Mean units on heaviest occasion: Scotland	23.3	22.6	22.9	23.6	23.9	22.5	22.8	23.8	25.2	26.9	24.2	26.6
Mean units on heaviest occasion: England	20.2	20.0	21.6	21.0	20.9	20.7	20.5	21.4	22.7	23.7	23.9	23.8
Mean occasions drinking alone: Scotland	1.0	1.2	1.1	1.2	1.2	1.4	1.6	1.1	1.1	1.0	1.2	1.1
Mean occasions drinking alone: England	1.3	1.3	1.2	1.4	1.5	1.5	1.4	1.5	1.4	1.5	1.4	1.5

[1]ADs: Adult drinkers; Hazardous levels: 14–35/14–50 units in diary week for women/men; [2]Moderate levels: <14 units.
[3]Strong beer/: ≥6% ABV; [4]Strong cider: ≥6% ABV; [5]England is the North-West, North-East and Yorkshire and Humberside regions only (i.e. Northern England); [6]January and February only in 2020.

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6.4.2. Primary outcome analysis

Table 6.3 and Figure 6.1 show the results of the primary outcome analyses. The proportion of drinkers in Scotland consuming at harmful levels increased non-significantly by 0.6 percentage points (p=0.500) after the introduction of MUP. The sensitivity analyses using 1 June 2018 as the intervention, controlling for the introduction of UC in Scotland and capturing any change in the trend over time after the introduction of MUP also found the proportion of drinkers in Scotland consuming at harmful levels increased non-significantly after the introduction of MUP by between 0.4 and 1.0 percentage points.

Table 6.3: Impact of MUP on the proportion of adults drinking at harmful levels (primary outcome) in the main and sensitivity analyses

Primary outcome: % drinking at harmful levels[1]	**β[2]**	**Lower CI**	**Upper CI**	**P**	**Q-value**	**R^2 (%)**
Main analysis	0.006	-0.011	0.023	0.500	–	33.5
Sensitivity analyses:	**β[2]**	**Lower CI**	**Upper CI**	**P**	**Q-value**	**R^2 (%)**
Intervention point: June 2018	0.004	-0.013	0.021	0.640	–	–
Adjusting for UC rollout[2]	0.010	-0.020	0.041	0.503	–	–
Modelling change in time trend	**β[2]**	**Lower CI**	**Upper CI**	**P**	**Q-value**	**R^2 (%)**
Step-change	0.006	-0.025	0.037	0.696	–	–
Trend change	-0.000	-0.002	0.002	0.986	–	–

[1]Harmful levels: >35/50 units in diary week for women/men; UC: Universal Credit. [2]Beta values are the estimated intervention effect from controlled interrupted SARIMA time series models. They can be read as the percentage point change in the outcome (e.g. 0.006 = 0.6 percentage points).

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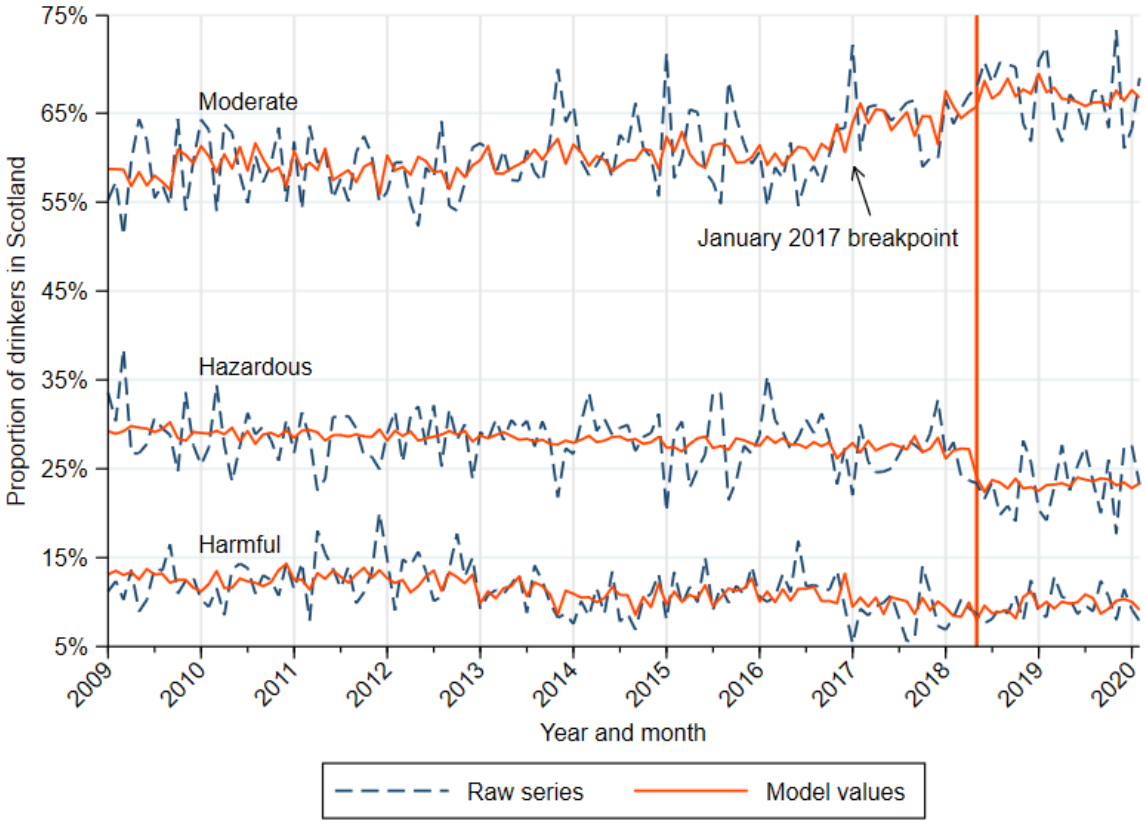
Figure 6.1: Monthly proportion of drinkers consuming at harmful, hazardous and moderate levels in Scotland (vertical line shows the implementation of MUP, May 2018)



6.4.3. Secondary outcome analyses

Figure 6.1 and Table 6.4 show the results of the analysis of the secondary outcomes.

The proportion of drinkers consuming at hazardous levels in Scotland decreased significantly by 3.5 percentage points after the introduction of MUP ($p<0.0005$) while the proportion consuming at moderate levels increased non-significantly by 1.4 percentage points ($p=0.269$). The moderate drinkers model included a term to control for a breakpoint in January 2017, which was identified by visual inspection.

The proportion of consumption by those drinking at harmful levels in Scotland accounted for by strong beer did not change significantly after the introduction of MUP ($\beta=0.000$; $p=0.988$). The proportion accounted for by strong cider decreased non-significantly by 0.3 percentage points ($p=0.333$), the proportion accounted for by vodka increased non-significantly by 1.7 percentage points ($p=0.238$) and the proportion consumed in the off-trade increased non-significantly by 2.6 percentage

points (p=0.177). These findings did not change meaningfully in sensitivity analyses using the uncapped measure of alcohol consumption.

Table 6.4: Impact of MUP on secondary outcomes related to alcohol consumption, beverage types and occasion dynamics in the main and sensitivity analyses

Secondary outcomes	β[6]	Lower CI	Upper CI	P	Q-value	R^2 (%)
% drinking at hazardous levels[1]	**-0.035**	**-0.054**	**-0.017**	**0.000***	**0.003***	**30.0**
% drinking at moderate levels[2]	0.014	-0.011	0.038	0.269	–	47.0
% consumption as strong beer[3]	0.000	-0.010	0.010	0.988	–	8.5
% consumption as strong cider[4]	-0.003	-0.009	0.003	0.333	–	24.5
% consumption as vodka	0.017	-0.011	0.045	0.238	–	8.8
% consumption in off-trade	0.026	-0.012	0.063	0.177	–	7.9
Mean number of drinking days	-0.023	-0.247	0.201	0.839	–	48.1
Mean units per occasion	**-0.871**	**-1.651**	**-0.091**	**0.029***	**0.230**	**42.3**
Mean units – heaviest occasion	0.565	-0.608	1.737	0.345	–	29.2
Mean occasions drinking alone	0.058	-0.251	0.367	0.714	–	9.7
SA: uncapped consumption[5]	**β[6]**	**Lower CI**	**Upper CI**	**P**	**Q-value**	**R^2 (%)**
% as strong beer	0.000	-0.009	0.010	0.925	–	–
% as strong cider	-0.003	-0.009	0.003	0.295	–	–
% as vodka	0.023	-0.004	0.050	0.100	–	–
% in off-trade	0.029	-0.007	0.065	0.113	–	–
Mean units per occasion	0.280	-1.016	1.577	0.672	–	–
Mean units heaviest occasion	1.632	-1.581	4.845	0.319	–	–

[1]Hazardous levels: 14–35/14–50 units in diary week for women/men; [2]Moderate levels: <14 units. [3]Strong beer/: ≥6% ABV; [4]Strong cider: ≥6% ABV; [5]SA: sensitivity analysis; [6]Beta values are the estimated intervention effect from controlled interrupted SARIMA time series models. They can be read as the percentage point change or absolute in the outcome (e.g. -0.035 = -3.5 percentage points; -0.023 = -0.023 drinking days)

The mean number of drinking days per week among non-drinkers in Scotland did not change significantly after the introduction of MUP (β = -0.023; p=0.839). The mean

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number of units per occasion did decrease significantly by 0.9 units (p=0.029), but the sharped q-value of 0.230 is above the conventional threshold of 0.005, suggesting this result may be attributable to multiple testing and therefore not robust. The mean number of units consumed on those drinking at harmful levels' heaviest drinking occasion during the diary week increased non-significantly by 0.6 units (p=0.345) while the mean number of drinking occasions per week involving drinking alone increased non-significantly by 0.1 occasions (p=0.714). The two unit-based measures also showed non-significant changes in the sensitivity analysis using the uncapped consumption measure.

6.4.4. Subgroup analyses

Table 6.5 shows the results of the subgroup analyses. There was no significant change in the proportion of drinkers consuming at harmful levels among those married or living with a partner (β=0.004; p=0.644), living with one or more children in the household (β=0.021; p=0.133) and those in the lowest social grade (β=0.000; p=0.982).

Table 6.5: Impact of MUP on the proportion of adults drinking consuming at harmful levels (primary outcome) within population subgroups.

Subgroups: % drinking at harmful levels[1]	β[3]	Lower CI	Upper CI	P	Q-value	R^2 (%)
Married/living with a partner	0.004	-0.014	0.023	0.644	–	23.7
≥1 child in household	0.021	-0.006	0.047	0.133	–	31.8
Lower socioeconomic group[2]	0.000	-0.021	0.020	0.982	–	25.7

[1]Harmful levels: >35/50 units in diary week for women/men; [2]Lower socioeconomic group: social grade DE as defined by the National Readership Survey (i.e. semi-skilled and unskilled manual workers, state pensioners, casual and lowest grade workers, unemployed with state benefits only; [3]Beta values are the estimated intervention effect from controlled interrupted SARIMA time series models. They can be read as the percentage point change in the outcome (e.g. 0.004 = 0.4 percentage points).

6.5. Discussion

In line with other WPs, the discussion below summarises the main findings and outlines the strengths and limitations of WP3. The overall findings and implications of the project are discussed in Chapters 8 and 9.

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6.5.1. Summary of findings

WP3 found that the introduction of MUP was not associated with a significant decline in the proportion of drinkers in Scotland consuming alcohol at harmful levels. However, secondary analyses found that the policy was associated with a significant decline in the proportion of drinkers consuming at hazardous levels, with no significant change in the proportion consuming at moderate levels. Overall, the direction of these effects is consistent with a general reduction in alcohol consumption among drinkers, although the analysis did not test this hypothesis.

The results provide no evidence of any significant change in the beverages consumed by people drinking at harmful levels, their drinking patterns in terms of drinking days or amount of alcohol consumed within occasions, or the extent to which people drinking at harmful levels consumed alcohol on their own. There was also no evidence of changes in the prevalence of harmful drinking within key subgroups, including those living with partners, children or of lower socioeconomic status.

6.5.2. Strengths and limitations

The analyses above use a large, individual-level dataset to construct a monthly time series providing detailed information on alcohol consumption among people drinking at harmful levels in Scotland. No other source provides detailed data on harmful drinking in Scotland at this scale or temporal frequency while covering both the off-trade and on-trade sectors. As such, Alcovision represents the best data available for estimating the impact of MUP on reported levels and patterns of harmful drinking in Scotland.

However, a key limitation of Alcovision is its sampling method. It draws quota samples from online managed access panels, which is a less robust method than the stratified random sampling of private households used in gold-standard UK surveys. As such, the adult drinkers within Alcovision may not be wholly representative of adult drinkers in Scotland and Northern England. There are also well-established difficulties in studying harmful drinking via survey methods as people drinking at harmful levels are less likely to participate in surveys and all survey participants are liable to under-report their alcohol consumption,[64] thus hindering the identification of a representative sample of people drinking harmfully. However, the use of broadly

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consistent survey methods across the study period reduces the risk of this limitation biasing our results, as any unrepresentativeness may be relatively stable over time. We also sought to increase the general representativeness of the sample by further developing the sampling weights provided by Kantar.

The key strengths of the analysis itself are the robust research design, which includes a control time series from a similar population in Northern England, as well as carefully specified models that account for key temporal patterns in the data, such as seasonal effects, autocorrelation and breakpoints. We also explored a number of secondary outcomes and sensitivity analyses to increase our understanding of, and confidence in, the results. The secondary outcomes additionally include measures of drinking patterns and practices not commonly studied in evaluations of alcohol policy, as they are typically unavailable in the datasets used for such evaluations.

Although the analysis provided evidence on changes in the prevalence of harmful drinking, it did not provide evidence on changes in the volume of alcohol consumption by people drinking at harmful levels. This is significant as changes in the volume of consumption was the measure used in the modelling studies that provided key evidence in the policy debate around MUP.[80] We could have used the mean units consumed in the diary week by people drinking at harmful levels in Alcovision as an outcome measure, but we chose not to do so, as this may have produced misleading results. For example, if the harmful drinkers consuming the least alcohol reduced their consumption, some would become hazardous drinkers and potentially increase the average level of alcohol consumption in that group. However, because the lightest drinkers had dropped out of the harmful group, average consumption in the harmful group would also increase. In other words, there are plausible scenarios where consumption among those drinking at harmful levels would decrease but our analysis would point to increases in consumption among both hazardous and harmful drinkers. Addressing this problem requires longitudinal panel data, as used by O'Donnell et al in their evaluation of off-trade alcohol purchasing around the introduction of MUP.[66]

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7. WP4: The impact of MUP on people identified as drinking at harmful levels within primary care

7.1. Introductory note

WP4 could not be completed due to difficulties in accessing the necessary data. This chapter briefly summarises the aims and research design of WP4 and explains the decision to end the study without completing it.

7.2. Introduction

The Scottish Government intends MUP to reduce the harm alcohol causes to people's health, particularly among people drinking at harmful levels.[44] Evaluation research using aggregated mortality and hospitalisation data from Canada suggests that increases in minimum prices for alcohol lead to reductions in alcohol-related health problems[8–10] and model-based analyses using UK data show similar findings.[7,80] However, no study to date has examined the impact of MUP on health outcomes at the individual level. This matters because individual-level analyses can focus on specific groups within the population who are at particular risk of alcohol-related harm. Doing so increases the likelihood that any changes in health outcomes identified by the analyses are due to MUP and also provides insight into how the MUP affects health outcomes among groups of particular concern, such as people drinking at harmful levels.

7.3. Aims and research questions

WP4 aimed to evaluate the impact of implementing MUP on the frequency and likelihood of hospitalisation and mortality among people identified by primary care records as drinking harmfully. The research questions were:

Following the introduction of MUP:

1. Do alcohol-related hospitalisation and mortality rates among harmful drinkers reduce in the short- or medium-term?
2. Do any changes in hospitalisation or mortality rates vary by condition or patient characteristics, including sex, age and level of deprivation?

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3. What impact do any changes in hospitalisation or mortality rates have on NHS costs?

7.4. Methods overview

WP4 planned to use primary care (i.e. general practitioner) records linked to hospitalisation and mortality records to identify a cohort of people drinking at harmful levels and assess whether their health outcomes changed significantly after the introduction of MUP. It proposed using two analytical designs. First, an individual-level analysis testing whether the risk of hospitalisation or death changed after the introduction of MUP. Second, an aggregated time series analysis testing for a change in the level or time trend of the hospitalisation or death rate among the cohort after the introduction of MUP. In both cases, the analysis planned to use data from Scotland and also from England as a control population.

7.5. Summary of WP4 activity

In brief, the original project proposal planned to access data from the Scottish Primary Care Information Resource (SPIRE), which is owned by PHS and co-funded by PHS and the Scottish Government. However, PHS (then NHS Health Scotland) informed the research team that the SPIRE data infrastructure may not be operational within the timelines of the project. The research team therefore revised the proposal to include WP4 as an uncosted study that may be added to the project at a later date. PHS subsequently agreed to fund WP4 on a staged basis to allow assessment of whether the accessibility and content of the data would permit a robust study.

PHS later confirmed that SPIRE would not be able to provide data to WP4 and proposed an alternative source of similar data – Albasoft, a non-NHS clinical software solutions company that has managed the extraction and provision of primary care data over a number of years. The research team worked with Albasoft and advanced through some of the staged process agreed with PHS. However, we were ultimately unable to secure access to the necessary data due to a combination of ongoing delays and increased costs for Albasoft's service arising from the COVID-19 pandemic. The research team and PHS agreed in February 2022 to end WP4 in

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the absence of viable options for completing the work within the time and resources available.

The proposed work may be restarted if circumstances change but it cannot be included in this final report and will not appear in Public Health Scotland's overall report drawing together evidence on the impact of MUP.

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8. Synthesis of findings from work packages 1–3

8.1. Introduction

Chapters 3 to 6 of this report present the results of three studies that use a range of research designs and methodologies to explore different aspects of the impact of MUP on people drinking at harmful levels. The three WPs assess the effects of MUP in different ways to provide a more detailed picture:

- WP1 used quantitative and qualitative methods to explore the impact of MUP on a wide range of outcomes among people presenting for treatment related to their alcohol dependence.
- WP2 uses qualitative methods and participant researchers to explore the impact of MUP among people drinking harmfully, with or without dependence, in the community. It also draws on data from the family members and carers of people drinking harmfully.
- WP3 uses quantitative methods to explore the impact of MUP on alcohol consumption-related outcomes among people drinking harmfully in the general population.

This wide-ranging set of approaches increases our confidence in our results and helps to indicate where conclusions should be tentative. Table 8.1 illustrates this by showing which WPs contribute to our understanding of each of the seven areas of interest outlined in Chapter 2. We now omit WP4 from this and future tables as it did not provide any results.

The different populations studied and methods used by each WP mean they provide different kinds of evidence. These different forms of evidence should be considered together as complementary sources of information that add to, support or challenge each other's conclusions. We briefly describe the important differences below.

WP3 uses a quantitative evaluation research design with a large sample that is broadly representative of the population of interest. This allows it to provide statistical estimates of the impact of MUP on a specific, but relatively small and narrow, set of outcomes. The quantitative component of WP1 also uses a quantitative evaluation research design and provides estimates of the impact of MUP across a much wider range of outcomes. However, the sampling challenges discussed in **section 3.3.3**

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and other features of the research design mean that the estimates from WP1 are generally less robust, in statistical terms, than those from WP3. In practice, this means that WP1 provides a large number of non-significant findings. For many of those findings, we cannot be sure whether they are non-significant because there was no impact from the policy or because the limitations of the sampling and research design mean our analysis did not identify actual impacts as statistically significant. The potential for such uncertainty was acknowledged from the start of the project. However, it was balanced against the need to ensure we identified and understood any particularly large impacts of the policy on people with alcohol dependence, especially if these could have negative consequences for people's health and well-being. We discuss our approach to the limitations of WP1 further across Chapter 4.

Table 8.1: Contribution of Work Packages to areas of interest

Area of interest	WP1	WP2	WP3
Purchasing, consumption and dependence	X	X	X
Positive and negative secondary effects	X	X	–
Impacts on health	X	X	–
Impacts on family and carers	X	X	X
Remote and rural areas	X	X	–
Service and policy response	X	X	–
Additional factors	X	X	–

WP1 and WP2 provide qualitative evidence, which can play an important role in identifying and understanding the impacts of new policies. In particular, it can help to: establish whether a particular change was caused by a policy; provide rich explanations of how and why the policy caused that change; offer additional detail on the nature of the change; and highlight changes potentially caused by the policy that require further investigation. However, it is important to avoid drawing conclusions about the scale of any changes or the overall impact of a policy on a particular outcome from qualitative data. For example, qualitative data may show that some

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people visited food banks more often due to the introduction of MUP, but it cannot tell us whether a large or small number of people did so, or whether MUP led to an overall increase or decrease in the number of people visiting food banks. We therefore need to be cautious about the types of conclusion we draw from our qualitative data and ensure they are supported by quantitative data where appropriate. Again, we discuss our approach to this in **section 8.3**.

8.2. Researcher standpoint

Research findings do not speak for themselves and must be interpreted by the researchers. This is particularly true in projects such as this one, where the research team must synthesise findings from very different WPs. The interpretations researchers draw from their findings are shaped by a range of factors, including their professional background, expertise, experience and values. In addition to these, there are two particular factors that shaped our interpretation of the results of this project.

First, several of the research team were substantially involved in producing, debating and defending evidence during the policy and legal processes that preceded the introduction of MUP in Scotland, and parallel processes in other countries. This benefited the project by sensitising the team to key questions and uncertainties that the research should address. However, it also means the team's assessment of the data gave particular attention to prominent topics in the policy and legal debate. These topics include the importance of strong ciders, the impact on economically vulnerable groups, the potential for substitution of alcohol for illicit drugs and the potential for cross-border trading. These topics were also prominent in the theory of change developed by PHS and analyses would therefore have focused on them anyway.

Second, the sequencing of WPs within this project and within the wider MUP evaluation programme affected our interpretations. WP1 and WP2 took place largely in parallel across 2017 to 2020, and we interpreted emerging findings after each wave of data collection. In contrast, the majority of analyses and interpretation of findings for WP3 took place from 2020 to 2021. This means that interpretation of WP1 and WP2 findings was shaped by early findings from the wider evaluation programme, including: preliminary findings shared in confidence before publication,

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which suggested high compliance with the policy; some shifts within the alcohol market; reduced alcohol consumption at the population-level, and particularly among households purchasing the most alcohol; limited evidence of impacts on vulnerable groups; and inconsistent trends in administrative data on alcohol-attributable deaths and hospitalisations.[1,39,66,93–95] Similarly, interpretation of WP3 was shaped by our awareness of these findings and the preliminary findings from WP1 and WP2. This particularly sensitised us to findings that were similar to those of previous studies and to those that differed markedly. For example, the high compliance with MUP by retailers that was reported in previous studies (e.g. by Dickie et al[95]) informed our interpretation that reports of purchasing alcohol for slightly less than £0.50 per unit after the introduction of MUP were most likely due to reporting error. Similarly, robust evidence that MUP led to reductions in alcohol consumption among the households purchasing the most alcohol (e.g. from O'Donnell et al[66]) meant we gave particular attention to aspects of our data that provided insights into why some respondents might not be reducing their consumption.

Researchers working on large projects can make any biases transparent and seek to reduce their impact by using and documenting a clearly structured interpretation and synthesis process. The next section describes the process used in this project.

8.3. The process of synthesis

The synthesis process had three main steps.

First, we reviewed the reports for each WP to identify and summarise the key findings for each of the seven areas of interest. This particularly drew on the summaries of findings presented at the end of Chapters 3 to 6. Given the different types of evidence they provide, we considered the quantitative and qualitative evidence from WP1 separately.

Second, we considered the type, volume and strength of evidence for each finding. Some findings are based on evidence from only one WP while others draw on supporting, or in some cases contradictory, evidence from several WPs. We took account of the design and methodology of each WP providing evidence as follows:

- Evidence of statistically significant impacts of MUP from the quantitative analyses in WP1 and WP3 were considered robust and due to MUP unless

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alternative evidence or explanations challenged this. Where possible, we sought supporting evidence for significant findings from the qualitative data and other quantitative data. We also used supporting qualitative data to further describe and explain the findings. In WP1, supporting data were particularly useful for understanding whether changes observed over time were due to changes in the behaviour of people presenting to treatment services or changes in the types of people who presented to these services.

- Non-significant quantitative findings were not included in the synthesis except as supporting evidence for findings that we originally identified within the qualitative studies (see below).
- Evidence of impacts of MUP from the qualitative analyses in WP1 and WP2 were initially assessed for comprehensiveness by checking whether the analysis had reached data saturation for the relevant finding. We then compared the finding against the quantitative data from WP1 and WP3 to assess whether there was any supporting evidence of change. This supporting evidence could include non-significant changes, but we are clear below that conclusions based on such evidence remain tentative and require further investigation or support (e.g. from the wider MUP evaluation programme).

Third, the research team agreed a summary statement for each finding. This process involved significant reassessments of data and findings from individual WPs. We particularly discussed the robustness of findings, including in relation to the points above, whether they could clearly be attributed to MUP and how they should be interpreted. This was particularly challenging for the qualitative data because, as discussed in Chapters 4 and 5, the people we interviewed often blended personal experience with second-hand experience, anecdote and speculation while not always positioning their narratives clearly in time. Moreover, people discussed a number of competing social, environmental and economic influences on their behaviour, with MUP not necessarily an important consideration among these. These features of our data made it difficult to establish whether and when a change had actually happened, who it had happened to and whether it could be attributed to MUP, either as a single cause or in combination with other factors. This adds to the tentative nature of some of our conclusions.

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Some of our findings provide useful information for the MUP evaluation programme, but do not clearly fit into the seven areas of interest. We provide these findings at the end of the synthesis. We encourage readers to engage with the preceding chapters for additional data that are not captured here.

8.4. Results of the synthesis

8.4.1. Area 1: Purchasing, consumption and dependence

Table 8.2 summarises the results from each WP on the impact of MUP on alcohol purchasing, consumption and dependence. As in previous chapters, we distinguish between those drinking at harmful levels, and the smaller group who have a physical or psychiatric dependence on alcohol.

Table 8.2: Summary of the findings of each work package on alcohol purchasing, consumption and dependence

Outcome	WP1 Quantitative	WP1 Qualitative	WP2	WP3
Prices paid	Increased. Minimal non-compliance by retailers	Increased. Minimal non-compliance by retailers.	Increased. Minimal non-compliance by retailers.	N/A[1]
Products purchased	Non-significant drop in strong cider consumption.	Switching to lower strength products and from ciders to spirits.	Switching from ciders to spirits and other drinks.	Non-significant drop in strong cider consumption and increase in vodka consumption.
Consumption level	No significant change.	Reduced for some.	Reduced for some.	Lower prevalence of hazardous drinking.[2]

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Outcome	WP1 Quantitative	WP1 Qualitative	WP2	WP3
Drinking patterns and practices	N/A	Some fear of potential increases in intoxication.	Increases in intoxication.	Limited evidence of fewer units per drinking occasion.
Severity of alcohol dependence	No significant change.	No change.	No change.	N/A

[1]N/A (not applicable) indicates that the WP was not designed to provide evidence on this outcome. [2]Hazaroud drinking: consuming 14–35/14–50 units in diary week for women/men.

WP1 and WP2 found consistent evidence that people drinking at harmful levels paid higher prices for their alcohol after the introduction of MUP, with minimal evidence of continued purchasing below £0.50 per unit. The proportion of WP1 respondents reporting their first drink of the Timeline Follow-Back Week (TLFB) week cost less than £0.50 per unit dropped significantly from 56.2% at wave 1 to 12.1% at wave 2, with the large majority of the remaining purchases below £0.50 likely to be due to minor reporting errors.

The qualitative studies captured several direct reports of people with alcohol dependence responding to MUP by switching from purchasing high-strength ciders or beers to purchasing either lower strength products or spirits. However, the quantitative data from WP1 and WP3 provides limited support for this change, with both studies reporting non-significant changes consistent with a drop in cider consumption, although this is only large in WP1. WP3 also reports a non-significant increase in the proportion of people drinking at harmful levels' consumption that is vodka.

The WPs did not provide consistent evidence of a change in alcohol consumption. Some respondents to the qualitative studies reported reducing their alcohol consumption, often as a result of making changes to the products they drank after the introduction of MUP. WP3 also detected a significant decline in the prevalence of **hazardous** drinking (i.e. consuming 14–35 units in the diary week for women, or 14–

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50 units for men). However, it found a small non-significant increase in the prevalence of **harmful** drinking. Similarly, WP1 showed no consistent trend in consumption across the three waves.

The WPs identified some tentative findings regarding the impact of MUP on drinking patterns and practices. Respondents in both qualitative studies suggested that consuming vodka, rather than beer or cider, meant they drank more units of alcohol in a shorter amount of time. This led to higher levels of intoxication and was regarded by respondents as a risk to themselves and others. In WP1, this was voiced as a concern and was based on past experiences rather than actual effects of MUP, but WP2 respondents did suggest people were intoxicated more often or to a greater degree. None of the quantitative studies were designed to provide evidence on this point. WP3 provided some contrary evidence by identifying a significant decrease in the units consumed per drinking occasion by people drinking at harmful levels. However, this finding was not robust to sensitivity analyses and relates to people drinking at harmful levels in general rather than people with dependence in particular.

The quantitative component of WP1 found no evidence that MUP reduced the severity of alcohol dependence among people entering treatment and this lack of change was also reflected in the WP1 qualitative data and the WP2 data collected from people drinking harmfully and their family members or carers in the community.

8.4.2. Area 2: Positive and negative secondary effects of MUP

Table 8.3 summarises the findings from each WP on the positive and negative secondary effects of MUP identified within our theory of change.

Table 8.3: Summary of the findings of each work package on positive and negative secondary effects of MUP

Outcome	WP1 Quantitative	WP1 Qualitative	WP2	WP3
Other spending	• Non-significant increase in alcohol spending.	• Increased alcohol spending.	• Increased alcohol spending.	N/A[1]

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Outcome	WP1 Quantitative	WP1 Qualitative	WP2	WP3
	• Self-reported reductions in other spending and attempts to obtain more money.[3]	• Cut-back on other spending. • Borrowed money.	• Cut-back on other spending. • Borrowed money.	
Cross-border shopping	No evidence.[2]	Increased among those close to the border with the means to do so.	Increased among those close to the border with the means to do so.	N/A
Substitutes for alcohol	Minimal.[3]	Some reports among those with previous experience of using illicit drugs.	Some reports among those with previous experience of using illicit drugs.	N/A
Theft of alcohol	Minimal.	Minimal.	Minimal.	N/A
Illicit alcohol	Minimal.	Minimal.	Minimal.	N/A
Seeking treatment	A small influence for some.[3]	A small influence for some.	A small influence for some.	N/A

[1]N/A (not applicable) indicates that the WP was not designed to provide evidence on this outcome. [2]No evidence indicates that the WP did not detect evidence of either change or stability in this outcome, although it could have done so. [3]WP1 asked respondents about recent changes in their behaviour and whether they attributed these to MUP. No significance tests were performed on these cross-sectional prevalence estimates.

In line with Area 1, the qualitative studies found consistent evidence of increased spending on alcohol. The quantitative data from WP1 also found a non-significant increase in weekly expenditure on alcohol from £85.57 at wave 1, to £95.23 at wave 2 and £106.88 at wave 3. A substantial minority of respondents to the WP1 quantitative study reported they had reduced spending on other things or sought to obtain more money since the introduction of MUP, with most attributing this to the

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policy. The qualitative studies reported similar experiences, with some respondents cutting back on household spending on food or utilities, borrowing money from various sources and going to foodbanks. These changes reflect general reports of increased financial strain among some of those with alcohol dependence following the introduction of the policy, although this was also attributed to other factors, such as the introduction of Universal Credit and the additional challenges for managing budgets that this entailed.

Both qualitative studies reported evidence of increased cross-border shopping among those living close to the Scotland-England border. This included using shops in England for regular grocery shopping, picking up alcohol while passing and specific trips to buy larger amounts of alcohol. The quantitative studies provide evidence on the extent of this change. There was, however, no evidence of increased cross-border purchasing among those living further from the border and the available evidence suggests only those with their own vehicle were making such trips.

There was little evidence of other negative responses to MUP. Although the qualitative studies identified limited evidence of people substituting illicit drugs for alcohol, this was generally less robust, less clearly connected to MUP and only seen among those with previous experience of illicit drug use. There was minimal evidence of increased theft or other criminality, or of consuming illicitly-produced alcohol in response to MUP.

Both WP1 and WP2 provide some evidence that the introduction of MUP prompted a small number of people to seek treatment for their alcohol dependence (e.g. less than 10% of the WP1 quantitative sample at waves 2 and 3). However, the qualitative studies data consistently suggested that MUP was one among several ‘nudges’ towards seeking treatment for those who did so and only a moderately important consideration rather than a determining force.

8.4.3. Area 3: Impacts on health

Table 8.4 summarises the findings from each WP on the impacts of introducing MUP on the health of people drinking at harmful levels.

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Table 8.4: Summary of the findings of each work package on health outcomes

Outcome	WP1 Quantitative	WP1 Qualitative	WP2	WP3
General health status	No significant change.	No evidence.	No evidence.[2]	N/A[1]
Withdrawal problems	N/A	No evidence of change.	No evidence.	N/A

[1]N/A (not applicable) indicates that the WP was not designed to provide evidence on this outcome. [2]No evidence indicates that the WP did not detect evidence of either change or stability in this outcome, although it could have done so.

The original project design relied on WP4 to provide most of our evidence regarding the impact of MUP on health outcomes. As WP4 was not completed, the project provides only limited findings in this area.

The remaining WPs suggest there were no substantial changes in the general health of individuals. Furthermore, neither of the qualitative studies identified evidence of increased problems with acute withdrawal following the introduction of MUP.

As described in **section 8.4.2**, there was also no evidence of people adopting alternative behaviours that may be directly harmful to health, such as switching from consuming standard alcoholic drinks to other drugs or to illicit or non-beverage alcohol.

8.4.4. Area 4: Impacts on family members and carers

Table 8.5 summarises the findings from each WP on the impacts of introducing MUP on the family members and carers of people drinking at harmful levels.

Only WP3 provided clear evidence of the impact of MUP on alcohol consumption among people drinking at harmful levels who lived with their partners or children. There was no significant change in the prevalence of harmful drinking in this group.

In line with Areas 1 and 2, the qualitative studies reported consistent evidence from people with alcohol dependence and their family members of increased financial strain on individuals and households arising from the introduction of MUP. This reflects the reductions in household spending on food and utilities, and also people

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borrowing money from household members or others to spend on alcohol. The quantitative data from WP1 do not provide clear insights into the impact on households, but it is likely that the changes reported in Area 2 affected family members as well as drinkers.

Table 8.5: Summary of the findings of each work package on family members and carers

Outcome	WP1 Quantitative	WP1 Qualitative	WP2	WP3
Consumption among drinkers living with partners or children	No evidence.[2]	No evidence.	No evidence.	No significant change in the prevalence of harmful drinking.
Financial	No evidence.	Increased financial strain.	Increased financial strain.	N/A[1]
Violence	No clear evidence of change.[3]	Some concerns due to increased intoxication.	Some concerns due to increased intoxication and financial strain.	N/A

[1]N/A (not applicable) indicates that the WP was not designed to provide evidence on this outcome. [2]No evidence indicates that the WP did not detect evidence of either change or stability in this outcome, although it could have done so. [3]No significant tests performed as there was no key outcome related to violence.

The qualitative studies also report concerns among family members and carers about increased violence following the introduction of MUP. Although people did not report actual instances of violence linked to the policy, they saw the perceived increase in intoxication levels, the increase in financial strain and the borrowing arising from financial strain as potential risk factors. The quantitative data in WP1

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provide only limited insights into violence, with no consistent change over time in respondents' reports of police being called to a domestic argument.

8.4.5. Area 5: Remote and rural areas

We found no clear evidence that MUP had specific impacts in remote or rural areas or that the impacts of the policy varied in these areas. The only exception to this was the evidence above on cross-border trading (see **section 5.3.5**). Although some cross-border trading took place in the rural areas around the Scotland-England border, we found no evidence this was due to rurality as opposed to the proximity of the border.

8.4.6. Area 6: Service and policy response

Table 8.6 summarises the findings from each WP on how services responded and supported drinkers prior to the introduction of MUP.

There was little evidence that service providers or other formal organisations responded to MUP by increasing people's awareness or understanding of MUP, helping them to prepare for the sharp increase in prices or providing additional support before, during or after the introduction of the policy. Instead, service users and those people drinking at harmful levels that we interviewed in the community expressed a significant lack of awareness and understanding of MUP before and after it was introduced. Our respondents were often unaware of the scale of price increases they would face and did not have clear plans for how they would manage this, although they were able to describe strategies they had used previously when alcohol was unaffordable.

Table 8.6: Summary of the findings of each work package on the service and policy response to MUP

Outcome	WP1 Quantitative	WP1 Qualitative	WP2	WP3
Preparedness for MUP among drinkers	Low preparedness[1]	Low preparedness	Low preparedness	N/A[2]

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Outcome	WP1 Quantitative	WP1 Qualitative	WP2	WP3
Awareness and understanding for MUP among drinkers	Low awareness and understanding	Low awareness and understanding among service users, but higher among service providers.	Low awareness and understanding.	N/A
Provision of information to drinkers	Minimal provision of information	Isolated instances of information provision from formal and informal sources.	Minimal provision of information.	N/A
Provision of support to drinkers	Minimal provision of support.	Limited support and by treatment providers only.	No evidence.[3]	N/A

[1] WP1 asked respondents about their preparedness for, and awareness and understanding of MUP, as well as any support that was provided before the introduction of the policy. No significance tests were performed on these cross-sectional prevalence estimates. [2]N/A (not applicable) indicates that the WP was not designed to provide evidence on this outcome. [3]No evidence indicates that the WP did not detect activity on this point, although it could have done so.

After MUP was introduced, few respondents described receiving information or support specifically related to the policy. However, over half said support was needed when we described the policy to them during the quantitative WP1 interviews. The instances of support we did identify were isolated, rather than part of a larger campaign or policy. They also came from a mixture of formal and informal sources. For example, one treatment service distributed its own information leaflets and one retailer warned customers that they planned to stop selling high-strength ciders.

Most service providers were aware of the policy and understood how it worked. However, in the absence of a regional or national campaign to raise awareness and understanding among people with alcohol dependence, or to offer additional support, services had neither the resources nor the expertise to develop new initiatives.

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8.4.7. Additional factors

Table 8.7 summarises evidence on other factors identified during the project that may have interacted with the impact of MUP on people drinking at harmful levels.

Table 8.7: Summary of the findings of each work package on additional factors that may interact with or explain identified changes

Outcome	WP1 Quantitative	WP1 Qualitative	WP2	WP3
Universal credit	N/A[1]	Exacerbated financial strain after MUP	Exacerbated financial strain after MUP	Controlling for Universal Credit roll-out did not change conclusions.
Increase in drug-related deaths	No evidence.[2]	No evidence.	No evidence.	N/A
Early impacts of the COVID-19 pandemic	No evidence.	No evidence.	No evidence.	N/A

[1] N/A (not applicable) indicates that the WP was not designed to provide evidence on this outcome. [2] No evidence indicates that the WP did not detect activity on this point, although it could have done so.

The qualitative WPs provide evidence that the financial strain caused by the introduction of both MUP and Universal Credit combined in problematic ways for people with alcohol dependence. In particular, paying Universal Credit at monthly rather than weekly intervals made it difficult to manage household budgets, which were strained before the introduction of MUP and faced greater strain afterwards. The quantitative WPs did not provide any additional evidence on Universal Credit, although a WP3 sensitivity analysis found controlling for the gradual roll-out of the policy did not change its conclusions.

We also considered the early stages of the COVID-19 pandemic and that changes in drug markets and availability that have driven increases in drug-related deaths as factors that might interact with the impact of MUP. However, none of the WPs detected any of these factors impacting on the outcomes we examined. Only a small

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minority of people with alcohol dependence also take other substances, and there was minimal evidence that MUP affected the wider substance use behaviours of this group (see **section 8.4.2**). Similarly, there were few known cases of COVID-19 in Scotland before WP1 suspended and then terminated data collection in early March 2020, WP2 ended data collection in September 2019 or WP3 data collected ended in February 2020. None of the datasets provide evidence that either the pandemic or concerns around it affected responses during this period.

8.4.8. Additional findings

Two additional findings emerged across several WPs, particularly the qualitative component of WP1 and WP2.

First, people with alcohol dependence and those providing services expressed ambivalent views on MUP. However, the low awareness and understanding of the policy among respondents meant their views often developed across the course of their interview. Few respondents identified any immediate benefits for people who were already dependent on alcohol and many explicitly ruled out such benefits, in line with our main findings. Some respondents also pointed to specific criticisms, such as MUP not addressing the underlying causes of alcohol dependence and the impact on economically vulnerable groups. A number of service providers also suggested the MUP was set at too low a level to be effective. However, as respondents considered the policy further, they often identified wider benefits, particularly for younger people at risk of developing alcohol dependence in the future or those with less severe levels of alcohol dependence. Service providers also welcomed the political focus on alcohol and contrasted this with previous perceived neglect of the issues.

Second, the responses of people drinking harmfully to MUP were shaped by their pre-existing strategies, with little evidence that people adopted wholly new patterns of behaviour. In many cases, this meant intensifying existing efforts to obtain more money for alcohol by different forms of borrowing or reducing other spending. Some of those living close to the Scotland-England border also increased or adapted their cross-border purchasing. In contrast, we identified no instances where individuals with no history of wider substance use began taking other substances. Similarly, we identified no evidence of increases in other criminal behaviour.

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8.5. Summary

The synthesis above provides a broadly consistent account across the WPs of the impacts of MUP on people drinking at harmful levels. We summarise the findings fully in Chapter 9 and briefly highlight the main points here. The clearest evidence relates to:

- Increase in prices experienced by people with alcohol dependence.
- A reduction in purchasing of strong ciders due to these price increases.
- Increases in financial strain among some individual drinkers and their family members.
- A lack of MUP-focused support for those with alcohol dependence before, during or after the introduction of the policy.

We also detected less robust evidence for several outcomes that require further investigation and monitoring to strengthen our conclusions. These include:

- Increases in cross-border trading between Scotland and England, but only among people living close to the border.
- MUP combining with Universal Credit to exacerbate financial strain for some households.
- Increased intoxication and perceived risks of intimate partner violence arising from drinkers consuming their alcohol as spirits rather than cider or beer.
- A reduced prevalence of hazardous (but not harmful) drinking.

There were also inconsistent findings as to whether the changes in prices experienced by people with alcohol dependence led to a change in alcohol consumption. Although some qualitative interviewees described such changes, the quantitative analyses found no significant changes and also no changes in the severity of dependence among those presenting to treatment services.

The synthesis also highlights the potential negative outcomes of MUP for which we found little or no evidence, across multiple populations investigated using multiple research methods. These include increased use of other substances in place of alcohol, increased crime to obtain or support purchasing of alcohol, increased consumption of non-beverage alcohol (e.g. mouthwash) or illicitly produced alcohol and increases in acute alcohol withdrawal cases.

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9. Discussion

9.1. Summary of findings

This project sought primarily to examine a wide range of potential impacts of MUP on people drinking at harmful levels. It particularly sought to identify and understand any impacts of the policy that might have negative consequences for people's health or well-being. As described in previous chapters, the limitations of the available data, methods and resources available to the project mean it does not provide unequivocal evidence on any single outcome. Nonetheless, the findings described below can contribute substantial evidence to the wider evaluation programme that can inform overall assessments of the impact of MUP.

9.1.1. Purchasing, consumption and dependence

The project findings suggest that the introduction of a £0.50 MUP in Scotland led to a marked increase in the prices paid for alcohol by people with alcohol dependence. There is also some evidence that it prompted a move away from purchasing high-strength ciders and beers, and towards purchasing spirits. However, the project found no clear evidence that MUP led to an overall reduction in alcohol consumption among people drinking at harmful levels, despite some individuals reporting that they had done so. There is also no evidence that the severity of alcohol dependence decreased for those with the condition.

9.1.2. Positive and negative secondary effects

People who struggled to afford the higher prices arising from MUP coped by using, and often intensifying, strategies they were familiar with from previous periods when alcohol was unaffordable for them. These strategies typically included obtaining more money by reducing spending on food and utility bills, increasing borrowing from sources such as family, friends or pawnbrokers, running down savings or other capital, and using foodbanks or other charities. In line with this, the policy increased the financial strain felt by a significant minority of people with alcohol dependence. In some cases, the concurrent rollout of Universal Credit may have exacerbated this strain as people struggled to manage their household budget while paying more for alcohol and receiving benefit payments at monthly rather than weekly intervals.

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There was little evidence of other potentially harmful responses to MUP. Some people with alcohol dependence and their family members reported concerns about increased intoxication due to the increased consumption of spirits rather than cider. There were also concerns in a small number of cases about increased intoxication leading to violence, but our data contained no information on any violent incidents, so the existence and extent of such problems remains unclear. In other areas of potential harm, few people reported substituting illicit drugs for alcohol, and the individuals that discussed this were already using other substances before the introduction of the policy. Similarly, few people reported consuming illicitly produced alcohol, stealing alcohol or committing other crimes to obtain alcohol or the money to pay for it. There were also no reports of increased incidents of acute withdrawal symptoms following the introduction of MUP. In contrast, the policy did contribute to decisions to enter treatment for a minority of people, but its contribution was usually modest and one among many considerations.

9.1.3. Impacts on health

The project provided only limited information on health outcomes due to WP4 not being completed. There was no evidence that MUP led to changes in the general health of people drinking at harmful levels or any increases in problems associated with acute withdrawal.

9.1.4. Impacts on family and carers

The project identified only limited direct evidence of how MUP has affected the families of people drinking at harmful levels. Some family members echoed drinkers' accounts of increased financial strain and, as discussed above, raised concerns about the potential for increased violence in their homes, either due to this strain or to the perceived higher levels of intoxication among those who had switched from drinking cider or beer to spirits. However, as noted above, there was no evidence that these concerns about violence had been realised.

9.1.5. Remote and rural areas

There was also little evidence that the impact of MUP varied markedly between urban, rural and remote areas. The exceptions to this are reports of increased purchasing of alcohol in England among those living in the rural areas close to the

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Scotland-England border. This appeared due to the closeness of the border rather than the rurality of the area. The extent of cross-border trading was also unclear in our data. People reported responding to MUP by moving their weekly grocery shop to supermarkets in England, buying alcohol when crossing the border for work or other reasons and travelling to England specifically to make bulk purchases of alcohol. We detected no evidence of people purchasing alcohol in England to provide or sell to others in Scotland. Those reporting cross-border purchases generally had access to their own vehicle and some used this to travel to England for work.

9.1.6. Service and policy response

Finally, people with alcohol dependence and other people drinking at harmful levels had only a limited awareness and understanding of MUP before its introduction. Few understood the details of the policy, the rationale for introducing it or the price increases it would lead to. In most cases, they received no additional information or support related to MUP before, during or after the introduction of the policy from either treatment services or other sources of information. Although greater support may have benefited some people drinking at harmful levels, we identified no evidence that the lack of support contributed directly to any harmful outcomes of the policy.

9.2. Comparison with previous research within and beyond the MUP evaluation programme for Scotland

The findings above can usefully be separated into three themes when considering their alignment with the wider MUP evaluation programme and other relevant research.

First, regarding implementation, our findings align with previous studies in concluding that the implementation of MUP in Scotland was broadly successful from a policy mechanism and enforcement perspective. Like other studies, we detected clear evidence of large price increases for the cheapest products that contribute substantially to consumption among those drinking at harmful levels, and few reports of non-compliance by retailers or attempts to circumvent the policy.[33,66,94,95] The large price increases facing people drinking at harmful levels in our sample were

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widely anticipated by research conducted during the political and legal processes preceding implementation, given the preference among such drinkers, and particularly those with alcohol dependence, for the cheaper and stronger products targeted by MUP.[21,25,80] Nonetheless, it is important to note that not all people with alcohol dependence were substantially affected by the policy and many of those providing data to our study already paid more than £0.50 per unit for their alcohol or could straightforwardly afford to do so. Beyond policy mechanisms and compliance, our findings also align with research conducted before the introduction of the policy, which concluded there was widespread misunderstanding of MUP among people with alcohol dependence in Scotland, as well as difficulties in understanding its effects and an inability to adequately or prepare for the policy.[30] Ensuring those affected by a policy are aware of and prepared for its effect is an important aspect of the implementation process,[96] which is not addressed in previous evaluations of MUP in Scotland. Our findings therefore point towards important limitations of the implementation process that are not described elsewhere.

Second, regarding the effects of MUP on alcohol consumption among people drinking at harmful levels, our finding of no clear evidence for a reduction in consumption differs from other research published to date. Specifically, two time series analyses of alcohol purchasing data from a household panel study concluded that the highest purchasing fifth of households reduced their purchasing by more than other households after the introduction of MUP in Scotland.[35,66] These wider findings align with modelling exercises conducted before the introduction of the policy,[7] similar modelling exercises conducted across the UK and internationally,[22,80] and also related evidence of mixed quality from some international evaluations of minimum pricing policies that examine health outcomes closely associated with harmful drinking (e.g. alcoholic liver disease).[8,9,15–17]

The most statistically robust evidence from this project on the impact of MUP on alcohol consumption among people drinking at harmful levels comes from WP3, although this is supported by evidence from the quantitative analyses in WP1, which focused only on the minority of people with alcohol dependence drinking at harmful levels. Like the two previous studies mentioned above,[35,66] WP3 used a robust interrupted time series design to analyse a large market research dataset. Also similar to the previous studies, WP3 did not directly analyse levels of alcohol

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consumption among people drinking at harmful levels. The previous studies examined change in alcohol purchasing among the highest purchasing households, without being able to say how alcohol was distributed between individuals within those households or which individuals changed their consumption. In contrast, WP3 examined changes in the prevalence of harmful drinking within the population, without directly evaluating how alcohol consumption levels changed among people drinking harmfully. As such, the results of all of these studies should be considered alongside a wider body of evidence when assessing the impact of MUP on people drinking at harmful levels. Of particular importance will be future analyses of the impact of the policy on morbidity and mortality from health conditions closely associated with harmful drinking (e.g. liver cirrhosis or alcohol poisoning). Such outcomes are closely associated with the aims of the policy, but also provide a more direct and objective indicator for whether MUP is affecting those at greatest risk of harm.

However, the lack of an overall change in alcohol consumption levels or dependence severity among those with alcohol dependence, as opposed to those drinking at harmful levels more generally, is broadly in line with other research on people with alcohol dependence. Previous research largely, but not exclusively, uses qualitative methods and includes evidence from those providing services to people with dependence in Scotland and Wales prior to the introduction of the policy,[29,39] and previous research with drinkers themselves.[27,30,43,97] Broadly, this prior work concluded that people with alcohol dependence are a diverse population, many of whom have multiple and complex support needs. The price of alcohol is therefore only one among many influences on their alcohol consumption and price increases were not expected to lead consistently to alcohol consumption decreases. Instead, as with service users and providers within our study, participants in prior research felt the greatest benefits may be the prevention of future cases of alcohol dependence in younger generations.

Third, regarding the wider effects of MUP on people with alcohol dependence, our results broadly align with previous work that emphasise the importance of adopting a nuanced approach towards the nature of such effects and those experiencing them. Previous research mostly examines hypothetical and often short-term changes in alcohol affordability, and often focuses on people with more severe problems related

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to alcohol dependence than our study.[27,43] Nonetheless, it suggests that people with alcohol dependence and other heavy drinking populations do not manage the affordability of alcohol in a single or dominant way. Instead, people draw on a diverse range of approaches that reflect their individual characteristics and previous behaviours. For example, a study using N-of-1 methods collected detailed longitudinal data on a small number of people drinking at hazardous and harmful levels before, during and after the introduction of MUP in Scotland.[98] It concluded that the 'observed individual patterns [of changing behaviours] lend some support to the theory of change for the MUP policy, but also uncover substantial differences in how individuals may respond' (p.1729). Similarly, a survey exploring how homeless people with alcohol dependence in Canada cope when alcohol is temporarily unaffordable found that each of the following responses was reported by at least 40% of survey respondents: re-budgeting, waiting for money, making their supply of alcohol last longer, going without alcohol or drinking non-beverage alcohol, although the last of these, drinking non-beverage alcohol, was part of the eligibility criteria for this study and is therefore unusually high.[27] Nonetheless, these diverse but widespread responses indicate the lack of uniformity in how people with alcohol problems manage the affordability of alcohol. The specific responses identified within our study therefore appear typical, with an emphasis on securing additional money, reducing alcohol consumption where necessary, and only using criminality or other substance use in a small number of cases where this aligned with past behaviour. This is best understood as MUP prompting an intensification of pre-existing behaviours and coping strategies rather than the adoption of new ones.

9.3. Strengths and limitations

Chapters 3 to 6 discuss the strengths and limitations of individual WPs. We therefore focus below on the project as a whole.

The project's key strength is the broad range of research methods used, populations studied and outcomes examined. This includes: studying both people drinking at harmful levels and those with alcohol dependence; using methods including detailed drinking diaries; individual and group interviews; and structured questionnaires and participant researchers. It also includes: examining outcomes related to alcohol consumption and purchasing; drinking contexts; subjective health and well-being;

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illicit substance use; economic vulnerability; family experiences; sociodemographic characteristics; and provision of formal and informal support. This breadth allowed for a detailed account of the impact of MUP on people drinking at harmful levels, which recognised how their alcohol consumption interacts with many other aspects of their lives. The breadth also allowed us to compare, contrast and synthesise findings from the different studies to draw more robust overall conclusions and indicate where additional research is needed.

Within this broad design, the project also included several 'hard to reach' populations that are often excluded in studies of harmful drinking, including key modelling studies informing the policy debate around MUP.[80] In particular, WP1 and WP2 recruited large samples of people with experience of alcohol dependence in treatment settings and in the community. WP2 additionally included the family members and carers of those with alcohol dependence and trained several people in recovery from alcohol dependence as Privileged Access Interviewers. These individuals contributed to data collection and elements of data analysis.

The research designs used across all WPs draw on best practice guidance for evaluation of natural experiments.[99] The quantitative studies in WP1 and WP3 used difference-in-difference and interrupted time series designs, while the qualitative studies collected in WP1 and WP3 collected data before and after the introduction of MUP to provide opportunities for comparative analyses. All WPs also used data from control populations in Northern England. These designs, along with the overall multi-method approach, strengthen our ability to attribute changes observed in our data to the effects of MUP.

The project also benefits from there being few other major concurrent changes that could explain changes seen in the data. The gradual roll-out of Universal Credit is one possible exception, as some qualitative respondents described this interacting with MUP. The COVID-19 pandemic also caused the early termination of wave 3 data collection in WP1, but did not appear to affect any of the data collected prior to March 2020 and used in the analyses. We found no evidence that other potential confounding factors, such as the changes in drug markets and availability underlying increased drug-related deaths, impacted on our main outcomes of interest.

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The project does, however, have some limitations. Despite the wide range of populations studied, there remain important groups of people drinking at harmful levels that we did not study directly, while those that were studied were sometimes only studied using a single method. For example, WP2 did recruit people with alcohol dependence in the community, but many of these were in contact with recovery groups and we only examined the effects of MUP on this population using qualitative methods. The study therefore may not have fully captured the impact of MUP on people with alcohol dependence who are not in contact with any formal or informal support. The challenges faced by WP2 also meant it did not generate as much data focused on family members of those drinking harmfully as originally planned. This limited our insights into the impacts of MUP on this group. Similarly, although the Alcovision data used in WP3 provides insights into the impact of MUP on people drinking at harmful levels that are not available in any other dataset, the sample is limited to people who are part of Kantar's online managed access panels. The characteristics of people drinking at harmful levels who are within these panels may differ from those who are not, and the latter group are largely not present in other WPs within the project. Finally, terminating WP4 without obtaining any results meant we limited our study of people drinking at harmful levels only to those participating in online market research panels, who may differ from the wider population of harmful drinkers in important ways. Caution is therefore required when assessing whether the conclusions we draw apply fully to the wider population of people drinking at harmful levels or with alcohol dependence in Scotland and whether we have fully captured the impact on their family members.

The project was also limited by the lack of suitable data sources for analysing impacts of policy on harmful drinking. In particular, there is no central database capturing information on people with alcohol dependence who present to treatment services. In England, the National Drug Treatment Monitoring System provides this information, but there is no equivalent in Scotland. This meant our research relied on the pragmatic sampling approach described in WP1 and was not able to assess changes in basic outcomes potentially affected by MUP, such as the number of people presenting to treatment services and treatment outcomes. Similarly, the project was unable to draw on longitudinal data recording changes in harmful drinking among individuals followed over time. Such data would provide a more

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direct estimate of the impact of policy but would be difficult to collect given high levels of attrition in such studies and the resources involved in achieving a sample large enough to deliver statistically significant findings.

Other limitations of the research include the use of non-random samples in both quantitative WPs, the lack of findings on health outcomes due to the termination of WP4 and the well-known problems with measuring alcohol-related outcomes using surveys.[64,100]

9.4. Implications for policy and practice

9.4.1. Assessing the effectiveness of MUP among people drinking at harmful levels

Reducing alcohol consumption among those drinking at harmful levels was among the Scottish Government's key objectives for MUP[101] and a key feature of policy debates in other jurisdictions considering introducing the policy.[102–104] The lack of evidence in this project for this specific reduction, despite clear evidence that people drinking at harmful levels experienced large price increases, introduces greater uncertainty as to whether the policy is achieving its intended effects. As discussed above, studies evaluating the effect of MUP in Scotland to date generally find that the policy led to a reduction in alcohol consumption among the population as a whole,[1,33,66] with some studies also suggesting that reductions in alcohol purchasing were largest among households purchasing the most alcohol.[35,66] Therefore, the limited evidence for consumption change in this project may reflect the limitations discussed above and in Chapters 3 to 7. However, it may also reflect lack of change among people drinking at harmful levels, which could occur for at least four reasons.

First, people drinking at harmful levels or those with alcohol dependence may simply be less responsive to price changes than lighter drinkers. We found some evidence supporting this view in WP1 and WP2 where people with alcohol dependence argued they and their peers would find some way to obtain alcohol despite any price rises. However, the price responsiveness of this population is generally under-researched, which limits our ability to assess this proposal. There is more evidence on the price responsiveness of the wider population of people drinking at harmful levels. MUP targets larger price increases on heavier drinkers because of their

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preference for cheaper, stronger products.[18] This means that the price responsiveness of this population would need to be very low, and the responsiveness of other drinkers much higher, to fully explain our results and those suggesting MUP led to reductions in overall sales.[1] Previous analyses provide conflicting evidence as to whether people drinking at harmful levels are unresponsive to price increases, less responsive than other drinkers or more responsive.[81–86] It is therefore unclear whether non-responsiveness is a sufficient explanation for any lack of change among people drinking at harmful levels.

Second, many of those with alcohol dependence adopted strategies to manage the effects of MUP that may not be sustainable. These strategies included borrowing money, running down capital or reducing spending on food and utilities. Our theory of change anticipated that individuals with such strategies may eventually reduce their alcohol consumption as it becomes more difficult to obtain money. Participants in our qualitative research also described changing their alcohol consumption as a last resort, only after other viable options were exhausted. Under this explanation, reductions in alcohol consumption may emerge in the future, particularly if alcohol prices rise further or the Scottish Government increases the MUP.

Third, as argued by some interviewees in WP1 and WP2, it may be that MUP primarily affects younger generations and prevents the development of future cases of alcohol dependence and, potentially, harmful drinking. As such, we are not yet able to observe any beneficial effects. This life course perspective was not explicitly part of the rationale underpinning MUP, despite often being raised in discussions relating to people with alcohol dependence, and therefore lies outside PHS's theory of change. There is, however, substantial evidence that alcohol consumption patterns established in adolescence and early adulthood have effects throughout later life.[105,106] Similarly, an analysis of Swedish data found that a birth cohort who grew up during a temporary period of restrictive alcohol policy now consume less alcohol as adults than adjacent cohorts who grew up during periods with more liberal policies.[107] If the effects of MUP on alcohol dependence are driven by life course processes associated with adolescence, those growing up under MUP may find it easier to avoid developing alcohol problems while those who grew up in earlier periods may find it harder to reduce their drinking.

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Finally, the MUP may be too low currently to produce detectable changes in alcohol consumption among people drinking at harmful levels. This was suggested by some of the service providers we interviewed, while some of those with alcohol dependence noted the policy only had a small impact on the prices they paid. In other cases, we identified clear accounts of service users, service providers and those in the community reporting that they or people they knew had reduced their alcohol consumption in response to MUP, and no comparable accounts of consumption increases. Taken together, these findings suggest the impact of a £0.50 may be too small to be detected in the group focused on here and using the methods employed in this research, or may be only modest in general.

Modelling studies conducted before the introduction of the policy and alcohol pricing data support the latter explanation. Model-based analyses suggest that the effects of MUP are small at lower price thresholds but increase rapidly at higher thresholds.[108] This reflects the proportion of alcoholic products that are affected by the MUP because they are sold at a lower prices, and the degree to which those products are affected. Due to normal price inflation (and also changes in consumer behaviour), the proportion of off-trade alcohol units sold below £0.50 dropped from 77% in 2009 during the initial debates around MUP,[*] to 60% in 2012 when the Scottish Parliament passed the Alcohol (Minimum Pricing) Act, to 51% in 2015, the year on which the final modelled estimates of policy impact were based, to 44% in 2018 when the Scottish Government introduced MUP.[38,109] Each drop suggests a decline in both the proportion of products affected by the policy and the price increase imposed on each affected product. The Scottish Government has also not increased the MUP since implementation. This means the difference between current prices and those that would be in place without MUP has continued to decline, reducing the impact of the policy. Data for England and Wales provide an indication of this underlying reduction in impact, with just 34% of off-trade alcohol units sold below £0.50 during 2020.[110] Overall, this suggests that a gap between the policy proposed and the policy implemented may contribute to explaining any lack of effectiveness among people drinking at harmful levels.

[*] The Scottish Government proposed the MUP would be set at £0.35, £0.45 and eventually £0.50 during their analysis of evidence and the policy debates conducted between 2008 and 2012.

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The uncertainty around these explanations and the inconsistent evidence across evaluation projects as to whether MUP effectively reduced alcohol consumption among people drinking harmfully means it will be important to consider additional evidence sources. In particular, PHS will undertake time series analyses of health outcomes closely linked with harmful drinking, such as mortality and hospitalisation rates for alcoholic liver disease and alcohol poisoning, and these will provide valuable evidence. Rates of mortality from chronic disease associated with alcohol can change rapidly in response to changes in alcohol consumption,[111] but the ability of the researchers to detect such changes may be hindered by the impact of the COVID-19 pandemic on wider population health, including mortality rates for alcohol-attributable conditions.[112]

9.4.2. Financial strain

The project found clear evidence that some people with alcohol dependence experienced increased financial strain following the introduction of MUP. This was widely anticipated based on research published during the policy debate,[24,25,30] and may also reflect high levels of pre-existing financial strain following the UK Government's austerity programme that reduced the value and breadth of welfare payments available to low income households.[113] It is also a necessary feature of the policy as its principle mechanism is to deter alcohol purchasing among heavier drinkers by reducing the affordability of the cheaper and stronger alcohol they are more likely to purchase.

Policy-makers and practitioners in Scotland, and other jurisdictions considering introducing MUP, should therefore give greater attention to supporting people with alcohol dependence in managing the increased financial strain. This may include an emphasis on financial management within treatment and recovery provision, either through the use of bespoke interventions or inclusion of specialist agencies within collaborative delivery arrangements. Any financial strain caused by MUP affects not only drinkers, but their family members and others around them. Therefore, additional support should also extend to engaging key stakeholders in developing family-level and peer-based strategies. Further, harm reduction-based approaches should recognise the importance of food banks and similar services in supporting people with alcohol dependence and their families during periods of acute reductions

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in alcohol affordability. Effective sign-posting and support for these services may play an important role in limiting any negative outcomes from MUP. These approaches are of course remedial, and governments wishing to reduce alcohol-related harm should also look to address the wider health, social and economic inequalities that contribute causally to, and intersect with, alcohol dependence.[114]

In line with this, the interacting effects of MUP and Universal Credit on financial strain raise the importance of governments considering their policy programmes from a systems perspective rather than as isolated initiatives.[115] While not directly applicable in this case, as the Scottish Government introduced MUP while the UK Government introduced Universal Credit, future policy-makers should consider whether other policies affecting financial strain may worsen any negative consequences arising from the introduction of MUP.

9.4.3. Wider negative outcomes

The lack of wider substantial negative outcomes is important as such outcomes are often raised by stakeholders in policy debates around MUP. The policy is primarily conceived as a targeted population-level public intervention.[44] As such, it aims to reduce alcohol consumption among the general population and particularly those consuming at higher levels. It is not a policy designed to reduce alcohol consumption among those with alcohol dependence, which is best addressed through well-designed and resourced treatment systems.[117] However, concerns around severe, widespread and diverse negative impacts among people with alcohol dependence mean some policy-makers may, conversely, have regarded the policy as a threat to public health. The findings of this project suggest such concerns are misplaced, at least for a MUP set at £0.50.

Similarly, MUP does not appear to lead to additional challenges in rural or remote areas. This is a concern in some European countries that have legislated to introduce the policy, including Ireland, Wales and Scotland. It is also a major concern in the Australian Northern Territory, although the nature of Australian rurality is of a greater order of magnitude than in the British Isles, and intersects in important ways with health inequalities related to indigenous communities.[118,119]

Although we detected some evidence of cross-border trading, this was limited to the small communities living close to the England-Scotland border, shopping for

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personal or family consumption, and to those individuals with private transport. Although this may limit the effectiveness of MUP to a small degree, it is unlikely to impact substantially on the overall effectiveness of the policy in countries with sparsely populated border regions. Therefore, it does not appear to merit remedial actions by policy-makers.

9.4.4. Information and support for people with dependence

The lack of MUP-related information or support provided to people with alcohol dependence before, during or after the introduction of the policy is noteworthy. MUP was debated extensively within and beyond the Scottish Government, public health organisations and treatment providers across a 10-year period prior to implementation. It was clear throughout that period that the policy would impose large price increases on the products preferred by people with alcohol dependence, and that this entailed significant health, social and economic risks. These negative secondary effects were a prominent feature of the theory of change prepared by PHS and part of the rationale for commissioning the current project. It is therefore surprising that we found no evidence of a concerted effort to ensure that those vulnerable to such negative effects were adequately prepared for the policy, supported to mitigate any harms and, where possible, encouraged to use the opportunity to make positive changes with regards to their alcohol problems.

Future policy-makers should implement appropriate awareness-raising campaigns, outreach work and tailored support within treatment and recovery services ahead of introducing MUP or substantially increasing its level. For example, such action was taken in Wales before the introduction of MUP after a pre-implementation study raised similar concerns prior to those identified above.[29] These activities should be designed to ensure those subject to large or negative impacts from the policy are prepared and equipped with appropriate coping strategies that minimise ill-effects and increase the potential for MUP to support rather than hinder recovery. Local retailers may have an important role to play in this work as they have regular contact with those drinking at harmful levels in the community and can straightforwardly identify individuals purchasing products that would be substantially affected by MUP. Pre-implementation engagement with retailers to increase compliance may usefully

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also seek to engage them in informal activities to raise awareness among their customers.

9.5. Future research priorities

The MUP evaluation programme overseen by PHS includes a wide range of studies covering most aspects of the anticipated effects of the policy. We therefore limit our recommendations for research to topics specifically related to the present project's focus on people drinking at harmful levels.

First, more research is required into the price responsiveness of people drinking at harmful levels and those with alcohol dependence. The response of the latter group to pricing interventions in particular is poorly understood. Our findings suggest people with alcohol dependence conceptualise the affordability of alcohol in a broad sense and make use of multiple strategies to maintain affordability. Further characterisation of this activity and its impact on the wider health and well-being of both drinkers and their families is necessary, given the centrality of alcohol price increases to the policy recommendations of public health advocates and the possibility that policy-makers may in future implement higher MUPs. Such research would be supported by increased long-term routine collection of alcohol consumption and spending data from people with alcohol dependence, and particularly collection of longitudinal data that would permit robust estimation of alcohol price elasticities.

Second, as some of the impacts of MUP on people with alcohol dependence intersected with behaviours that appeared unsustainable (e.g. borrowing money), research funders should commission follow-up studies to explore the longer-term effects of the policy on this population. This research could draw on both qualitative and quantitative designs and should seek to provide evidence on both the effectiveness of MUP in reducing alcohol consumption and the extent to which financial strain produced by the policy increases or decreases over time.

Third, researchers should consider ways to assess the impact of MUP on the development of new cases of harmful drinking and alcohol dependence. Research designs that may offer useful insights include: a) longitudinal epidemiological research comparing life course alcohol consumption trajectories across different birth cohorts or across age groups within panel studies; and b) qualitative research

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comparing accounts from different generational cohorts of the development of high risk alcohol consumption trajectories or the consumption and purchasing behaviours for those with alcohol dependence.

Fourth, the qualitative components of this project identified concerns regarding the increased intoxication and the potential for increased intimate partner violence arising from drinkers consuming more spirits after the introduction of MUP. Research funders should commission targeted research, including data collected from the family members of people with alcohol dependence, to assess the extent and nature of this problem.

Fifth, improved data infrastructure that permits routine monitoring of the characteristics of people presenting for treatment for alcohol services would improve researchers' ability to evaluate alcohol policies affecting this population. The Scottish Government and related public health organisations should invest in a system equivalent to England's National Drug Treatment Monitoring System to support such work. Although such a database would not provide the detailed information collected in WP1, it would provide a better understanding of the changing characteristics of the treatment population over a given time period, including basic data on the numbers of people presenting for treatment and treatment outcomes. This would clearly also have much wider utility for research, policy-makers, practitioners and other stakeholders beyond policy evaluation.

Sixth, the Scottish Government and Public Health Scotland should continue efforts to develop primary care datasets and associated data linkage services to support studies such as the planned WP4. Primary care data linked to health outcomes are a valuable resource for public health and evaluation research in general, and particularly for research studying small or otherwise hard to reach populations, such as people drinking at harmful levels.

9.6. Conclusions

The introduction of a £0.50 MUP in Scotland led to a marked increase in the prices paid for alcohol by people with alcohol dependence. There is no clear evidence that this led to reduced alcohol consumption or levels of alcohol dependence among people drinking at harmful levels. There is some evidence it increased financial strain

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among economically vulnerable groups but no clear evidence that it caused wider negative consequences, such as increased criminality, illicit substance use or acute withdrawal. People with alcohol dependence received little information or support prior to the introduction of MUP, but there is no clear evidence this led directly to any harmful outcomes.

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