

ARTICLE

An exploration of recent trends in the number of British pubs and how these vary by neighbourhood type

Stephen Clark¹  | Christopher Leahy² | Nick Hood³

¹Consumer Data Research Centre and School of Geography, University of Leeds, Leeds, UK

²Paediatric Intensive Care Audit Network, University of Leeds, Leeds, UK

³School of Geography, University of Leeds, Leeds, UK

Correspondence

Stephen Clark, Consumer Data Research Centre and School of Geography, University of Leeds, Leeds LS2 9JT, UK.

Email: tra6sdc@leeds.ac.uk

Funding information

This work was funded by UK Research and Innovation, ESRC grant ES/L011891/1.

Abstract

The common narrative in the media is that the British public house is in terminal decline and that these losses are having a significant impact on local communities. While it is true that some pubs are closing, it is also true that others are opening. This article examines the quarterly trend of pub numbers over eight years in various neighbourhoods and utilises a multilevel model to estimate and illustrate these trends. City and town centres with a thriving night-time economy show the most significant increases in pub numbers, whereas suburban areas show a more mixed picture, with pubs in less affluent areas performing better. The areas where reductions are most pronounced are rural locations, especially remote rural communities. The article concludes with an analysis of the reasons behind these trends and suggests avenues for future research.

KEYWORDS

Great Britain, multilevel models, public houses, time trends

1 | INTRODUCTION

The British public house is a valued and sustaining institution in many local communities, with the oldest pub in Great Britain (GB) claiming to have been founded in the ninth century (Mason, 2022). Such establishments were firmly established at the end of the medieval era, and were variously known as public houses, ale houses, inns or taverns (hereafter referred to as ‘pubs’). According to Jennings (2007), there were approximately 58,000 pubs in the early 1700s, equivalent to one pub for every 90 inhabitants. The history of the pub over the next three centuries is marked by invigoration and buffeting by various social and political phenomena. By 2006, the number of pubs had contracted to 51,476, with the equivalent of one pub for every 1182 inhabitants. As a result of this long history, the local pub is likely one of the most embedded and familiar buildings in any community, especially in rural locations. It serves as a ‘third place’ for people to gather (Oldenburg & Brissett, 1982), and while primarily engaged in the sale of alcohol, pubs also offer various other activities, such as entertainment (Robinson & Spracklen, 2019), sports (Harris, 2020; Hawkes, 2019; Weed, 2007), and additional community services in rural locations (Thurnell-Read, 2021). In a review of the social value of community pubs, Muir (2012) argues that pubs are more than businesses and the loss of them can ‘... have a serious impact on the quality of local community life’. They quote that survey respondents ranked the pub as the place where people most get together with others in their community, with the pub being perceived as ‘... the most important social institution for promoting interactions between people from different walks of life’, clearly highlighting the societal value of the pub.

This is an open access article under the terms of the [Creative Commons Attribution](https://creativecommons.org/licenses/by/4.0/) License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

The information, practices and views in this article are those of the author(s) and do not necessarily reflect the opinion of the Royal Geographical Society (with IBG).

© 2023 The Authors. *The Geographical Journal* published by John Wiley & Sons Ltd on behalf of Royal Geographical Society (with the Institute of British Geographers).

Given this finding of Muir (2012) and the common media narrative that pubs are in terminal decline (with headlines such as ‘A decade of Wigan pub closures’ (Newsroom., 2018), ‘Last orders: 10 Carlisle pubs shut down in just seven years’ (Barber, 2018) and ‘Map shows where our beloved pubs are closing across England and Wales’ (Brazell, 2022), further investigation is warranted into both the gross change in pub numbers and the type of communities impacted by these pub closures.

Reasons given for the decline of pubs have centred on the competition from supermarkets/off-licences who usually offer drinks at a lower price than in nearby pubs (Seely, 2022), and the competition from in-home entertainment options such as streaming services and video games, causing households to stay at home. There are also demographic impacts, with young people and some ethnic minority groups drinking less alcohol (Institute of Alcohol Studies, 2020; Roberts & Townshend, 2013; Rossow et al., 2022), both of which will impact more on some local areas than others due to varying geodemographic composition. On the other hand, gentrification has helped boost and sustain pubs in some locations by attracting a more affluent clientele with greater disposable income (Hubbard, 2018; Yee & Dennett, 2022), leading to an increase in the number of gastropubs (Lane, 2018) and micro-brewery taps (Dennett & Page, 2017). So, whilst it is true that there have been many pub closures, it is also true that there are many pubs and bars opening, often with a different character and location (Danson et al., 2015).

To try and understand these trends in pub numbers, Figure 1 shows the trends in the number of pubs over recent years from three data sources. The top (blue) line is provided by the British Beer and Pub Association (BBPA) (2023a) which is a trade body for the alcohol and hospitality industry and they base their pub numbers on data obtained from the Value Office Agency (2023) for non-domestic properties in England and Wales, the Valuation Roll in Scotland and the number of licensed premises for court returns in Northern Ireland. This shows a steady and persistent decline in the numbers of pubs. The bottom (green) line is from the Office for National Statistics (ONS) (2018a) and is collected from taxation data. The geographic coverage of these data is GB only, and shows a count approximately 10,000 lower than the BBPA line (Northern Ireland has around 1000 pubs during this time). This Office for National Statistics trend also shows a steady

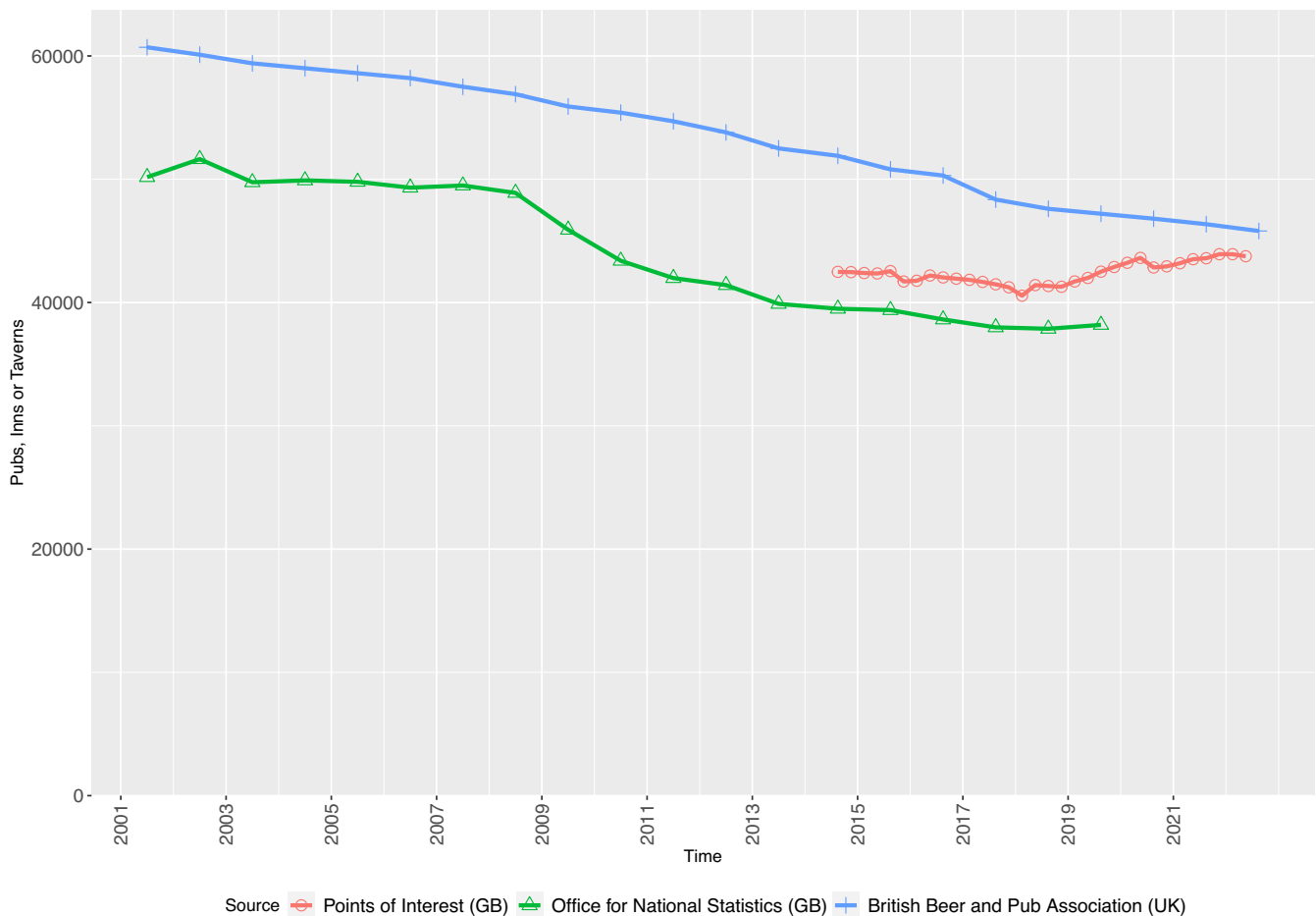


FIGURE 1 Trends in number of pubs in Great Britain.

decline over time, tracking the BBPA line until 2009, after which there is a steeper decline in pubs numbers, but a small increase of 85 pubs in 2019. The middle (red) line is extracted from the Ordnance Survey's Points of Interest (PoI) database (Ordnance Survey, 2022) and covers the period of focus for this study. Like the ONS data, the PoI data cover public houses and bars, but additionally include licensed clubs, meaning it tracks higher than the ONS trend.

There is a spatial distribution of pub numbers. The number of pubs per 10,000 residents for each Local Authority (LA) in quarter 2 of 2020, as well as the change since 2014, is shown in Figure 2. The highest concentration of pubs is in the City of London, with 266 pubs per 10,000 residents in 2020. This is due to the presence of a large working population (587,000) and a low residential population (9700). The situation is reversed in outer London where the number of pubs per person is among the lowest in the country, with Barking and Dagenham having just 1.1 pubs per 10,000 and Redbridge 1.9 pubs per 10,000. The good transport infrastructure and high volume and variety of venues in inner London make it a more attractive location for socialising, thereby reducing the demand for pubs in outer areas. Outside of London, the larger, more rural authorities tend to have a relatively high number of pubs, while urban and city authorities have a lower number. For example, Derbyshire Dales in the rural midlands has 18 pubs per 10,000, and two rural LAs in North Yorkshire, Craven and Scarborough both have 16 pubs per 10,000. The right-hand map of Figure 2 shows a general picture of a decline in the relative number of pubs, suggesting that while the number of pubs may be increasing, it is at a slower rate than the increase in population. This trend of declines is reversed in a handful of areas, such as the large rural LAs in North Yorkshire (e.g., Craven and Richmondshire) and the smaller towns in Lancashire (e.g., Hyndburn, South Ribble and Pendle).

While this general overview is useful and comparable to previous literature, this paper's major contribution uses an explicitly spatial framework to investigate recent changes in pub numbers in the context of neighbourhood level characteristics, primarily employing a geodemographic approach. Geodemographics is 'the analysis of people by where they

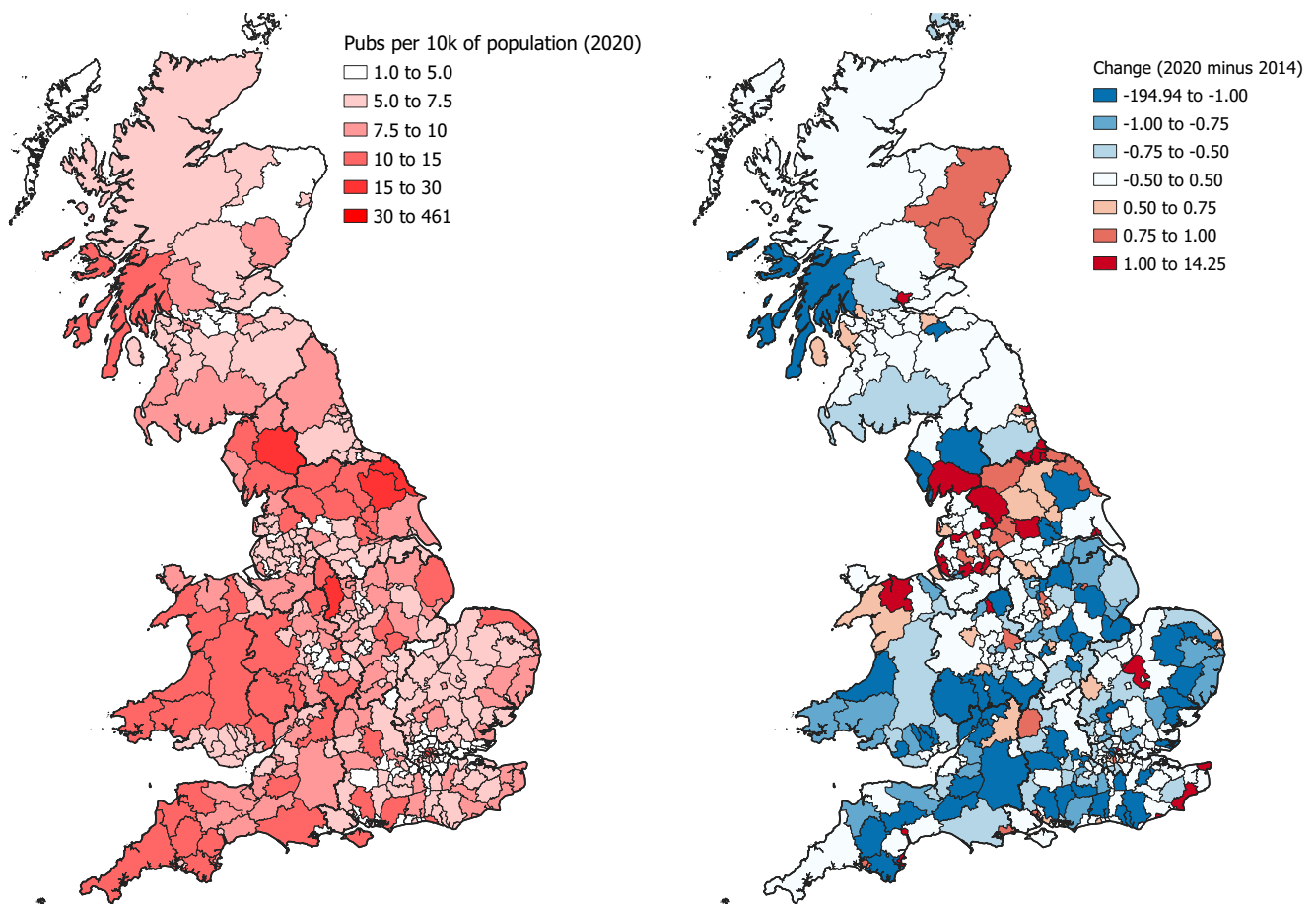


FIGURE 2 Spatial distribution of number of residents per pub in quarter 2, 2020 and change from quarter 3, 2014 (positive values indicates a proportional increase in pubs while negative values indicate a proportional decrease). Source: Ordnance Survey Points of Interest data, quarter 2, 2022 and ONS mid-year population estimates.

live' (Sleight, 2004) and actively seeks to identify patterns in multidimensional datasets to group the population together by their various characteristics; these groupings provide an overview or 'picture' of the population within that neighbourhood (Gale et al., 2016), allowing analysis of similar (and different) types of neighbourhoods in different parts of a larger area (e.g., a country). The following research questions are addressed:

1. Is there a geography to changes in pub numbers?
2. To what extent have different types of neighbourhoods experienced recent pub closures or openings?
3. What are the underlying characteristics of neighbourhoods impacted by recent pub closures or openings?

The rest of this article is structured as follows. Section 2 provides the recent historical context of British pubs, looking at the legislative, economic, sociodemographic and socioeconomic impacts on the sector. Section 3 introduces the three main sources of data for this study, a PoI database, various geo-demographic classifications and counts of populations, as well as the modelling methodology used to answer the above research questions. Section 4 provides the results of our study. The article finishes with a discussion and some conclusions in Section 5.

2 | LITERATURE

In the introduction to this article the historic importance and role of the pub in communities was outlined. This section outlines the legislative and economic influences on pub numbers in the twenty-first century, before discussing extant literature on the wider factors that influence the appeal and viability of pubs.

2.1 | Legislative impacts

In the past two decades, there have been several legislative changes that have affected the operation of pubs. The first change occurred in 2005, when restrictions on pub and bar operation hours were relaxed in England and Wales, with the aim of promoting the growth of the Night Time Economy (NTE) (Tierney, 2006) and addressing antisocial behaviour in cities and towns. However, the actual increase in opening hours as a result of this freedom was seen to be small, and alcohol consumption actually showed a slight decrease (Hough & Hunter, 2008).

Around the same time, to promote public health, a series of smoking bans in public places was introduced in stages in GB between 2006 and 2007, with the goal of reducing smoking opportunities and protecting workers and patrons from passive smoking: while spatially varying (Scotland introducing first), the legislation is now equal throughout GB. There was significant debate over the potential impact of the ban on pub patronage and sustainability. Generally in Europe, it has been found to be associated with moderately negative economic effects on hospitality sales, although not in closures (see DeCicca et al., 2022), including a finding of deterring customers and reducing sales in Scotland (Adda et al., 2012).

Later, the Localism Act of 2011 was introduced in England to devolve decision-making on local matters to local government and communities (Department for Communities and Local Government, 2011). This act gave LAs the power to designate properties and land as 'Assets of Community Value', providing local communities with a greater say in the use of the asset, including the potential to purchase it, with pubs being one of these assets often 'saved' by their local community (Blunden, 2012; Pub is the Hub, 2022). It is estimated that around 200 such pubs exist in GB, typically located in affluent rural villages and with a 100% success rate for remaining open (Campaign for Real Ale, 2023), showing their value in staving off pub closures.

Legislation also exists relating to the relationship between pub tenants and the larger pub-owning businesses from which they rent their premises, known in the industry as tied pubs. One aspect of the 2016 Pubs Code aims to allow these tied tenants to request a market rental agreement and avoid purchasing obligations, whereby they previously were tied to the price and limited selection set by the big pub companies, potentially limiting their ability to diversify to meet the changing needs of the consumer (Clarke and Willmott, 2023).

Pubs face intense competition from supermarkets and off-licences that are able to sell alcoholic drinks at much lower prices. To regulate alcohol prices, minimum price per unit of alcohol legislation was introduced in Scotland (2018) and Wales (2020) (Woodhouse, 2020), creating spatial inequality with England within GB. This legislation aimed to improve health by making alcohol less accessible and level the playing field between on- and off-licence sales, although it was

expected impacts on pub numbers would be minimal. Public Health Scotland found it did decrease alcohol sales, driven by a reduction in off-trade sales with no evidence of changes to sales in on-trade venues such as pubs, suggesting little impact on pub closures (Giles et al., 2022).

2.2 | Economic impacts

The global financial crisis of 2008 caused by vulnerabilities in the financial markets tied to property and housing finance (Joyce & Sibieta, 2012) had far-reaching impacts, including a decrease in household incomes and decreased opportunities for discretionary spending, such as dining or socialising in pubs (Andrews & Turner, 2012). The impact of the economic downturn and subsequent job losses on discretionary spending was not uniformly distributed, however; Kitsos and Bishop (2018) found that economies in local authorities with a greater share of the population with university degrees and younger adult age groups (20–34 and 35–49) were more resilient to the effects of the recession on employment, emphasising the importance of a geodemographic approach to assessing societal change. The COVID-19 pandemic of 2020 had a significant impact on pubs. In early summer of 2020, all pubs were closed, followed by a series of regional lockdowns (Brown & Kirk-Wade, 2021; Senedd Research, 2022). To help revive the struggling industry, the United Kingdom (UK) government introduced the ‘eat out to help out’ scheme in August 2020, subsidising meals and non-alcoholic drinks at pubs and restaurants for a month (Fetzer, 2022). Recent studies have also examined the longer-term effects of COVID-19 on pub-going habits, largely finding a desire to use pubs following the pandemic (Gordon-Wilson, 2021; Singh et al., 2022). However, variable impacts on businesses have been documented—Brown and Cowling (2021) found that risk of business closure (all sectors) from the pandemic was geographically varied, with greater risk in poorer and more peripheral towns and cities, with small businesses being most at risk. Around half of pubs are independently owned in the UK, suggesting a notable risk of closure (Foley, 2021). Geographically disaggregated analysis of pub closures due to COVID-19 impacts is sparser in the academic literature. In the related craft brewery industry, Cabras et al. (2023) found rural businesses to be at a greater disadvantage from the pandemic due to impacts on their customer base, business strategy and inability to diversify and access financial support.

2.3 | Social and cultural

Pubs can be found in varying spaces and locations. In an urban setting (e.g., London), Dennett and Page (2017) found that micro-brewery pub taproom openings were spatially clustered, and that several factors, such as the availability of railway arches, younger and more affluent local consumers (geo-demographics), and city centre agglomeration and clustering, positively impacted the number of openings. Research has also found that more affluent clientele moving into a neighbourhood has a positive effect on the growth and sustainability of pubs (Hubbard, 2018; Yee & Dennett, 2022). Studies on pub numbers in rural areas have highlighted strategies for sustaining them, such as forming co-operative organisations (Cabras, 2011) but they have also acknowledged the heterogeneity of pubs in these locations (Maye et al., 2005). These strategies require community cohesion, financial investment and support from public bodies (Cabras & Bosworth, 2014).

Creating a more appealing environment in pubs has been identified as a way to attract families and encourage leisure activities (Lugosi et al., 2020). This can be achieved through adapting the concept of ‘servicescape’ to create a ‘pubscape’ (Martin et al., 2019) or providing suitable initial and ongoing staff training (Andrews & Turner, 2017). Price competition may also play a role, as pubs compete with other outlets that are able to sell alcoholic drinks at lower prices. In a study of beer prices in York (Shakina & Cabras, 2022), a regression model was used to examine the relationship between beer prices and both spatial and non-spatial factors. The results showed that non-spatial factors, such as strength, beer range and characteristics, and type of tenancy, have a significant impact on beer prices and this results in variations in prices.

Pubs can bring social benefits by fostering community cohesion and making neighbourhoods more attractive places to live. Mount and Cabras (2016) and Cabras and Mount (2017) found a positive relationship between the number of pubs in a parish and a measure of community cohesion, and found a statistically significant positive impact with the number of pubs on higher levels of community cohesion. Whilst possibly correlation rather than causation, at an individual level, Bolet (2021) found the likelihood of supporting a right-wing political party increased as community pub closures increased, highlighting the moderating effect on individual behaviour that can result from social interactions that are facilitated by access to a pub.

Looking at the local economic effects of pubs, Cabras et al. (2021) found that the number of pubs had a positive effect on house prices, particularly in rural areas. Janssen (2021) also found a relationship between pub density and house prices in London, with positive effects at low densities (below two pubs per km²) but negative effects at higher densities, suggesting that higher pub densities can lead to greater negative externalities.

3 | DATA AND METHODS

This study makes use of three sources of data. The first is the PoI database maintained by the Ordnance Survey (OS) of GB which contains point data on more than 4 million physical locations, including uses such as retail, accommodation, transport hubs, sports and entertainment. These data are collected by the PointX organisation (Point, 2023), and published every quarter. In these data there is a classification for pubs, bars and inns (01020034) which is linked to Standard Industrial Classification (2007) codes 56,301 (Licensed clubs) and 56,302 (Public houses and bars) (Smith & James, 2017). The data start in the third quarter of 2014, and extend until the second quarter of 2022, providing 32 quarters in total.

As is evident in Figure 1 the trends in the number of pubs in these data differ from two other sources. Validating such an extensive data set as the PoI is a challenging task. Wilkins et al. (2017) conducted a geographically limited street audit of hospitality PoI data and they concluded that such data were unlikely to suffer from geographic biases, and that the PoI-derived classifications substantially agreed with their audit-derived classifications. A comparison by Burgoine and Harrison (2013) of food PoI data with local authority held data showed that PoI data were a viable substitute, and that this conclusion was robust to cover urban/rural and socioeconomic divides. PoI data have also been used in other studies from the domains of crime (Hunter, 2020; Redfern et al., 2020), area classifications (Niu & Silva, 2021), health (Hobbs et al., 2019) and defining activity spaces (Marwa et al., 2021).

What Wilkins et al. (2017) do highlight is that there is the potential for duplication in these data. To identify these duplicates, for each quarter, pubs with the same address, within 25 m of another and having a similar name are identified and removed. The similarity of names is measured using the Jaccard distance between the names, with a threshold of 0.50 used to identify duplicates (van der Loo et al., 2014).

The data provided in PoI contain the location of the pub using Easting and Northing coordinates. This allows the pub to be geo-located within geographical areas, including LAs, wards and various statistical geographies. In this study the statistical geographies of Output Areas (OA), Lower Super Output Areas (LSOA) and Middle Super Output Areas (MSOA) are used (Office for National Statistics, 2022).¹

The second source of information are two complementary area-based geo-demographic classifications. One is a classification of LSOAs based on their residential population at the time of the 2011 Census (Office for National Statistics, 2016) and the other is a classification of workplaces zones (WPZ) based on the working population at the time of the 2011 Census (Cockings et al., 2020).² The supergroups and groups that make up these two geo-demographic classifications are provided in Tables S1 and S2.

The third source of data is population counts from the 2011 Census. The ability of an area to sustain a pub will be linked to the size of its population. To measure this effect two population bases are used, the residential population and the working population of the area. Given our blended use of two area types (see below), four population counts are required, the residential population in both LSOAs and WPZs, and the workplace population in both LSOAs and WPZs.

3.1 | Identification of trends

In the context of a modest overall growth of +3% in the number of pubs over the 8-year time period of this study, this paper explores and models differential trends based on the geographic location of the pubs. This is done by illustrating the trends within each of these classifications using time series charts of trends by their supergroup, which are then modelled using a multilevel model that adopts a classification that blends together these two group classifications into one.

3.2 | A blended classification

Muir (2012, box 1.1) describes a typology of 140,000 premises able to serve alcoholic drinks for consumption on the premises, and this recognises that pubs can serve different markets, including community pubs (57% of all pubs); sports,

social and members' clubs (23%); and town centre pubs, bars and clubs (16%). This highlights that a local community pub is likely to be sustained by the neighbourhood residential population, while city and town centre pubs are sustained by those who work in the area or visit; rural pubs are sustained by both the local residential population and a visitor population. This leads Muir (2012, p. 5) to conclude that there are '... community pubs defined as "pubs that serve predominately their local residential community" ... These can be distinguished from town centre bars which serve mainly after-work or weekend drinkers ...'.

To avoid losing the duality of impact in the exclusive use of the residential (LSOA) or the workplace (WPZ) classifications, a blended classification is proposed. In this blended classification, the majority of locations use the LSOA classification, but in certain locations, such as city and town centres, the WPZ classification is used. This gives each pub its own unique neighbourhood type (LSOA residential or Night Time Economy (NTE) WPZ). A count is made of how many NTE WPZs are within each Middle Super Output Area (MSOA)³ and if the count is greater than 25, this indicates a dense location for workplaces with many NTE-related leisure and retail activities (recall that an MSOA can contain up to 349 WPZs, but can only typically contain four or five residential LSOAs). In these NTE MSOAs, the WPZ classification is used for pubs located within the MSOA. Applying this rule designates 73 MSOAs (1%) to use the WPZ classification for pubs located with them (covering 11% of all pubs), leaving the remaining 8403 MSOAs that use the LSOA classification. Many of these 73 MSOAs are located at the centre of large cities, for example Glasgow, Manchester, Bristol, Cardiff and London, but also included are smaller cities such as Carlisle, Doncaster, Maidstone and Exeter. The blended classification contains 36 categories, with 24 from the LSOA classification and 12 from the WPZ classification.

3.3 | Multilevel model

To estimate the trends in these data by the blended classification and the population, a multilevel modelling approach is used with level 1 being the quarter and level 2 being the neighbourhood type (Gelman & Hill, 2006). The model is fitted with random intercepts and slopes to reflect the variation in levels and slopes for the number of pubs within each area, and an interaction of time and the blended classification is used to measure trends within the group. This formulation is expressed in the following equation:

$$y_i = \alpha_{[i]} + \beta_{1[i]}T + \beta_{2,j}G + \beta_{3,j}T * G + \beta_4R + \beta_5W + \epsilon_i$$

where y_i is the number of pubs in area i ; T is time 0, 1, 2, ..., 30, 31 (scaled to 0 ... 1); G is the blended classification group of area i ; R is the residential population of area i ; W is the workplace population of area i ; $\alpha_{[i]}$ is the random intercept for area i ; $\beta_{1[i]}$ is the random time trend (slope) for area i ; $\beta_{2,j}$ is the fixed effect of blended group j membership; $\beta_{3,j}$ is the fixed effect of the interaction of time and blended group j membership; β_4 is the fixed effect of the residential population; β_5 is the fixed effect of the workplace population.

The model is fitted using the lme4 package in R (Bates et al., 2015).

The estimate for the time trend by blended group j is calculated as:

$$\beta_j = \beta_1 + \beta_{3,j}$$

where β_1 is the fixed effect for time; $\beta_{3,j}$ is the fixed effect interaction of time and blended group j

The standard error is calculated using the formula:

$$se(\beta_j) = \sqrt{\text{var}(\beta_1) + 2\text{covar}(\beta_1, \beta_{3,j}) + \text{var}(\beta_{3,j})}.$$

4 | RESULTS

Here we begin with an exploratory investigation of the trends in the number of pubs within the supergroup of each of the two classifications introduced in Section 3. These trends are in the context of a +3% increase in the overall number of pubs between 2014 and 2022.

4.1 | Residential classification

Using the simpler supergroup LSOA classification, [Figure 3](#) illustrates that pubs are most numerous in countryside living, industrious communities and cosmopolitan neighbourhoods throughout the study period. Examining the trends over time, the largest growth in the number of pubs is for cosmopolitan student neighbourhoods, followed by hard-pressed communities (+15% and +11%, respectively). Substantial declines are seen for countryside living and to a lesser extent suburban living neighbourhoods (−10% and −5%).

4.2 | Workplace zones

The trends for pubs located in each type of WPZ supergroup classification is shown in [Figure 4](#). The strongest growth is for zones whose primary economic activity is linked to retail and to city and business parks (+18% and +11%) whereas there are declines in rural and manufacturing and distribution zones (−9% and −3%).

4.3 | Model estimates

Whilst the figures above indicate some important differences in the trends for the number of pubs by each of the two classifications, they do not provide the detail required. Firstly, for the purposes of clarity the supergroup classification is used, and not the more nuanced group or the blended group classification introduced in [Section 3.2](#), and secondly there is no indication as to whether these trends are significant. To use the blended classification and judge this significance a model is fitted as described in [section 3.3](#), with the interaction term in the model allowing trends within the blended

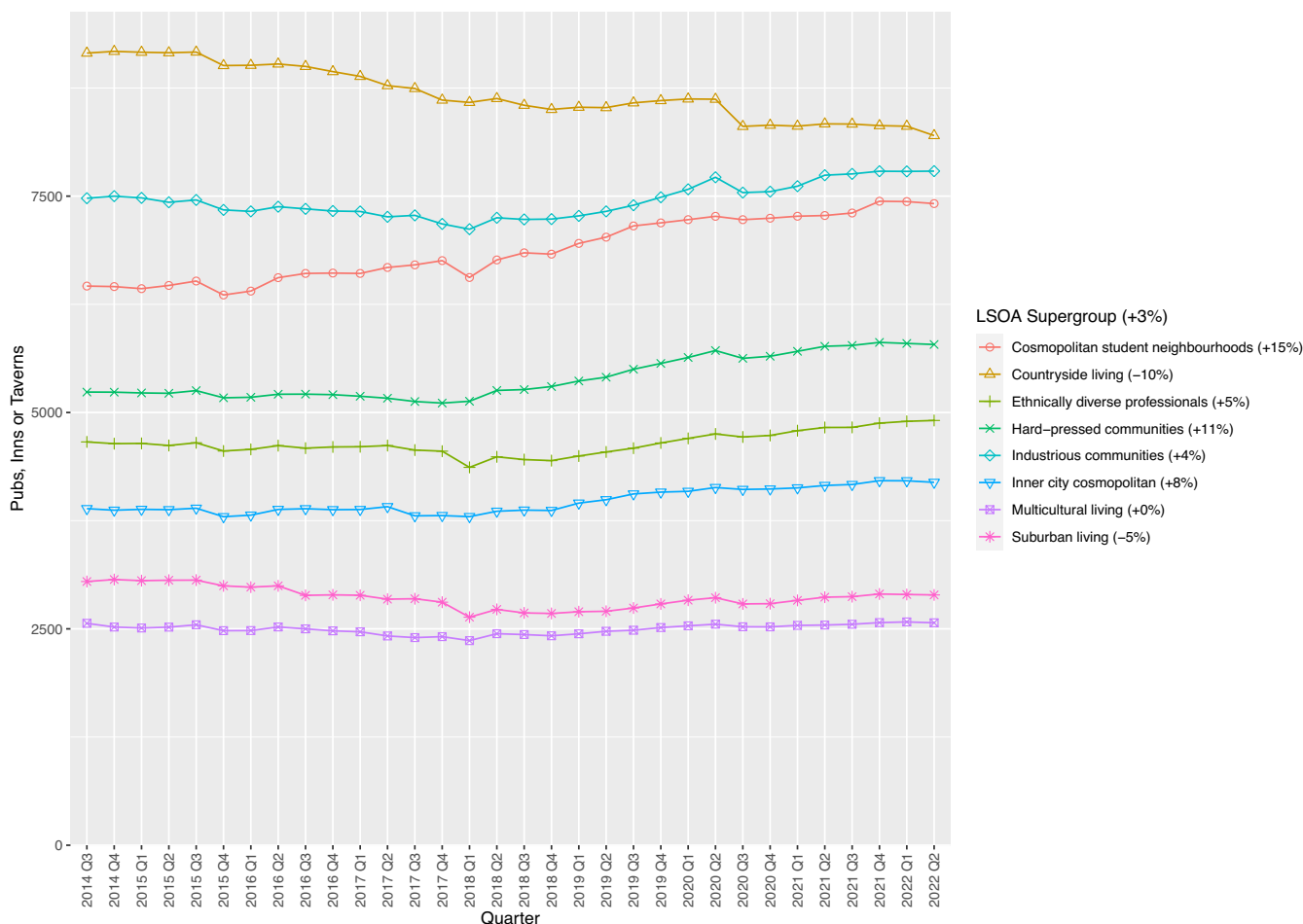


FIGURE 3 Trends in the number of pubs by residential LSOA classification.

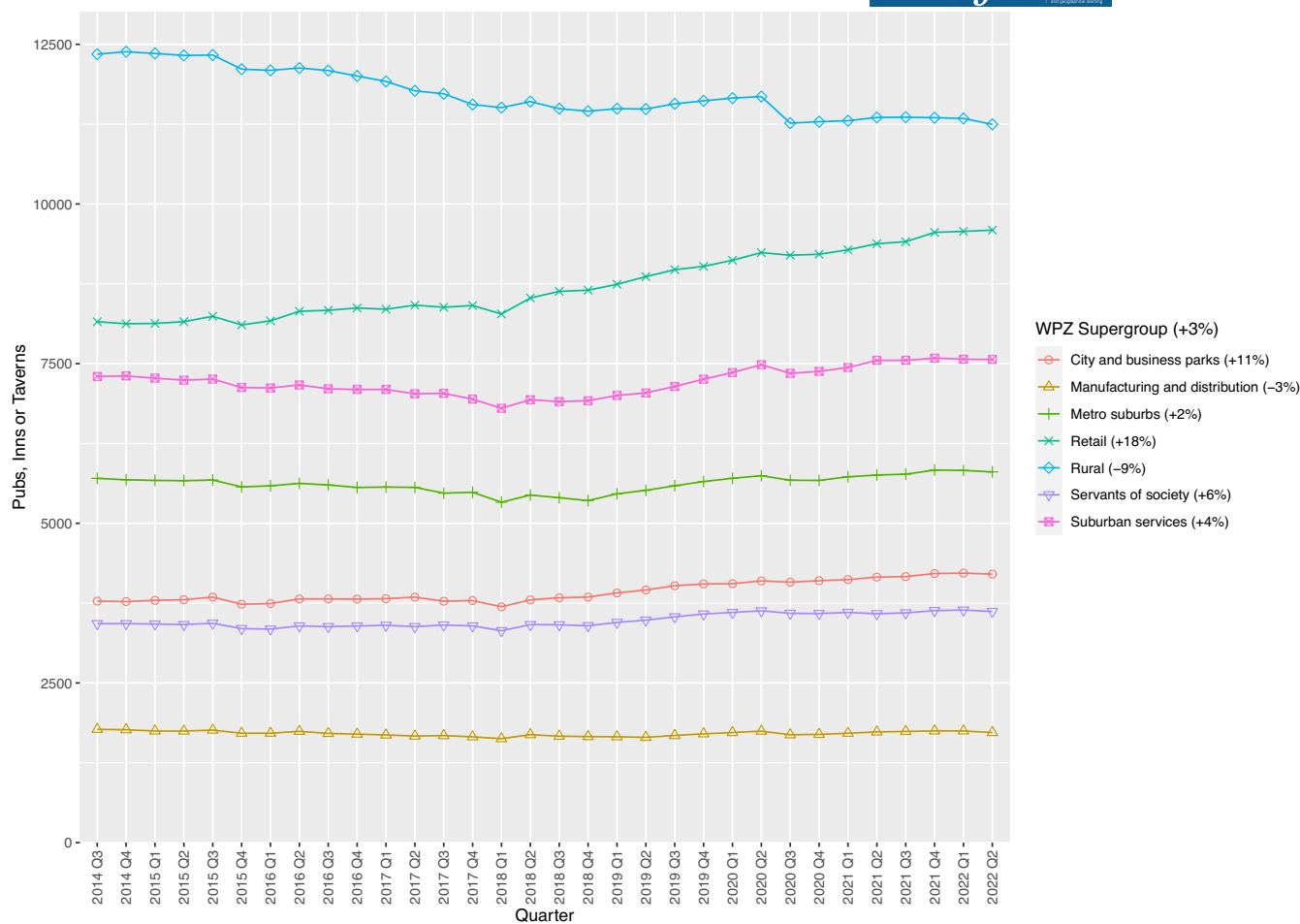


FIGURE 4 Trends in the number of pubs by workplace zone classification.

classification to be quantified and assessed for significance. The time trend and parameter standard error estimates from the model are provided in Table 1, along with counts of the number of areas and pubs within these groups. These counts show that the highest concentration of pubs are within the groups cosmopolitan student neighbourhoods (3.77 pubs per area) and constrained renters (3.68), while it is the lowest for ageing suburbanites (0.95).

In this study, all estimates from the workplace (WPZ) classification groups (A2 to Z1) are positive, although some of the estimates are not significant. The highest estimate is for the urban high street group, which estimates an average of 1.3 additional pubs over 8 years for locations in our data. The next highest estimate is for the eat, drink and be merry group, with an estimate of 0.9 additional pubs. When considering the residential (LSOA) classification groups (1a to 8c), the cosmopolitan student neighbourhoods group shows the largest estimated increase, with nearly an additional half a pub for every such area in our data. The hard-pressed communities supergroup (4a to 4d) and the Inner city cosmopolitan supergroup (6a) also show positive and significant growth in the number of pubs. The trends are mixed for some supergroups, with the ethnically diverse professionals (3a–3d), industrious communities (5a–5e), and multicultural living (7a and 7b) all showing inconsistent and sometimes insignificant trends. The endeavouring social renters (5d) show a different direction of association than the rest of their supergroup, although some of the results are insignificant. Highly qualified professionals (3c) show notable growth among a wider supergroup with a less clear picture. All trends for the countryside living group (2a–2d) are negative and significant, with the remoter communities group (2c) estimating a loss of one-third of a pub in such areas.

4.4 | Population

The estimates for the two population counts are the correct sign and are significant. The parameter associated with the workplace population is higher, for every 1000 workers, nearly 0.68 of a pub is sustained, as opposed to 1000 residents who sustain just 0.28 of a pub.

TABLE 1 Estimates of the change in number of pubs by the blended classification (NTE A2 to Z1, residential 1a to 8c).

Group code	Group name	Estimate	Standard error	t-ratio	Sign	Areas	Pubs ^a
A2	Market squares	0.5016	0.2369	2.118	*	35	77
A3	Urban high streets	1.2684	0.1608	7.890	***	76	199
A4	Traditional high streets	0.3618	0.1259	2.875	**	124	222
A6	Eat, drink and be merry	0.8547	0.0888	9.625	***	249	747
B1	Global business	0.1127	0.0615	1.833		520	593
B2	Administrative centres	0.1281	0.1104	1.160		161	231
B3	Big city life	0.2526	0.0628	4.023	***	498	836
B4	Regional business centres	0.4005	0.0842	4.757	***	277	489
G1	Public administration and security	0.4051	0.0947	4.278	***	219	407
G2	Healthcare and public administration	0.2349	0.1577	1.490		79	130
G3	Large-scale education	0.2877	0.1651	1.742	.	72	139
Z1	Residual workplaces ^b	0.2815	0.0715	3.937	***	384	635
1a	Cosmopolitan student neighbourhoods	0.4609	0.0435	10.593	***	1037	3907
2a	Ageing rural neighbourhoods	-0.1521	0.0449	3.390	***	975	2160
2b	Prospering countryside life	-0.2359	0.0383	6.163	***	1341	2892
2c	Remoter communities	-0.3357	0.0435	7.715	***	1037	2114
2d	Rural traits	-0.1993	0.0470	4.242	***	890	1521
3a	Achieving neighbourhoods	-0.0424	0.0603	0.704		540	680
3b	Asian traits	-0.0766	0.0739	1.036		360	359
3c	Highly qualified professionals	0.3149	0.0496	6.354	***	799	2204
3d	Households in terraces and flats	0.0558	0.0490	1.139		818	1315
4a	Challenged white communities	0.1740	0.0499	3.486	***	788	926
4b	Constrained renters	0.4982	0.0499	9.993	***	790	2908
4c	Hampered neighbourhoods	0.1400	0.0584	2.396	*	575	677
4d	Hard-pressed flat dwellers	0.2710	0.0749	3.618	***	350	797
5a	Ageing urban communities	0.2277	0.0428	5.317	***	1070	2274
5b	Aspiring urban households	0.0882	0.0479	1.841	.	856	1201
5c	Comfortable neighbourhoods	0.0705	0.0435	1.622		1038	1421
5d	Endeavouring social renters	-0.1179	0.0467	2.525	*	900	985
5e	Primary sector workers	0.1276	0.0524	2.434	*	714	1552
6a	Inner city cosmopolitan	0.1991	0.0403	4.946	***	1211	2626
7a	Urban cultural mix	-0.0345	0.0479	0.720		856	1559
7b	Young ethnic communities	0.0247	0.0585	0.422		573	741
8a	Affluent communities	-0.0333	0.0493	0.675		808	971
8b	Ageing suburbanites	-0.1298	0.0422	3.074	**	1100	1048
8c	Comfortable suburbia	-0.0663	0.0510	1.300		755	843
Pop	Residential population (1000s)	0.2785	0.0357	7.800	***		
Pop	Workplace population (1000s)	0.6794	0.0111	60.932	***		

Note: Significance codes: *** significant at 0.1%; ** significant at 1%; * significant at 5%; significant at 10%

^aAn average over the 32 quarters.

^bThese are WPZs that are part of a NTE MSOA, but are not themselves classed as NTE.

5 | DISCUSSION

This study investigated the decline of British pubs, with a focus on the location and function of the pubs. Specifically it focused on the following research questions:

1. Is there a geography to changes in pub numbers?
2. To what extent have different types of neighbourhoods experienced recent pub closures (or openings)?
3. What are the underlying characteristics of neighbourhoods impacted by recent pub closures (or openings)?

In response to (1), the results of this study showed clear differences in the number of pubs based on their location and function. It was found that the decline in pub numbers is more pronounced in rural areas, particularly remoter communities. Possible reasons for this decline include general factors, such as those discussed by Muir (2012), and specific factors such as the effect of drink-drive limits on alcohol sales (Sumpter et al., 2020). Further investigation is needed to determine the precise causes. This decline is consistent with previous research findings (Andrews & Turner, 2017; Cabras & Mount, 2017), but differs from the findings of Cabras et al. (2021), who reported that rural areas had a smaller decline in pub numbers compared with urban areas. Cabras attributes this difference to the greater competition faced by urban pubs, but it may also be related to a limitation in their study, which used a single classification for an entire LA area, without considering potential differences within the area. This study used two classifications that both allow for variability within the LA.

In response to questions 2 and 3, our findings indicate that some specific urban areas are more likely to experience an increase in the number of pubs; specifically residential zone types cosmopolitan student neighbourhoods, hard-pressed communities and workplace zones related to retail as well as city and business parks.

The residential finding in particular is unexpected, given that cosmopolitan student neighbourhoods are likely to be young and potentially drinking less alcohol (Rossow et al., 2022) and hard-pressed communities, by definition, will have less disposable income, be more price sensitive, and potentially more likely to look for lower priced alternatives to the pub such as the supermarket. However, a potential alternative narrative is that gentrification (Hubbard, 2018), as well as factors such as available space, low rents and clustering effects are all responsible for the increase in pubs within these areas; an example being Bermondsey in South London (Dennett & Page, 2017). Exploring these processes would be a useful area for further study. The increases in pubs in NTE city and town centre locations may be due to a preference for after work city centre drinking, increased city centre residential populations and the concentration of entertainment and leisure enterprises (Bromley et al., 2007).

Beyond this urban/rural split, the study finds that trends in suburban pub numbers that are inconsistent. In affluent suburban areas, the number of pubs decreased, while in deprived areas there were small increases. This could be due to people who reside in affluent neighbourhoods patronising NTE city centre pubs after work for convenience (Serwicka & Swinney, 2016), or a difference in drinking preferences between social classes (Brierley-Jones et al., 2014; Dixon, 2014).

Overall, our findings indicate that urban areas are more likely to maintain and increase their number of pubs, while those in affluent suburban and rural areas are more likely to experience closures. However, the impact of these closures may vary. One may contend that the loss of one unneeded pub will not materially affect the quality of life for residents or visitors (Maye et al., 2005, p. 842), but in many instances, the loss of a pub will matter. Muir (2012, p. 10) emphasises that while the closure of city centre circuit bars may not be mourned, the closure of suburban and village pubs may result in a serious loss of various social and community benefits. If this is the case, our analysis suggests that the closure of pubs is greatest in rural areas, where this impact may be the greatest, and so this should be of concern.

5.1 | Policy

Both the Federation of Licensed Victuallers Associations (2023) and the British Beer and Pub Association (2023b) advocate for policy changes to help support the pub industry. These include changes to taxation, employment and operations. What this study suggests is that these policies need to be tailored to the specific needs and challenges of the local neighbourhood. For example, within the BBPA there is a desire to ensure that pubs have access to a skilled workforce.

This can be a challenge in certain rural locations, where young people have trouble finding accommodation and may need to move out of the area, making it difficult for pubs to attract such staff at a reasonable cost. If pubs are able to provide subsidised accommodation, this may help. Additionally it might be useful for organisations such as these to partner together pubs in similar locations so that they are able to offer mutual support and advice. For financial help, pubs are subject to various taxes, some of which could be relaxed on a neighbourhood basis. This is currently done for business rates, where a rural rate relief exempts pubs in areas with a population of less than 3000 from paying business rates (United Kingdom Government, 2023). Given this designation, other taxation and support can be targeted at such rural businesses.

5.2 | Limitations and further work

Critical to this study is the reliability of the PoI data. The three sources for the numbers of pubs as illustrated in Figure 1 show different levels and trends in the trajectory of the number of pubs. Where there is an overlap between ONS and PoI data, similar trends are evident (both ONS and PoI use the SIC to identify pubs), with the higher count for PoI a result of the inclusion of licensed clubs in its count. Unfortunately updated ONS counts for after 2019 are not available so it is not possible to see if these two trends track each other during a purported period of growth in total pub numbers. The BBPA counts are higher than the other two series and show a consistent decline. BBPA obtains its data from a different source, and identifies pubs in a manner different to ONS and PoI. Explanations for the differences between BBPA and ONS counts are provided by the Office for National Statistics (2018b), with most of the discrepancy attributed to how a business is designated, particularly in relation to an alternative designation as a restaurant (Easton, 2009; Negus, 2004). Clearly it is legitimate for a business to be re-classed as the nature of its business changes, maybe towards more of a 'gastro-pub' ethos (Lane, 2018); in the ONS and PoI data this would result in the loss of a pub. However, in reality it is likely that such a business would maintain a public bar, but it is also likely that the focus of the business and allocation of space will alter. It is then legitimate to ask if it is still capable of fulfilling the cultural and society functions of a pub?

Another issue is that a pub may opt for reducing its operating hours instead of shutting down completely. This may include opening later or closing earlier, or even not opening on some days. These subtler changes are not captured in this analysis. Nonetheless, even with these reduced hours, the pub is still in operation.

The study lacks sufficient examination of the impact of inflation and the cost of living crisis on the viability of pubs (Harari et al., 2021). Although there are yet no academic studies on this issue, media stories are starting to reveal its effects on the sector (Davies, 2022; Grant, 2022; Levitt, 2022). The data used in this study only go up until quarter 2 of 2022, but future data releases will likely enable the impact of increased cost of living on both consumers and pub operation to be explored. It will be of interest to see if the trend of increased number of pubs in some less affluent areas observed in this study is sustained during this crisis.

This study relied on area classifications that were derived from the 2011 Census data. Although these classifications may still be relevant for the beginning of the study period, their relevance becomes questionable for later periods. Nevertheless, Rees (2011) showed that the differences identified by the classifications can persist over time. The 2021 Census data for England and Wales will be available in late 2022 and early 2023, and new official classifications based on these data will likely be created soon after. However, the Scottish 2022 Census data will arrive a year later, further complicating the creation of a unified GB classification. Also a decision must be made on how to combine the 2011 Census-based classification, which is suitable for the early part of the series, with a 2021 classification for the later period. The populations used in this study were also counted in 2011. Ideally a count that captures the change in population over time would be preferable. However, of the four population counts used in the model, official mid-year estimates are only available for one, the residential population of LSOAs.

While we have argued the presence of pubs is a positive community asset, this could be contested and pubs can also be a source of negative effects on the community, such as alcoholism (Gilmore & Gilmore, 2021), anti-social behaviour (Taylor et al., 2015), noise nuisance (Davies et al., 2005) and traffic. On balance we here argue they are a positive community asset.

Finally, we have identified the broad spatial trends of openings and closures of pubs which is a mixed picture. Although the residential and workplace classifications provide some insight into potential reasons behind what has been found, further detailed analysis will be required to fully understand the factors and dynamics at play—we would recommend this as a fruitful area of further research.

DEDICATION

This article is dedicated to the memory of Dr Stephen Martin, University of York; born 1961, died 2022. With happy memories of discussing real ales and enjoying Rilands Dark Water together.

ACKNOWLEDGEMENTS

The authors would like to thank the reviewers who took the time to comment on an earlier draft of this article and motivated us to improve the quality of the study and our description of the findings.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from Ordnance Survey, Great Britain. Restrictions apply to the availability of these data, which were used under license for this study.

ORCID

Stephen Clark  <https://orcid.org/0000-0003-4090-6002>

ENDNOTES

- ¹ An OA will typically contain about 125 households. Four or five neighbouring OAs are merged to form one LSOA (called Data Zone, DZ, in Scotland) and four or five neighbouring LSOAs are merged to form one Middle Super Output Area (MSOA) (called Intermediate Zone, IZ, in Scotland).
- ² WPZs contain about 500 workers and only nest within MSOAs (but they do not nest within IZs in Scotland), and MSOAs can contain any number of WPZs, between 1 and 349.
- ³ NTE's are those with these WPZ classifications: Market squares; Urban high streets; Traditional high streets; Eat, drink and be merry; Global business; Administrative centres; Big city life; Regional business centres; Public administration and security; Healthcare and public administration and Large scale education.

REFERENCES

- Adda, J., Berlinski, S. & Machin, S. (2012) Market regulation and firm performance: The case of smoking bans in the United Kingdom. *The Journal of Law and Economics*, 55(2), 365–391. Available from: <https://doi.org/10.1086/663349>
- Andrews, D. & Turner, S. (2012) Is the pub still the hub? *International Journal of Contemporary Hospitality Management*, 24(4), 542–552. Available from: <https://doi.org/10.1108/09596111211226815>
- Andrews, D. & Turner, S. (2017) Improving the customer experience through consistency and effective service delivery in the United Kingdom public house sector. *British Food Journal*, 119(3), 587–599. Available from: <https://doi.org/10.1108/BFJ-07-2016-0326>
- Barber, C. (2018) *Last orders: 10 Carlisle pubs shut down in just seven years*. News and Star. Available from: <https://www.newsandstar.co.uk/news/16739081.last-orders-ten-carlisle-pubs-shut-just-seven-years/>
- Bates, D., Mächler, M., Bolker, B. & Walker, S. (2015) Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, 67(1), 1–48. Available from: <https://doi.org/10.18637/jss.v067.i01>
- Blunden, T. (2012) How we are using the localism act to save our local pub. *The Guardian*. Available from: <https://www.theguardian.com/social-enterprise-network/2012/oct/31/localism-act-save-local-pub>
- Bolet, D. (2021) Drinking alone: Local socio-cultural degradation and radical right support-the case of British pub closures. *Comparative Political Studies*, 54(9), 1653–1692. Available from: <https://doi.org/10.1177/0010414021997158>
- Brazell, E. (2022) *Map shows where our beloved pubs are closing across England and Wales*. The Metro. Available from: <https://metro.co.uk/2022/07/05/map-shows-where-our-beloved-pubs-are-closing-across-england-wales-16942443/>
- Brierley-Jones, L., Ling, J., McCabe, K.E., Wilson, G.B., Crosland, A., Kaner, E.F.S. et al. (2014) Habitus of home and traditional drinking: A qualitative analysis of reported middle-class alcohol use. *Sociology of Health & Illness*, 36(7), 1054–1076. Available from: <https://doi.org/10.1111/1467-9566.12145>
- British Beer and Pub Association. (2023a) *The voice of the beer and pub industry*. Available from: <https://beerandpub.com/>
- British Beer and Pub Association. (2023b) *Policy and campaigns*. Available from: <https://beerandpub.com/policy-campaigns/>
- Bromley, R.D.F., Tallon, A.R. & Roberts, A.J. (2007) New populations in the British city Centre: Evidence of social change from the census and household surveys. *Geoforum*, 38(1), 138–154. Available from: <https://doi.org/10.1016/j.geoforum.2006.07.008>
- Brown, R. & Cowling, M. (2021) The geographical impact of the Covid-19 crisis on precautionary savings, firm survival and jobs: Evidence from the United Kingdom's 100 largest towns and cities. *International small business journal*, 39(4), 319–329. <https://doi.org/10.1177/0266242621989326>
- Brown, J. & Kirk-Wade, E. (2021) *Coronavirus: A history of 'Lockdown laws' in England*. Available from: <https://commonslibrary.parliament.uk/research-briefings/cbp-9068/>
- Burgoine, T. & Harrison, F. (2013) Comparing the accuracy of two secondary food environment data sources in the UK across socio-economic and urban/rural divides. *International Journal of Health Geographics*, 12(1), 1–8. Available from: <https://doi.org/10.1186/1476-072X-12-2>

- Cabras, I. (2011) Industrial and provident societies and village pubs: Exploring community cohesion in rural Britain. *Environment and Planning A*, 43(10), 2419–2434. Available from: <https://doi.org/10.1068/a43586>
- Cabras, I. & Bosworth, G. (2014) Embedded models of rural entrepreneurship: The case of pubs in Cumbria, North West of England. *Local Economy*, 29(6–7), 598–616. Available from: <https://doi.org/10.1177/0269094214544276>
- Cabras, I. & Mount, M.P. (2017) Assessing the impact of pubs on community cohesion and wellbeing in the English countryside: A longitudinal study. *International Journal of Contemporary Hospitality*, 29(1), 489–506. Available from: <https://doi.org/10.1108/IJCHM-12-2015-0717>
- Cabras, I., Shakina, E., Waehning, N., Sohns, F. & Bosworth, G. (2023) Brewing at the time of COVID: The impact of the pandemic crisis on UK craft breweries and its implications for the sector and local economies. *Regional Studies*, 1–17, 1–17. Available from: <https://doi.org/10.1080/00343404.2023.2170343>
- Cabras, I., Sohns, F., Canduela, J. & Toms, S. (2021) Public houses and house prices in Great Britain: A panel analysis. *European Planning Studies*, 29(1), 163–180. Available from: <https://doi.org/10.1080/09654313.2020.1726294>
- Campaign for Real Ale. (2023) *Community pubs: Community owned and community run pubs*. Available from: <https://communitypubs.camra.org.uk/page/about>
- Clarke & Willmott. (2023) A brief introduction to the Pubs Code. Available from: <https://www.clarkewillmott.com/insights/pubs-code-etc-regulations-2016/>
- Cockings, S., Martin, D. & Harfoot, A. (2020) Developing a national geodemographic classification of workplace zones. *Applied Spatial Analysis and Policy*, 13(4), 959–983. Available from: <https://doi.org/10.1007/s12061-020-09337-4>
- Danson, M., Galloway, L., Cabras, I. & Beatty, T. (2015) Microbrewing and entrepreneurship: The origins, development and integration of real ale breweries in the UK. *The International Journal of Entrepreneurship and Innovation*, 16(2), 135–144. Available from: <https://doi.org/10.5367/ijei.2015.0183>
- Davies, R. (2022) Thousands of UK pubs ‘face closure’ without energy bills support. *The Guardian*. Available from: <https://www.theguardian.com/business/2022/aug/30/thousands-of-uk-pubs-face-closure-without-energy-bills-support>
- Davies, W.J., Hepworth, P., Moorhouse, A. & Oldfield, R. (2005) *Noise from pubs and clubs: Final report*. Department for the Environment, Food and Rural Affairs. Available from: <https://www.cambridgesafety.co.uk/wp-content/uploads/2019/08/Noise-Pubs-and-club-noise.pdf>
- DeCicca, P., Kenkel, D. & Lovenheim, M.F. (2022) The economics of tobacco regulation: A comprehensive review. *Journal of Economic Literature*, 60(3), 883–970. Available from: <https://doi.org/10.1257/jel.20201482>
- Dennett, A. & Page, S. (2017) The geography of London's recent beer brewing revolution. *The Geographical Journal*, 183(4), 440–454. Available from: <https://doi.org/10.1111/geoj.12228>
- Department for Communities and Local Government. (2011) *A plain English guide to the Localism Act*. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/5959/1896534.pdf
- Dixon, K. (2014) The football fan and the pub: An enduring relationship. *International Review for the Sociology of Sport*, 49(3–4), 382–399. Available from: <https://doi.org/10.1177/1012690213501500>
- Easton, M. (2009) *Pubs aren't dying – they are evolving*. Available from: https://www.bbc.co.uk/blogs/thereporters/markeaston/2009/07/pubs_arent_dying_they_are_evol.html
- Federation of Licensed Victuallers Associations. (2023) *Publican's Partner*. Available from: <https://flva.co.uk/>
- Fetzer, T. (2022) Subsidising the spread of COVID-19: Evidence from the UK's eat-out-to-help-out scheme. *The Economic Journal*, 132(643), 1200–1217. Available from: <https://doi.org/10.1093/ej/ueab074>
- Foley, N. (2021) *Pub Statistics*. Available from: <https://commonslibrary.parliament.uk/research-briefings/cbp-8591/>
- Gale, C.G., Singleton, A., Bates, A.G. & Longley, P.A. (2016) Creating the 2011 area classification for output areas (2011 OAC). *Journal of Spatial Information Science*, 12, 1–27. Available from: <https://doi.org/10.5311/JOSIS.2016.12.232>
- Gelman, A. & Hill, J. (2006) *Data analysis using regression and multilevel/hierarchical models*. Cambridge, UK: Cambridge University Press. Available from: <https://doi.org/10.1017/CBO9780511790942>
- Giles, L., Mackay, D., Richardson, E., Lewsey, J., Beeston, C. & Robinson, M. (2022) *Evaluating the impact of Minimum Unit Pricing (MUP) on sales-based alcohol consumption in Scotland at three years post-implementation*. Available from: <https://publichealthscotland.scot/publications/evaluating-the-impact-of-minimum-unit-pricing-mup-on-sales-based-alcohol-consumption-in-scotland-at-three-years-post-implementation/>
- Gilmore, W. & Gilmore, I. (2021) Alcohol and men's health. In: *Men's health*. Boca Raton, FL: CRC Press, pp. 347–356. Available from: <https://doi.org/10.1201/9780429347238-44>
- Gordon-Wilson, S. (2021) An exploration of the substitutions of British pub consumers during the COVID-19 crisis. *International Journal of Hospitality Management*, 96, 102998. Available from: <https://doi.org/10.1016/j.ijhm.2021.102998>
- Grant, K. (2022) *Cost of living crisis: Local pubs across the UK on the brink of closure as inflation soars to 10.1%*. The i. Available from: <https://inews.co.uk/news/cost-living-crisis-uk-inflation-local-pubs-closure-1800789>
- Harari, D., Francis-Devine, B., Bolton, P. & Keep, M. (2021) *The rising cost of living in the UK*. Available from: <https://commonslibrary.parliament.uk/research-briefings/cbp-9428/>
- Harris, L.J. (2020) Darts. In: *Routledge handbook of global sport*. Abingdon, UK: Routledge, pp. 206–214. Available from: <https://doi.org/10.4324/9781315714264-20>
- Hawkes, W. (2019) *Pubs and Sport: The Perfect Match*. Available from: https://assets.ctfassets.net/kp79wme6xzib/2sTn6IcDmxU7vr3pWNqIHi/29c06669e55b66fb9b068b481fcc6f35/PUBS___SPORT___THE_PERFECT_MATCH.pdf

- Hobbs, M., Green, M., Roberts, K., Griffiths, C. & McKenna, J. (2019) Reconsidering the relationship between fast-food outlets, area-level deprivation, diet quality and body mass index: An exploratory structural equation modelling approach. *Journal of Epidemiology and Community Health*, 73(9), 861–866. Available from: <https://doi.org/10.1136/jech-2018-211798>
- Hough, M. & Hunter, G. (2008) The 2003 licensing Act's impact on crime and disorder: An evaluation. *Criminology & Criminal Justice*, 8(3), 239–260. Available from: <https://doi.org/10.1177/1748895808092428>
- Hubbard, P. (2018) Retail gentrification. In: Lees, L. & Phillips, M. (Eds.) *Handbook of gentrification studies*. Cheltenham, UK: Edward Elgar Publishing. Available from: <https://doi.org/10.4337/9781785361746.00029>
- Hunter, J. (2020) Risky high streets? Developing a shop theft risk index at the high street level in Nottingham. *Urban Crime: An International Journal*, 1(1), 34–52. Available from: <https://doi.org/10.26250/heal.panteion.uc.v1i1.205>
- Institute of Alcohol Studies. (2020) *Ethnic minorities and alcohol*. Available from: <https://www.ias.org.uk/wp-content/uploads/2020/12/Ethnic-minorities-and-alcohol.pdf>
- Janssen, M. (2021) *Quantitative Approach on the Association of Pub density with Local Property Prices*. PhD Thesis, Faculty of Spatial Sciences, University of Groningen. Available from: <https://frw.studenttheses.ub.rug.nl/3532/1/Final%20Master%20Thesis%20Max%20Janssen%20%28S3936236%29%20.pdf>
- Jennings, P. (2007) *The local: A history of the English pub*. Stroud, UK: The History Press.
- Joyce, R. & Sibieta, L. (2012) Country case study-UK. In: Jenkins, S. P., Brandolini, A., Micklewright, J. & Nolan, B. (Eds.) *The Great recession and the distribution of household income*. Oxford, UK: Oxford University Press, pp. 176–201. Available from: <https://doi.org/10.1093/acprof:oso/9780199671021.003.0007>
- Kitsos, A. & Bishop, P. (2018) Economic resilience in Great Britain: The crisis impact and its determining factors for local authority districts. *The Annals of Regional Science*, 60(2), 329–347. Available from: <https://doi.org/10.1007/s00168-016-0797-y>
- Lane, C. (2018) *From taverns to gastropubs: Food, drink, and sociality in England*. Oxford, UK: Oxford University Press. Available from: <https://doi.org/10.1093/oso/9780198826187.001.0001>
- Levitt, J. (2022) *Cost of living: Pub halves beer and cider choice to survive*. Available from: <https://www.bbc.co.uk/news/uk-wales-63501972>
- Lugosi, P., Golubovskaya, M., Robinson, R.N.S., Quinton, S. & Konz, J. (2020) Creating family-friendly pub experiences: A composite data study. *International Journal of Hospitality Management*, 91, 102690. Available from: <https://doi.org/10.1016/j.ijhm.2020.102690>
- Martin, L., Jerrard, B. & Wright, L. (2019) Pubscape: Innovation by design in the British pub. *International Journal of Contemporary Hospitality Management*, 31(8), 3018–3036. Available from: <https://doi.org/10.1108/IJCHM-06-2018-0537>
- Marwa, W.L., Radley, D., Davis, S., McKenna, J. & Griffiths, C. (2021) Exploring factors affecting individual GPS-based activity space and how researcher-defined food environments represent activity space, exposure and use of food outlets. *International Journal of Health Geographics*, 20(1), 1–18. Available from: <https://doi.org/10.1186/s12942-021-00287-9>
- Mason, M. (2022) In search of Britain's oldest pubs. *The Spectator*, 6 May.
- Maye, D., Ilbery, B. & Kneafsey, M. (2005) Changing places: Investigating the cultural terrain of village pubs in south Northamptonshire. *Social & Cultural Geography*, 6(6), 831–847. Available from: <https://doi.org/10.1080/14649360500353079>
- Mount, M. & Cabras, I. (2016) Community cohesion and village pubs in northern England: An econometric study. *Regional Studies*, 50(7), 1203–1216. Available from: <https://doi.org/10.1080/00343404.2014.989150>
- Muir, R. (2012) *Pubs and places: The social value of community pubs*, 2nd edition. London, UK: Institute for Public Policy Research. Available from: <https://www.ippr.org/publications/pubs-and-places-the-social-value-of-community-pubs>
- Negus, R. (2004) Pub, bar or restaurant? *Journal of Retail & Leisure Property*, 3(4), 326–330. Available from: <https://doi.org/10.1057/palgrave.rlp.5090187>
- Newsroom. (2018) A decade of Wigan pub closures. *Wigan Today*. Available from: <https://www.wigantoday.net/news/decade-wigan-pub-closures-179707>
- Niu, H. & Silva, E.A. (2021) Delineating urban functional use from points of interest data with neural network embedding: A case study in greater London. *Computers, Environment and Urban Systems*, 88, 101651. Available from: <https://doi.org/10.1016/j.compenurb sys.2021.101651>
- Office for National Statistics. (2016) *2011 residential-based area classifications*. Available from: <https://www.ons.gov.uk/methodology/geography/geographicalproducts/areaclassifications/2011areaclassifications>
- Office for National Statistics. (2018a) *Economies of ale: small pubs close as chains focus on big bars*. Available from: <https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/articles/economiesofalesmallpubscloseaschainsfocusonbigbars/2018-11-26>
- Office for National Statistics. (2018b) *Pub closures*. Available from: <https://www.ons.gov.uk/aboutus/transparencyandgovernance/freedomofinformationfoi/pubclosures>
- Office for National Statistics. (2022) *2011 Census Geography*. Available from: <https://webarchive.nationalarchives.gov.uk/ukgwa/20220401215420/>; <https://www.ons.gov.uk/methodology/geography/ukgeographies/censusgeography>
- Oldenburg, R. & Brissett, D. (1982) The third place. *Qualitative Sociology*, 5(4), 265–284. Available from: <https://doi.org/10.1007/BF00986754>
- Ordnance Survey. (2022) *Points of interest*. Available from: <https://www.ordnancesurvey.co.uk/business-government/products/points-of-interest>
- Point, X. (2023) *Comprehensive, up-to-date and accurate Points of Interest data for Great Britain*. Available from: <https://www.pointx.co.uk/products>
- Pub is the Hub. (2022) Assets of community value. Available from: <https://www.pubisthehub.org.uk/community-ownership/assets-of-community-value/>

- Redfern, J., Sidorov, K., Rosin, P.L., Corcoran, P., Moore, S.C. & Marshall, D. (2020) Association of violence with urban points of interest. *PLoS One*, 15(9), e0239840. Available from: <https://doi.org/10.1371/journal.pone.0239840>
- Rees, P. (2011) The dynamics of populations large and small: Processes, models and futures. In: Stillwell, J. & Clarke, M. (Eds.) *Population dynamics and projection methods*. Dordrecht, The Netherlands: Springer, pp. 1–28. Available from: https://doi.org/10.1007/978-90-481-8930-4_1
- Roberts, M. & Townshend, T. (2013) Young adults and the decline of the urban English pub: Issues for planning. *Planning Theory & Practice*, 14(4), 455–469. Available from: <https://doi.org/10.1080/14649357.2013.845683>
- Robinson, D. & Spracklen, K. (2019) Music, beer and performativity in new local leisure spaces: Case study of a Yorkshire dales market town. *International Journal of the Sociology of Leisure*, 2(4), 329–346. Available from: <https://doi.org/10.1007/s41978-018-00029-5>
- Rosow, I., Moan, I.S. & Bye, E.K. (2022) Declining trend in adolescent alcohol use: Does it have any significance for drinking behaviour in young adulthood? *International Journal of Environmental Research and Public Health*, 19(13), 7887. Available from: <https://doi.org/10.3390/ijerph19137887>
- Seely, A. (2022) *Alcohol taxation and the pub trade*. Available from: <https://commonslibrary.parliament.uk/research-briefings/sn01373/>
- Senedd Research. (2022) *Coronavirus timeline: the response in Wales*. Available from: <https://research.senedd.wales/research-articles/coronavirus-timeline-the-response-in-wales/>
- Serwick, I. & Swinney, P. (2016) *Trading Places: Why firms locate where they do*. Available from: <https://www.centreforcities.org/publication/trading-places-why-firms-locate-where-they-do/>
- Shakina, E. & Cabras, I. (2022) How do beer prices vary across different pubs? An empirical study. *International Journal of Contemporary Hospitality Management*, 34(5), 1984–2003. Available from: <https://doi.org/10.1108/IJCHM-08-2021-0981>
- Singh, P., Brown, D.M., Chelekis, J., Apostolidis, C. & Dey, B.L. (2022) Sustainability in the beer and pub industry during the COVID-19 period: An emerging new normal. *Journal of Business Research*, 141, 656–672. Available from: <https://doi.org/10.1016/j.jbusres.2021.11.066>
- Sleight, P. (2004) An introductory review of geodemographic information systems. *Journal of Targeting, Measurement and Analysis for Marketing*, 12, 379–388.
- Smith, P.A. & James, G.J. (2017) Changing industrial classification to SIC (2007) at the UK Office for National Statistics. *Journal of Official Statistics*, 33(1), 223–247. Available from: <https://doi.org/10.1057/palgrave.jt.5740124>
- Sumpter, C., Mohan, A., McKell, J., Lewsey, J., Emslie, C. & Fitzgerald, N. (2020) How did a lower drink drive limit affect bar trade and drinking practices? A qualitative study of how alcohol retailers experienced a change in policy. *Drug and Alcohol Review*, 39(2), 170–179. Available from: <https://doi.org/10.1111/dar.12999>
- Taylor, J., Twigg, L. & Mohan, J. (2015) Understanding neighbourhood perceptions of alcohol-related anti-social behaviour. *Urban Studies*, 52(12), 2186–2202. Available from: <https://doi.org/10.1177/0042098014543031>
- Thurnell-Read, T. (2021) ‘If they weren’t in the pub, they probably wouldn’t even know each other’: Alcohol, sociability and pub based leisure. *International Journal of the Sociology of Leisure*, 4(1), 61–78. Available from: <https://doi.org/10.1007/s41978-020-00068-x>
- Tierney, J. (2006) ‘We want to be more European’: The 2003 licensing act and Britain’s night-time economy. *Social Policy and Society*, 5(4), 453–460. Available from: <https://doi.org/10.1017/S1474746406003162>
- United Kingdom Government. (2023) *Business rates relief*. Available from: <https://www.gov.uk/apply-for-business-rate-relief/rural-rate-relief>
- Valuation Office Agency. (2023) *Valuation Office Agency*. Available from: <https://www.gov.uk/government/organisations/valuation-office-agency>
- van der Loo, M., van der Laan, J., R Core Team, Logan, N. & Muir, C. (2014) Package ‘stringdist’. *CRAN*, 6(1). Available from: <https://CRAN.R-project.org/package=stringdist>
- Weed, M. (2007) The pub as a virtual football fandom venue: An alternative to ‘Being there’? *Soccer & Society*, 8(2–3), 399–414. Available from: <https://doi.org/10.1080/14660970701224665>
- Wilkins, E.L., Radley, D., Morris, M.A. & Griffiths, C. (2017) Examining the validity and utility of two secondary sources of food environment data against street audits in England. *Nutrition Journal*, 16(1), 1–13. Available from: <https://doi.org/10.1186/s12937-017-0302-1>
- Woodhouse, J. (2020) *Alcohol: minimum pricing*. Available from <https://commonslibrary.parliament.uk/research-briefings/sn05021/>
- Yee, J. & Dennett, A. (2022) Stratifying and predicting patterns of neighbourhood change and gentrification: An urban analytics approach. *Transactions of the Institute of British Geographers*, 47(3), 770–790. Available from: <https://doi.org/10.1111/tran.12522>

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

Table S1. Area classification for residential populations.

Table S2. Area classification for workplace populations.

How to cite this article: Clark, S., Leahy, C. & Hood, N. (2023) An exploration of recent trends in the number of British pubs and how these vary by neighbourhood type. *The Geographical Journal*, 189, 729–744. Available from: <https://doi.org/10.1111/geoj.12538>