

Title: Mapping discourse coalitions in the Minimum Unit Pricing for alcohol debate: A discourse network analysis of UK newspaper coverage

Abbreviated title: Mapping discourse coalitions in the debate on MUP

List of authors:

Gillian Fergie*, MRC/CSO Social and Public Health Sciences Unit, University of Glasgow
Gillian.Fergie@glasgow.ac.uk

Philip Leifeld, Department of Government, University of Essex; and School of Social and Political Sciences, University of Glasgow
philip@philipleifeld.com

Ben Hawkins, Faculty of Public Health and Policy, London School of Hygiene and Tropical Medicine
Ben.Hawkins@lshtm.ac.uk

Shona Hilton, MRC/CSO Social and Public Health Sciences Unit, University of Glasgow
Shona.Hilton@glasgow.ac.uk

*corresponding author

Word count: 4491

Declaration of interests: The authors have no sources of funding, direct or indirect, nor any other connection with the alcohol industry, nor any body substantially funded by one of these organizations.

Abstract:

Background and Aim: Minimum Unit Pricing (MUP) for alcohol was introduced in Scotland on 1 May 2018 and is now on the policy agenda in other devolved administrations and at Westminster. Previous research has explored the arguments deployed for and against MUP, but the congruence between actors in the MUP debate has not been sufficiently examined. This study identified and mapped the discourse coalitions that emerged in the UK MUP debate through an analysis of actors' use of arguments in media coverage of the policy debates.

Design: A sample of print media coverage of MUP was obtained from the LexisNexis newspaper database. The resulting sample was imported into discourse network analysis (DNA)-software for coding and subsequent visualisation of actor networks.

Setting: United Kingdom.

Observations: 348 articles from eight UK-wide and three Scottish newspapers from an 18-month period, ending in November 2012, were analysed.

Measurements: Actors' arguments were coded to generate structured data for conversion into a weighted actor network where ties represent similarities among actors in terms of arguments in support of or opposition to MUP.

Findings: Two polarised discourse coalitions, Opponents and Proponents of MUP, emerged in media coverage. The Proponents coalition consisted mainly of health advocacy groups, charities, political parties and academic institutions. In the Opponents coalition, the networks were formed of key alcohol manufacturers and economic think-tanks. Whilst producer organisations were central to the Opponents coalition, some commercial actors were more favourable to MUP highlighting divisions within the industry overall.

Conclusions: Media coverage of Minimum Unit Pricing (MUP) in Scotland from June 2011 to November 2012 showed alignment between the policy positions of 1) alcohol producers and think-tanks opposed to MUP; and 2) public health advocates and health charities in favour of the policy. Some alcohol industry actors were supportive of MUP indicating divisions amongst the industry. Discourse network analysis may be usefully applied to study other highly contested policy issues in health and beyond.

Introduction

Forms of minimum alcohol pricing have been in place across various Scandinavian countries and Canadian provinces for several years, offering governments an opportunity to both raise revenue and stabilise markets (1). The implementation of similar policies, with the explicit aim of reducing consumption and minimising health harms, has been widely debated since the Scottish Government announced its interest in Minimum Unit Pricing (MUP) for alcohol. Attracting international interest, the policy is now under consideration across various international contexts, including Ireland, Estonia (2) and Australia (3), as well as elsewhere in the UK. In these contexts, and across the UK, the impact of MUP is heavily anticipated. Following the UK Supreme Court ruling in November 2017 against the Scotch Whisky Association's challenge to the policy, MUP was introduced in Scotland on 1st May 2018 (4). This internationally significant policy passed into law in Scotland in June 2012 (the Alcohol (Minimum Pricing) (Scotland) Act). At Westminster, the extension of the policy to England was shelved in 2013 with the Conservative-Liberal Democrat coalition government citing a lack of evidence, it remains under review (5). In Wales, the Public Health (Minimum Price for Alcohol) (Wales) Bill was introduced to the National Assembly in October 2017 and in Northern Ireland the Department of Health have announced a consultation paper on MUP for consideration in 2018 (6). The progress of MUP has been highlighted as an illustration of the complexity of the policy process (7), with a range of factors determining the status and traction of the policy across political contexts (8, 9).

Complex policy processes can be conceptualised as networks of political "actors" or stakeholders with an interest in the formation of a particular policy, that form coalitions in order to shape and influence policy debates (10, 11). The Advocacy Coalition Framework (ACF) posits that actors with similar normative policy beliefs can be identified and that these entrenched coalitions compete about policy design over long time periods (12). Argumentative discourse analysis suggests that actors influence each other through arguments and position themselves at "particular sites of discursive production," which are referred to as "discourse coalitions" (13). Exploring the discourses produced in a policy debate, the networks of actors that coalesce around particular assemblages of beliefs, and the discourse coalitions that emerge from debates provides insights into the complex process of policy development.

In relation to MUP, a broad range of actors have been identified as stakeholders in the policy debate. Previous work on media representations of MUP highlights the role of advocates (public health groups, health charities and academics) in making supportive statements about the policy in media coverage of the debate (14). Support for MUP was also evident among wider policy stakeholders including the police and National Health Service (NHS) (15). Previous research on alcohol policy, in general, and MUP in particular, has also highlighted the importance of the alcohol industry as key influencers (16-19). Direct mechanisms of industry influence include responses to consultations, lobbying activities, widespread media presence and legal challenges (16, 19). More indirect influence by industry through organisations such as think tanks (18) and charities (17), as well as through alliances with consumer/civil society groups and engagement in social responsibility activities (19) has also been noted.

Currently, a nuanced picture of the congruence between actors in the MUP debate is lacking. No studies have provided visual representations which reflect the polarisation and configuration of

actors and organisations involved in the debate. Consequently, the present article seeks to identify the discourse coalitions active in the alcohol policy debate through actors' use of arguments in print media coverage of MUP using the method of discourse network analysis (11, 20). By exploring in detail explicit agreement and disagreement between organisations involved in alcohol policy development such analyses can provide opportunities for triangulation of existing evidence on policy influences, offer new insights on the impact of relationships between actors on stated policy positions, and help identify sites for targeted public health advocacy.

Methods

Design

The method of Discourse Network Analysis (DNA), which combines qualitative content analysis with network analysis to facilitate the study of policy debates (11, 20), was applied to UK newspaper coverage of the development of MUP during a period of intense debate.

Data

Eight UK-wide and three Scottish newspapers (and Sunday counterparts) were searched over a 19-month period, ending in November 2012, for mentions of Alcohol* OR Booze OR Liquor OR Hooch [in the headline] AND Price OR Pricing or Tax OR Levy [anywhere in text] using the LexisNexis database. The publications were selected to represent three genres of newspaper: 'serious'/broadsheet, mid-market and tabloid; and a range of readership profiles in relation to age, social class and political alignment, as in previous studies (21). A full list of publications is available in the supporting information. The search period commenced 1st May 2011, before the formation of an SNP majority Scottish Government in the Scottish elections held on 5th May 2011, and ended 30th November 2012, after the announcement of the UK Government's consultation on a 45p MUP for alcohol. The period covered was selected to include a peak in reporting on the policy identified by Patterson and colleagues (22). The search identified 937 articles. All articles were read to determine whether they met the pre-defined inclusion criteria: MUP was the main focus of the article, and the article was a news, commentary or feature piece (readers' letters were excluded). After exclusions, 348 articles were included.

Measures

Using *Discourse Network Analyzer* (DNA)¹, extracts of newspaper text which featured actors' arguments on alcohol consumption and MUP were coded as "statements". Each statement was coded for four variables: individual actor's name, organisational association of the actor, the argument referred to by the actor (henceforth called "concept"), and a dummy variable for agreement or disagreement by the actor with the concept. This approach follows that developed by Leifeld (20). Since only direct quotes and reported speech from actors in the debate are coded, journalistic/editorial comment is not included in the analysis. In total, 1924 statements made by 152 individuals from 94 organisations, relating to 56 concepts, were coded. Following initial coding, a 10% sample of articles was coded blind, inconsistencies in coding were discussed and resolved and refinements made to some concepts. All articles were recoded applying this final coding framework. A table of actors and actor types, and list of concepts are provided in the supporting information.

¹ <http://www.github.com/leifeld/dna> (accessed 14 September 2018).

Data Analysis

DNA was used to convert the structured data into a weighted actor × actor network, where ties and their weights represent similarities among actors in terms of agreement and disagreement over concepts. The tie weight between any two actors was calculated as the number of different concepts they jointly supported or jointly rejected over the course of the 18-month period, minus the number of concepts on which the actors had diverging opinions, divided by the average number of statements made by both. This is a “subtract” transformation with “average activity normalisation” (20). This definition of tie weights measures argumentative similarity in excess of differences of opinion and ensures that only argumentative similarity, but not the rate at which actors issue statements, is considered for the calculation of tie weights. Negative tie weights represent differences in opinion in excess of argumentative similarity, while positive tie weights represent similar argumentative positions in excess of differences in opinion, aggregated over all concepts and the whole time period. A threshold value of ≥ 0.4 was determined in an exploratory way and applied to the resulting network to retain only relatively robust argumentative similarity as ties in the network (20).

The actor network was then imported into the network visualisation software *visone* to map actors and their coalitions visually.² Actors in the network are represented as nodes and ties (calculated as above) are represented by linear connections between nodes. Girvan-Newman edge-betweenness community detection – a common graph clustering algorithm (see 23) – was applied to the network in order to identify discourse coalitions as cohesive subgroups with similar argumentative patterns. The discourse coalitions were highlighted in the network visualisations as blue hyperplanes. Different actor types were highlighted using colours, and the statement frequency of each actor was visualised as the size of the respective node.

In order to check for bias inherent in publications chosen, separate networks were created for each individual newspaper. Broadly, these showed polarised coalitions in line with the complete network (though smaller and hence with less certainty). These networks are available in the supporting information.

Finally, three half-year time slices of the network were created to track changes in the policy debate over time. For each time slice, bar plots were created for the concepts to indicate how common and how contested each argument was in each phase of the debate.

Findings

A range of types of actors were represented in media coverage of the debate. The organisational associations of individual actors included political parties, charities, advocacy groups, professional associations, think tanks, alcohol manufacturers, retailers and retail associations, and licensed traders. All of the types of organisations are represented in the main component of the network.

Proponents and Opponents

Two discourse coalitions are evident in the MUP network. Figure 1 shows the coalition of proponents of MUP on the right hand side of the network diagram and the coalition of opponents of

² <http://www.visone.info> (accessed 14 September 2018).

MUP on the left hand side. These discourse coalitions represent similarities among actors in terms of co-support or co-rejection of concepts related to MUP.

[Figure 1 here]

The “Proponents of MUP” coalition (henceforth referred to as Proponents) includes health charities and advocacy groups, five UK and Scottish government and opposition political parties, some alcohol manufacturers, some licensed trade representatives, and most academic institutions (see right side of Figure 1). Central organisations within this coalition include the SNP and several professional associations (Royal College of Physicians, Royal College of Nursing, and British Medical Association). These organisations are drawn together by agreement on a range of concept statements relating to alcohol problem definition, drivers of alcohol harms and MUP as a potential solution; see Table 1 for examples.

[Table 1 here]

The “Opponents of MUP” coalition (henceforth referred to as Opponents) consists of some alcohol industry manufacturers, most large supermarkets, alcohol trade organisations, economic think tanks, some academic institutions, and both Scottish and UK Labour (opposition) parties (see left side of Figure 1). Central organisations within this discourse coalition include the Scotch Whisky Association and the Wine and Spirit Trade Association. These organisations are drawn together by agreement on conceptions of the alcohol problem, ideological opposition to public health interventions and criticism of the target population for MUP, and proposal of alternative solutions to perceived alcohol problems; see Table 2 for examples.

[Table 2 here]

Network and coalition development

The dynamic nature of policy coalitions is illustrated by comparing Figure 2 (covering the period from 1 May 2011 to 30 October 2011), Figure 3 (1 November 2011 to 30 April 2012) and Figure 4 (1 May 2012 to 30 November 2012).

[Figure 2 here]

[Figure 3 here]

[Figure 4 here]

Figure 2 illustrates the relatively small number of actors engaged in the debate during the earliest phase, but indicates clearly the formation of the Proponents and Opponents coalitions. Figure 3 shows an increased number of actors engaging in the policy debate during the second phase, including supermarkets and government advisory bodies. Figure 4 highlights few changes to the network structure during the third phase with the exception of the UK Conservatives position. They move from the Proponents to the Opponents coalition. This shift is slight, since the node retains a large number of ties across both coalitions, however, this could be an early indication of their future U-turn on MUP in the UK context.

Bar plots indicating the frequency of concepts referred to, and the frequency of agreement/disagreement, during the early, middle and later phases show the change over time in the prominence of specific concepts influencing the network.

[Figure 5]

[Figure 6]

[Figure 7]

Figure 5 shows that between May and October 2011 the most frequently mentioned concept is around the necessity of MUP to address the alcohol problem, an argument made most often by Proponents. The second most popular concept is “MUP is illegal” an argument which draws together the Opponents coalition. The concept which most divided opinion (equivalent levels of agreement and disagreement) is the potential for MUP to reduce heavy drinking, reflecting the focus on the efficacy of the policy as a targeted population measure. By the middle phase (Figure 6), this concept remained a focus of contention. Two further polarising concepts, that responsibility deals with industry are ineffective (23 disagree, 22 agree) and that MUP is supported by evidence MUP (17 disagree, 13 agree) are also evident. By the later phase (Figure 7), legality and efficacy were the top divisive concepts.

Despite a slight shift in organisational positions within the network, insights from the argumentation of the debate suggest the key issues during the period remained relatively consistent, with increased division based on perspectives on responsibility deals and the evidence base for MUP evident in the middle phase.

Political parties and coalition centrality

Figure 1 shows the centrality of political parties as key nodes linking the Opponents and Proponents coalitions. Table 3 provides a count of each political party’s total ties in the network, the number of these ties that exist within their primary cluster, and a resultant measure that captures the ratio of cluster-external ties over all ties of a given actor (“external ratio”).

[Table 3 here]

The higher the external ratio score, the less central and embedded the party is within its respective coalition. As illustrated in Figure 1, the Conservatives, Labour and Scottish Conservatives nodes operate across the coalitions, with links to both Proponents and Opponents, making their scores relatively high. In contrast, the SNP score of 0.00 reflects the centrality of the party within the Proponents coalition, with no links to organisations outside of the coalition. Scottish Labour also has a low score, since it is embedded within the Opponents coalition. The Liberal Democrats and Scottish Liberal Democrats have low external ratio scores indicating their embeddedness within the Proponents coalition. None of the political parties inhabit positions at the outer edges of the network or their respective coalitions, rather they are either central to the network or to a particular coalition. The high external ratio score of the UK Conservative party reflects the number of individual politicians who voiced opposing perspectives on MUP in the media over the course of the debate. This can be further explored through visualisation of the network at individual actor, rather than organisational, level.

[Figure 8 here]

Figure 8 shows the opposing positions taken up by prominent Conservative UK government politicians in the debate on MUP. David Cameron (Prime Minister), Theresa May (Home Office) and Jeremy Hunt (Culture, Media and Sport, then Health) are all central actors in the Proponents coalition. Andrew Lansley (Health), Michael Gove (Education) and David Willets (Universities) are central to the Opponents coalition. Liberal Democrat politicians are also split across the coalitions; however, the two Scottish Liberal Democrats in the network (Willie Rennie – Leader, and Alison McInnes – Health spokesperson) are both in the Proponents coalition. Labour politicians are also split, with two in the Opponents coalition, and several in the Proponents coalition (including the leader – Ed Miliband). The majority of Scottish Labour politicians are in the Opponents coalition reflecting their position in opposition to the SNP in the Scottish Parliament. SNP politicians in Figure 2 are all situated in the Proponents coalition.

Commercial organisations

Figure 1 illustrates both cooperation and divergence among industry organisations involved in the MUP debate. Prominent central nodes in the Opponents coalition are the Wine and Spirit Trade Association and the Scotch Whisky Association appearing largest because they were most active in the coalition. The size and position of these nodes suggest their leadership within the Opponents. Amongst alcohol producers, Tennant's is the sole manufacturer to be positioned within the Proponents coalition, with SAB Miller, Diageo and Heineken centrally positioned within the Opponents coalition. Tennant's, however, like Carlsberg UK, is very much on the periphery of the network, having made few statements in agreement with other organisations. The Licensed Trade organisations are also dispersed between the coalitions, with the Scottish Licensed Trade Association and Greene King positioned within the Proponents coalition and JD Wetherspoon within the Opponents coalition. Retailers are also dispersed, with Tesco positioned on the periphery of the Proponents coalition and Sainsbury's, Asda and Morrisons within the Opponents, alongside the British Retailers Consortium and Scottish Grocers Federation. This dispersal suggests a lack of co-agreement or co-disagreement amongst commercial organisations in their statements on MUP.

Think tanks and charity organisations

The majority of the charities included in the network, e.g., Alcohol Concern, Alcohol Focus Scotland, are positioned centrally in the Proponents coalition with no ties to organisations in the Opponents Coalition. A charity which has previously received alcohol funding, Addaction (17), is also situated in the Proponents coalition, although more peripherally. Drinkaware, which is 96% funded by major UK alcohol producers, pub operators, restaurants, major supermarkets and other retailers (24), is also situated in the Proponents coalition; however, most of its ties are to commercial organisations, albeit those which are supportive of, or ambivalent about, the idea of MUP. Certain think tanks (i.e. Adam Smith Institute, Centre for Economics and Business Research and Institute for Economic Affairs) are located in the Opponents coalition along with alcohol manufacturers and retail associations, suggesting consistent alignment of the positions articulated by these groups on key concepts used by opponents of MUP.

Academic organisations

Most academic organisations in the network feature in the Proponents coalition, including the two largest academic contributors to the debate, the University of Sheffield and Newcastle University,

closely aligned with advocacy groups, alcohol-related health charities and the SNP. Two universities are positioned peripherally to the network or within the Opponents coalition, Glasgow Caledonian University and Birmingham University respectively. In both cases this reflects academic actors, with an interest in Public Health, offering critical perspectives on MUP, for example highlighting potential unintended consequences for alcohol dependent individuals, such as increased drug taking or criminal activities (Glasgow Caledonian University, 13th December 2011, *The Times*). In addition, individual academics from Glasgow Caledonian University with expertise in Business Studies and Philosophy commented on the policy from disciplinary perspectives outside of Public Health, in one instance citing application of JS Mill's harm principle as a litmus test for the appropriateness of laws governing individuals' behaviour (Glasgow Caledonian University, 3rd December 2011, *The Sunday Times*). Expression of such perspectives creates alignment with evidence producers in economic think tanks, rather than Public Health academic colleagues.

European actors

A tightly linked portion of the Opponents coalition contains those European actors whose contributions to the debate were focused on the legality of MUP. Several wine producing nations who entered objections, the EU commission, the Law Society, the European Spirits Organisation, as well as the Scottish Labour party are drawn together by general agreement that the policy was illegal or questionable.

Discussion

In accordance with previous research on media representations of MUP, which suggests stakeholders were represented as either advocates or critics of the policy (14), our study shows two polarised discourse coalitions emerged over the course of the debate drawn together by co-agreement and co-disagreement over conceptualisations of the alcohol problem, and responses to MUP as a potential solution. By offering a visual representations of the network of UK stakeholders engaged in the MUP debate, our study illustrates how actors cluster according to stated preferences about the policy, and provides key insights into the discursive relations of political actors, industry organisations and other key stakeholders in the debate.

The political context in which MUP was conceived and debated has been cited as an important influence on the fate of the policy proposal. The election of an SNP administration, which was less well acquainted with alcohol industry actors, has been seen as initiating renewed Scottish government engagement with lobbyists from the alcohol industry and public health on equal terms, to end a period of relative inactivity in relation to alcohol policy (8). Early enthusiasm for MUP in the Scottish context has been explained by Katikireddi and colleagues as resultant from a range of contextual influences, including desire from the SNP government to emulate the success of the smoke-free legislation and follow an agenda distinct to Westminster (7). The devolved administration's pursuit of MUP also seems to have been an influential factor in the UK Government's period of support for the policy (8). Political context, however, seemed also influential in its eventual abandonment. Conservative political manoeuvrings in advance of the Scottish Independence Referendum and the 2015 General Election have been cited as key determinants of the shelving of MUP at Westminster (25). These issues of political context resonate with the structure of the network produced in this study. While the UK Conservative party is a central node within the complete MUP network with links to both the Opponents and Proponents coalitions, the

SNP node is embedded centrally within the Proponents coalition. This difference in positioning between the two parties in government at the time perhaps reflects the differing political contexts and in particular the distinctive Scottish policy context, where channels of communication between policymakers and health advocates have been characterised as more open and relationships with industry representatives less well-established (7, 8).

Often in policy networks, politicians and political parties are positioned centrally, operating at the interface between two opposing discourse coalitions (26, 27). In keeping with this convention, the UK Conservative party node inhabits a central position in the MUP network. However, this does not reflect a brokering role in relation to the development of MUP, but highlights disagreement within the party. Mapping the development of alcohol policy in England and Wales, Nicholls and Greenaway point to both “ideological” and “systemic” tensions in the emergence of MUP (28). They cite ideological tensions within the coalition government between libertarian and paternalistic perspectives throughout the MUP debate and identify that support for MUP within the coalition seemed bound by shifts in focus between departments and actors. Figure 8, the network of politicians, illustrates these ideological tensions and departmental shifts, with a key triad of UK Conservatives embedded within the Opponents coalition. Due to the relatively short nature of the time period studied, further shifts in position, both within the Home Office and from the Prime Minister, are not captured in the current analysis.

Our analysis provides insights into the dispersal of alcohol manufacturers, retailers and trade associations across both discourse coalitions. Unlike analyses of tobacco policy networks which present starkly polarised coalitions, containing clusters of homogeneous actors – either tobacco manufacturers or health-related organisations (29), the MUP network shows the distribution of industry organisations across two opposing discourse coalitions, confirming previously identified divergence amongst alcohol-related industry actors on MUP. Holden and colleagues suggest the alcohol industry is not a homogenous entity and adopts different positions on a range of policy issues, including MUP (30). Spirits producers, which are largely export focussed, but dependent on the off-trade for domestic sales, were the most vehemently opposed to MUP. The Scotch Whisky Association, identified as symbolic and strategic leaders of the anti-legislation campaign (8), appear centrally in the Opponents coalition. On-trade actors, unaffected by possible price rises and potential beneficiaries of increased off-sale prices, were more sympathetic to the policy, reflected in the position of the Scottish Licensed Trade Association in the network. Other sectors (e.g. beer producers and supermarkets), as evident in Figure 1, were more divided and the positions adopted varied at company rather than sectoral level. In all cases, those commercial organisations opposed to MUP were more vehement in their stance than those in favour, reflected in the larger size of commercial Opponent nodes in the network.

The MUP network highlights the similarities which exist between the positions articulated by free market think tanks and industry actors opposed to the legislation (the Wine and Spirit Trade Association, the Scotch Whisky Association and Diageo) at the centre of the Opponents coalition. Hawkins and McCambridge have described previously strategic funding of certain think tank reports by alcohol manufacturers which were heavily cited in the lead up to the UK government's 2012 alcohol strategy (18). While neither formal nor financial relationships between think tanks and alcohol manufacturers are identified here, the clustering evident within the Opponents network reflects consistent co-agreement and co-disagreement with leading industry opponents of MUP. The

network also suggests that some of the charity organisations which have been identified as recipients of alcohol industry funding (17, 31) were less centrally embedded within the Opponents coalition than might have been expected. Addaction is positioned within the Proponents coalition and the wholly industry-funded Drinkaware appears in a relatively neutral position on the periphery of the Proponents coalition, although with most links to industry organisations with a favourable, or potentially neutral, stance on MUP.

Conclusion

Our analysis provides visual evidence of the network of stakeholders engaged in the debate on the policy of MUP to address UK alcohol consumption as portrayed in the newsprint media. The method of DNA shows much promise for extension to further our understandings of public health policy development. The current study draws on media coverage as the sole source of data, and as such the network produced reflects public narratives offered by actors engaged in the debate.

Triangulating the method with other methods or with other data sources could further increase the scope of similar studies in future. Currently, our visualisations do not highlight how the positions of actors evolved beyond November 2012. We cannot provide MUP network insights on the observations of other commentators that key political events, such as preparation for the 2015 General Election or the economic concerns of the Regulatory Policy Committee, were instrumental in the UK Government's abandonment of MUP (25). The temporal focus also prohibits exploration of stakeholders' perspectives during the period of legal challenges by the Scotch Whisky Association ending in November 2017. Future research could employ theoretically informed time-series analysis over longer periods to highlight how shifts in influential actors' rhetoric, and positions, precede or follow key announcements about policy direction.

Illustration of co-agreement and co-disagreement between actors in favour and against MUP has confirmed existing evidence on the development of MUP policy in relation to political context and provided empirical evidence of some limitations of industry influence, particularly in relation to charity organisations. The findings also suggest sites for targeted public health advocacy, and confirm the potential of applying the method of DNA to contemporary policy debates in order to support identification of policy actors and organisations with an appetite for dialogue with public health organisations and active engagement with sources of public health evidence.

Acknowledgements

Many thanks for helpful comments on previous drafts to colleagues at the MRC/CSO Social and Public Health Sciences Unit, University of Glasgow, Rebecca Phipps, Lynne Rush and Helen Sweeting and anonymous reviewers.

Funding

GF and SH were funded by the UK Medical Research Council (MC_UU_12017/15) and the Chief Scientist Office of the Scottish Government Health Directorates (SPHSU15) at the MRC/CSO Social and Public Health Sciences Unit, University of Glasgow.

References

1. Stockwell T, Zhao J, Martin G, Macdonald S, Vallance K, Treno A, et al. Minimum Alcohol Prices and Outlet Densities in British Columbia, Canada: Estimated Impacts on Alcohol-Attributable Hospital Admissions. *American Journal of Public Health*. 2013;103(11):2014-20.
2. Stockwell T. Minimum unit pricing for alcohol. *BMJ : British Medical Journal*. 2014;349.
3. Jiang H, Room R. Action on minimum unit pricing of alcohol: a broader need. *The Lancet*. 2018;391(10126):1157.
4. Scottish Government. Minimum Unit Pricing 2017 [cited 2017 19th December]. Available from: <http://www.gov.scot/Topics/Health/Services/Alcohol/minimum-pricing>.
5. Woodhouse J. Briefing Paper - Alcohol: minimum pricing. House of Commons Library, 2017.
6. Department of Health. Alcohol and Drugs Misuse Stormont, Belfast, Northern Ireland: Department of Health; 2017 [cited 2017 18th December]. Available from: <https://www.health-ni.gov.uk/articles/alcohol-and-drugs-misuse>.
7. Katikireddi SV, Hilton S, Bonell C, Bond L. Understanding the development of minimum unit pricing of alcohol in Scotland: a qualitative study of the policy process. *PLoS One*. 2014;9(3):e91185.
8. Holden C, Hawkins B. 'Whisky gloss': the alcohol industry, devolution and policy communities in Scotland. *Public Policy and Administration*. 2013;28(3):253-73.
9. Hawkins B, Holden C. 'Water dripping on stone'? Industry lobbying and UK alcohol policy. *Policy & Politics*. 2014;42(1):55-70.
10. Leifeld P, Schneider V. Information Exchange in Policy Networks. *American Journal of Political Science*. 2012;56(3):731-44.
11. Leifeld P. Policy debates as dynamic networks: German pension politics and privatization discourse: Campus Verlag/University of Chicago Press; 2016.
12. Sabatier PA, Jenkins-Smith H. Policy change and learning: An advocacy coalition framework. Boulder: Westview. 1993.
13. Hajer M. Discourse analysis and the study of policy making. *European Political Science*. 2002;2(1):61-5.
14. Hilton S, Wood K, Patterson C, Katikireddi SV. Implications for alcohol minimum unit pricing advocacy: What can we learn for public health from UK newsprint coverage of key claim-makers in the policy debate? *Soc Sci Med*. 2014;102:157-64.
15. Katikireddi SV, Bond L, Hilton S. Changing Policy Framing as a Deliberate Strategy for Public Health Advocacy: A Qualitative Policy Case Study of Minimum Unit Pricing of Alcohol. *Milbank Q*. 2014;92(2):250-83.
16. McCambridge J, Hawkins B, Holden C. Vested Interests in Addiction Research and Policy. The challenge corporate lobbying poses to reducing society's alcohol problems: insights from UK evidence on minimum unit pricing. *Addiction*. 2014;109(2):199-205.

17. Lyness SM, McCambridge J. The alcohol industry, charities and policy influence in the UK. *Eur J Public Health*. 2014;24(4):557-61.
18. Hawkins B, McCambridge J. Industry actors, think tanks, and alcohol policy in the United Kingdom. *Am J Public Health*. 2014;104(8):1363-9.
19. Savell E, Fooks G, Gilmore AB. How does the alcohol industry attempt to influence marketing regulations? A systematic review. *Addiction*. 2016;111(1):18-32.
20. Leifeld P. Discourse Network Analysis: Policy Debates as Dynamic Networks. In: Victor JN, Montgomery AH, (eds) MNL, editors. *The Oxford Handbook of Political Networks*. Oxford: Oxford University Press; 2017. p. 301-25.
21. Hilton S, Patterson C, Teyhan A. Escalating Coverage of Obesity in UK Newspapers: The Evolution and Framing of the "Obesity Epidemic" From 1996 to 2010. *Obesity (Silver Spring, Md)*. 2012;20(8):1688-95.
22. Patterson C, Katikireddi SV, Wood K, Hilton S. Representations of minimum unit pricing for alcohol in UK newspapers: a case study of a public health policy debate. *Journal of Public Health*. 2014;37(1):40-9.
23. Girvan M, Newman MEJ. Community structure in social and biological networks. *Proceedings of the National Academy of Sciences*. 2002;99(12):7821-6.
24. Drinkaware. About Us: Funding and Support 2018 <https://www.drinkaware.co.uk/about-us/> (Last accessed November 2018).
25. Herrick C. Alcohol, ideological schisms and a science of corporate behaviours on health. *Critical Public Health*. 2016;26(1):14-23.
26. Ingold K, Varone F. Treating policy brokers seriously: Evidence from the climate policy. *Journal of Public Administration Research and Theory*. 2011;22(2):319-46.
27. Leifeld P. Polarization of coalitions in an agent-based model of political discourse. *Computational Social Networks*. 2014;1(1):7.
28. Nicholls J, Greenaway J. What is the problem?: Evidence, politics and alcohol policy in England and Wales, 2010–2014. *Drugs: Education, Prevention and Policy*. 2015;22(2):135-42.
29. Weishaar H, Amos A, Collin J. Best of enemies: Using social network analysis to explore a policy network in European smoke-free policy. *Soc Sci Med*. 2015;133(Supplement C):85-92.
30. Holden C, Hawkins B, McCambridge J. Cleavages and co-operation in the UK alcohol industry: a qualitative study. *BMC Public Health*. 2012;12:483.
31. McCambridge J, Kypri K, Miller P, Hawkins B, Hastings G. Be aware of Drinkaware. *Addiction*. 2014;109(4):519-24.

Table 1: Concepts shared by Proponents

Concept	Example of statement
Government action is needed on alcohol consumption	“The government's ongoing failure to tackle the root causes of alcohol misuse means we will see hospital admissions continue to rise in the future.” Don Shenker (Alcohol Concern), 26 th May 2011, <i>Guardian</i> .
Commercial interests should be limited to protect public health	“In challenging the implementation of minimum pricing, the Scotch Whisky Association is essentially arguing that the commercial interests of its members should take precedence over the health and wellbeing of the people of Scotland. We need to decide if our society is prepared to limit commercial activity to better protect our health and quality of life, or alternatively, allow powerful corporate interests to dictate health policy.” Evelyn Gillan (Alcohol Focus Scotland) 26 th October 2012, <i>Guardian</i> .
MUP needed to reduce health harms/deaths related to alcohol	“Minimum pricing will reduce the harm caused by alcohol misuse and we believe the policy, agreed by Parliament and backed by expert opinion, is the most effective pricing measure and it will save lives.” Alex Neil (SNP), 29 th December 2012, <i>Daily Record</i> .

Table 1: Concepts shared by Opponents

Concept	Instance
Alcohol related harm is falling/stabilising	“It is surprising that hospital admissions have apparently doubled over a period in which alcohol consumption has significantly declined. If the hospital admissions data are robust, they clearly put paid to the argument that measures to reduce overall alcohol consumption are effective in reducing harm.” David Poley (Portman Group), 27 th May 2011, <i>Daily Mail</i> .
Government action on public health is unnecessary	“It's regressive and paternalistic, treating people as if they're children to be nannied by the Government.” Sam Bowman (Adam Smith Institute), <i>Independent.co.uk</i> , 14 th May 2012.
MUP is an unfair cost to consumer and will penalise responsible drinkers	“It [MUP] is more likely to have a bigger proportionate impact on responsible drinkers who happen to be in low-income households”. Andrew Lansley (Health Secretary, Conservative), 18 th December 2011, <i>Independent</i> .
Responsibility deals with industry are effective	“We have also had significant success with community alcohol partnerships aimed at combating under-age drinking; the Responsibility Deal is taking a billion units of alcohol out of the market”. Gavin Partington (Wine and Spirit Trade Association), 30 th March 2012, <i>The Times</i> .

Table 2: Political party ties

Party	Total ties	Ties within cluster	External ratio
Conservatives	33	20	0.39
Labour	24	17	0.29
Liberal Democrats	19	18	0.05
SNP	24	24	0.00
Scottish Labour	19	18	0.05
Scottish Conservatives	24	13	0.46
Scottish Liberal Democrats	19	18	0.05