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The impact of school exclusion zone planning guidance on the number and type of food outlets in an English local authority: A longitudinal analysis

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ABSTRACT

The use of planning policy to manage and create a healthy food environment has become a popular policy tool for local governments in England. To date there has been no evaluation of their short-term impact on the built environment. We assess if planning guidance restricting new fast food outlets within 400 m of a secondary school, influences the food environment in the local authority of Newcastle Upon Tyne, UK. We have administrative data on all food outlets in Newcastle 3 years pre-intervention 2012–2015, the intervention year 2016, and three years' post-intervention 2016–2019. We employ a difference-in-difference approach comparing postcodes within the school fast food outlet exclusion zone to those outside the fast-food exclusion zones. In the short term (3 years), planning guidance to limit the number of new fast-food outlets in a school exclusion zone did not have a statistically significant impact on the food environment when compared with a control zone.

1. Introduction

The UK Government has recently re-committed its pledge to tackle obesity aiming to half childhood obesity by 2030 and reduce adult obesity rates (Department of Health and Social Care, 2020). Obesity is a complex multifaceted condition (Greater London Authority, 2012; Frood et al., 2013). However, there is international consensus that the environment in which we live and work influences the food that we eat and subsequently our health (Vanderlee et al., 2017; Public Health Association Australia, 2019; Center for Disease Control, 2021). In particular, there is a strong association between eating fast food and overweight and obesity (Burns et al., 2002; Prentice et al., 2003; Smith et al., 2009; Lachat et al., 2012), with some evidence of a causal influence of fast food intake on obesity and overweight (Currie et al., 2010). In England, as is the case in many high-income countries, takeaway outlets selling fast food tend to cluster in lower socioeconomic areas, potentially contributing to widening health inequalities (Hurvitz et al., 2009; Greater London Authority, 2012; Keeble et al., 2019).

There are 343 local authorities in England (local government administrative bodies) (Gov.UK, 2016). Since 2013, Local Authorities in England have responsibility for tackling the causes of poor health which include the built environment (Department of Health 2011). To meet this objective, local authorities have increasingly amended their planning guidance to promote 'healthy weight environments' (Public Health England 2020). Because of the evidence finding a link between foods sold at fast food outlets and being overweight or obese (Burns et al., 2002; Prentice et al., 2003; Smith et al., 2009; Currie et al., 2010; Lachat et al., 2012), policy has focused on restricting these type of food outlets. We define fast food outlets as those that sell food to be consumed off the premises. The use of planning guidance to promote a 'healthy weight' environment is based upon the assumptions of 'nudge' theory (Thaler and Sunstein 2009). Specifically, around the concept of choice architecture or how the environment influences people's food choices (Mikic 2020). Planning decisions around the type and availability of different

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food outlets will influence the design and use of the built environment which will then 'nudge' people by making it easier to make healthier food choices and/or removing the temptation of more unhealthy food choices subsequently improving health. However, as acknowledged by Public Health England, the retail environment is complex (Keeble et al., 2019) and restricting the number of fast food outlets may not effectively limit the offer of unhealthy food. For example, competition theory in economics (Salvatore 2008) suggests that if there is demand in the local area for the type of food being offered by fast food outlets, other types of food outlets such as restaurants, cafes or pubs which are not restricted by planning guidance may fill the gap. In other words, an unintended consequence of this type of policy may be an increase in the number of other types of food outlets in the local authority. At the same time, since this type of planning guidance only restricts the opening of new food outlets and does not impact existing outlets, it is unclear how long might be required before a significant shift to a healthier food environment could be observed.

Waltham Forest Borough Council was the first local authority in England to introduce planning guidance to restrict new fast-food outlets within 400 m of secondary schools in 2009 (London Borough of Waltham Forest, 2009). To date approximately 50% of local authorities in England have planning guidance in place to promote a healthy food environment (Keeble et al., 2019). National guidance informs planning guidance at the local authority level and is usually contained within the local plan and core strategies (planning policies based upon the needs, priorities or strategic objectives of the local authority). Further details and clarifications regarding the restrictions in place are outlined in supplementary planning documents (Keeble et al., 2019). Together these documents outline the decision-making process for determining the acceptability of planning applications (Keeble et al., 2019). In England, there are three types of planning guidance used to limit the number of fast-food outlets. Firstly, school exclusion zones are planning guidance that restrict the granting of planning permission for new fast-food outlets around places frequented by children (such as near secondary schools). A second option for planning guidance is limiting the density of outlets by restricting the granting of planning permission for new fast-food outlets if a certain threshold number of outlets (between 5 and 20% of retail space) has been exceeded. The third option is restricting the granting of planning permission for new outlets where the percentage of population classified as overweight or obese (15% of children in final year of primary school for example) has been exceeded (Keeble et al., 2019). There is limited evidence available from similar research investigating impact of planning guidance worldwide; however we did identify two studies using planning guidance to manage the food environment in Ireland and the USA (Health Service Executive, Ireland (N.D); Los Angeles City Planning 2007).

The Metropolitan District of Newcastle upon Tyne is in the North East of England. By population size, it is the 17th largest city in the UK with a population of 302,800 in 2019.72.8% of the population is economically active compared to 79% nationally (Nomis Official Labour Market Statistics, 2019). Life expectancy at birth is approximately 2 years lower than the national average. An estimated 60% of adults and a quarter of children aged 10–11 years in Newcastle are overweight or obese, the latter 4 percentage points higher than the national average (Public Health England 2019) Thus, compared to other cities in the UK, Newcastle is more deprived and has worse health. Newcastle Upon Tyne's planning guidance (Newcastle City Council 2016) grants the local authority the power to refuse planning permission for the change of use of premises (or building of a new premises) if the primary business is for the sale of hot food for consumption off the premise, and the proposed business is within a school exclusion zone (within a 10 min walk/approximately 400 m of a secondary school via the street network). It came into effect in October 2016. Importantly, the refusal of planning permission to fast-food outlets in exclusion zones does not apply where the premises also lies in designated retail centres (zones prioritised by the local authority for retail growth). Planning permission in theory may still be denied for other reasons in the planning guidance such as for environmental reasons. But these will be based upon the individual premises and the same judgements and decisions around granting planning permission may not apply to all premises.

New fast-food businesses opening in a premise with existing permission to sell fast-food do not require planning permission, as this does not imply a change of use requiring planning permission.

To date, there has been no empirical investigation of how using planning guidance to manage and manipulate the food environment has impacted the type and number of food outlets in a local authority in England. To understand the impact of planning guidance on the local food environment, is a fundamentally important question, going forward, to not only promote a healthy environment, but also to help the government reach their obesity reduction target (Department of Health and Social Care, 2020). It is essential to understand the time frames needed to identify a significant change to the food environment.

The aim of this paper is to evaluate the impact of planning guidance on the number and type of food businesses in a local authority in England (Newcastle Upon Tyne) 3 years after the implementation of planning guidance creating school exclusion zones around secondary schools. To operationalise this aim, we employed a quasi-experimental estimation approach to assess changes in the number and types of business premises before and after the implementation of planning guidance in Newcastle Upon Tyne. We hypothesise that the planning guidance may change the number and type of food outlets in postcodes in the exclusion zone compared to the control zone. Specifically, we would expect that the number of new fast-food opening in postcodes within the exclusion zones should decrease post guidance. However, the number of non-fast-food outlets may increase within exclusion zone postcodes, should businesses decide to open as restaurants for example in order to circumvent the guidance We also look at the impact of the planning guidance on existing outlets as – if/when outlets close - if new fast-food outlets cannot open, this may impact the likelihood of other types of food businesses operating. It may lead to changes in the food environment of the exclusion zone relative to the control. This may be another mechanism by which the planning guidance influences the food environment.

2. Methods

2.1. Setting

We used data covering all postcodes in the local authority of Newcastle upon Tyne between 2012 and 2019. Data pre-intervention was from January 2012–September 2016 and data post-intervention is from October 2016–December 2019. Because of the Covid-19 pandemic and temporary changes to planning legislation which came into force in March 2020 (The Town and Country Planning, 2020B), we did not use data from 2020 in the analysis.

2.2. Data sources

The data on food outlets comes from the Food Standards Agency - Food Hygiene Rating Scheme (FSA FHRS) (Food Standards Agency N.D), an administrative source which records all food outlets inspected by environmental health officers.[1] It is a statutory requirement that the data on food outlets obtained by the environmental health officers during their inspections are uploaded within 28 days of an inspection (Food Standards Agency N.D) The data has been validity tested and was shown to offer a clearer picture of the food environment than information from commercial sources (Kirkman et al., 2020). Although updated regularly, some archived cross-sections of the FHRS data are publicly

[1] Environmental health officers are employed by local authorities to inspect businesses for health and safety, food hygiene, and food standards.

available, allowing us to view annual records on all food outlets in the study area over the sample period. The food outlet data contains the postcode for each outlet. This postcode is matched to data from the National Statistics Postcode Lookup (Office for National Statistics, 2020), which contains the latitude and longitude coordinates for each postcode. For each postcode and year, we know the number of food outlets, the latitude and longitude coordinates, and also the breakdown by outlet type as recorded in the FHRS data.

2.3. Outcome

Our primary outcome was the number and type of food outlets in each postcode in the local authority of Newcastle Upon Tyne. The type of food outlet is classified by a local authority environmental health officer when delivering a food safety inspection. The environmental health officer classifies premises based upon their main business. The classification categories are:

• Restaurant/Café/ Canteen	•Hospital/Childcare/ Caring	•Import/Export
•Retail	•Manufacturing/Packing	•Hotel/B&B/Guest House
•School/College/ Universities	•Mobile Caterer	•Other Catering
•Supermarkets	•Fast-food/Sandwich shops	•Pub/Night Club/Bar
•Distributors/Transporters		

It is important to note that the classification used by the environmental health officer may differ to the classification of a premise used by planning inspectors. For example, a mixed-use restaurant and food to take away and eat at home may be classified as fast-food outlet by an environmental health officer, whereas a planner may classify it as a mixed-use premise. To reduce this type of bias arising from potential misclassification, we used the local authorities' annual planning policy monitoring reports (Newcastle City Council (N.D).) to corroborate the data on new fast-food outlet granted planning permission with FHRS data as reported by the environmental health officer on new fast-food.

2.4. Exposure-exclusion zone

We identified postcodes in the exclusion zones using the supplementary planning guidance outlining the exclusion zone (Newcastle City Council 2016). Latitude and longitude coordinates were used to map exclusion zone postcodes and retail zones. A map of the exclusion zones is presented in Fig. 1. There are 18 exclusion zones with 8 of the zones overlapping. There are 8 designated retail centres which contain 786 postcodes that are excluded from the analysis. We have data on 2003 postcodes in the exclusion zone.

2.5. Controls

Control postcodes are those that lie outside of the exclusion zones but within 250 m of an exclusion zone. There are no secondary schools within the control zones. However, the proximity of the control postcodes to the treated ones, should ensure that prior to the intervention, the density of outlets per group is comparable. It is unlikely, given the close proximity to the exclusion zones, that these control areas would experience different trends over time compared to the exclusion zones. Thus, we can use the control group as a counterfactual (what would have happened in the absence of planning guidance) in our statistical model. We have data on 5278 postcodes that are within 250 m of the 18 exclusion zones.

2.6. Analysis

This study followed the STROBE reporting guidelines which can been viewed in the online Appendix. All analysis was undertaken using Stata v.16 (StataCorp, 2019). First, we presented the number and type of outlets in the exclusion and control zone over the study period. Next, we plotted the number of restaurants and fast-food outlets in each exclusion zone and control zone before the planning guidance came into force to assess the comparability of the zones. Thus, we could determine if the data before the introduction of the legislation followed similar trends so that we could employ a quasi-experimental statistical model.

Then we graphically show the number of new restaurants and fast-food outlets opening in the exclusion and control zone over the study period. Finally, we employed a linear difference-in-difference model (see supplementary Appendix 1 for model formula) to estimate the change in the number and type of food outlets in postcodes in the exclusion zone compared to the control zone, after the introduction of the planning guidance. We included dummies for years with 2012 as the base year. All models also control for time constant factors by using post code fixed effects. We estimated the impact of the changing in planning

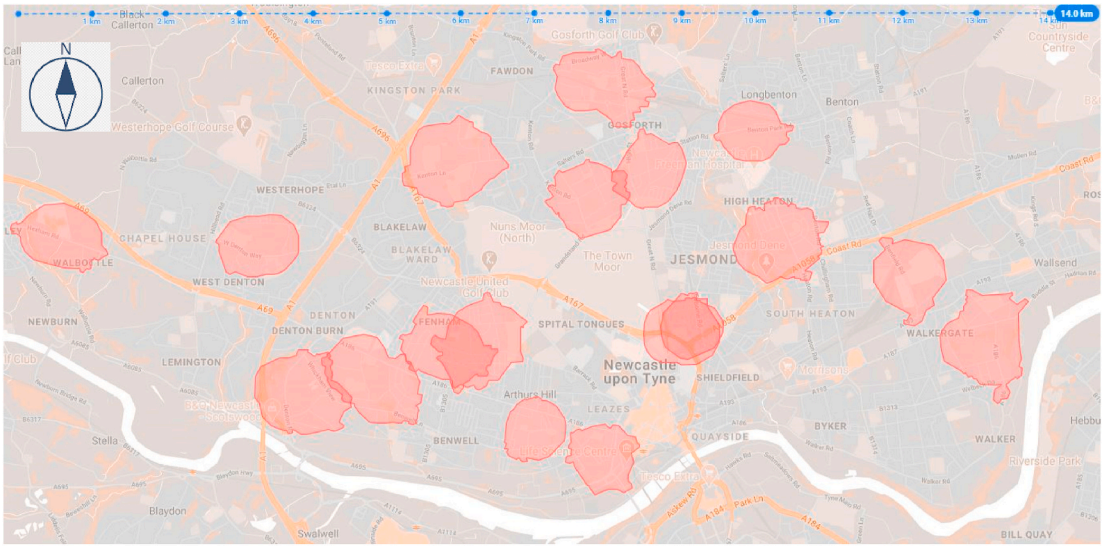

Fig. 1. *Map of the school exclusion zones in Newcastle upon Tyne, England*
Note: The red polygons show the exclusion zones around secondary schools in Newcastle Upon Tyne, whilst the distance between the blue circles along the top line indicate 1 km.

guidance on existing and new outlets in the exclusion zone compared to the control zone.

2.7. Sensitivity analysis

As a sensitivity analysis we compare the number and type of outlets in each postcode in the exclusion zone to the immediate area (within 250 m) of an exclusion zone and a wider control zone of postcodes between 250 and 500 m of the exclusion zone.

3. Results

The number of different types of food outlets are presented in Table 1 for the control and exclusion zones. There is an increase in the number of restaurants over this period in both the exclusion zone and control zone. In both zones, the number of fast-food outlets is fairly constant. All fast-food outlets identified in the annual monitoring review for Newcastle City Council (Newcastle City Council, 2020) were identified in the dataset as fast-food outlets.

3.1. Density of food outlets in Newcastle Upon Tyne

Fig. 2 shows the number of outlets in the exclusion zone (red) and control zone (green) before the implementation of planning guidance in October 2016. Some exclusion zones such as the two in the bottom middle have a higher concentration of outlets. For most control and exclusion zones there are a similar number of postcodes with outlets in the zones.

3.2. New fast-food and restaurant outlets in Newcastle Upon Tyne

Fig. 3 shows the number of new fast-food outlets and restaurants opening in the control and exclusion zones between 2013 and 2019. There are fewer outlets opening in the exclusion zone. In both zones more restaurants open each year than fast-food outlets. There is no clear visual change in new outlets with the introduction of planning guidance in 2016. The mean number of fast-food outlets opening in the control zone was 10 with a minimum of 2 in 2018 and a maximum of 21 in 2017. The mean number of new fast-food outlets opening in the exclusion zones is 1.5 with a minimum of 0 in 2016 and a maximum of 3 in 2013 and 2017. The mean number of restaurants opening in the control zone is 28 with a minimum of 11 in 2018 and a maximum of 48 in 2017. The mean number of restaurants opening in the exclusion zone is 8.9 with a minimum of 2 in 2018 and a maximum of 8 in 2017.

3.3. The impact of planning guidance on food outlets in Newcastle Upon Tyne

Fig. 4 shows the results of the statistical model of the number of new outlets in the exclusion zone compared to the control zone. There was no statistically significant change in the number and type of new outlets opening in postcodes in the exclusion zone post planning guidance compared to the control zones. In Fig. 4, there appears to be peaks (e.g. 2014, 2017) and troughs (2015 and 2018) in the opening of new outlets. These peaks and troughs may reflect the ebb and flow of new businesses over time. Or they could simply be an artifact of the data as we are only focusing on one local authority which limits our sample size and ability to be certain on what is causing these changes over time.

Fig. 5 focuses on existing outlets to understand if the planning guidance has impacted on the number and type of outlets that had already been operating in postcodes in the exclusion and control zones. There was no significant change in the number and type of outlets in exclusion zone postcodes compared to control zone postcodes with the exception of a reduction of −0.004 (95% CI: [-0.008 to −0.007]) in the number of small caterers.

3.4. Sensitivity analysis

Results from the sensitivity analysis in which we compare postcodes in the exclusion zone, postcodes 250 m from the exclusion zone to a further control zone of 250 m are presented in Appendix 2 and 3. We found that there was no change in the number and type of food outlets in postcodes in exclusion zones and in postcodes immediately adjacent to the exclusion zones compared to a control zone between 250 and 500 m

Table 1
Number of outlets by type and year for control and exclusion zones.

	2012	2013	2014	2015	2016	2017	2018	2019
Control Postcodes								
Restaurants	134	143	150	153	154	176	178	182
Fast Food	99	101	96	95	98	103	103	98
Pubs	99	101	96	95	98	103	103	98
Hotels	13	13	13	13	19	17	16	17
Supermarkets	15	15	18	20	22	23	23	22
Retail	113	121	116	115	115	111	112	108
Schools	34	36	35	35	35	36	36	36
Hospitals/Care homes	42	42	43	43	42	41	41	38
Distribution/Transport	4	4	4	2	1	1	2	2
Import/Export	0	0	0	0	0	0	1	1
Manufacturing	2	3	2	2	1	2	2	4
Small Caterers	22	21	18	20	26	26	28	26
Mobile Caterers	0	0	0	0	1	0	0	1
Exclusion Postcodes								
Restaurants	45	42	52	54	59	66	66	63
Fast Food	29	30	31	31	29	29	28	29
Pubs	29	31	31	31	32	33	33	29
Hotels	4	4	4	4	4	3	3	1
Supermarkets	5	6	6	7	7	6	6	6
Retail	47	45	45	46	45	48	47	42
Schools	35	34	34	34	35	35	35	36
Hospitals/Care homes	24	25	26	26	26	25	25	23
Distribution/Transport	2	2	2	2	2	3	4	4
Import/Export	1	0	0	0	0	0	0	0
Manufacturing	2	2	2	2	3	1	1	2
Small Caterers	16	19	18	19	22	13	14	13
Mobile Caterers	0	0	0	1	1	2	2	1

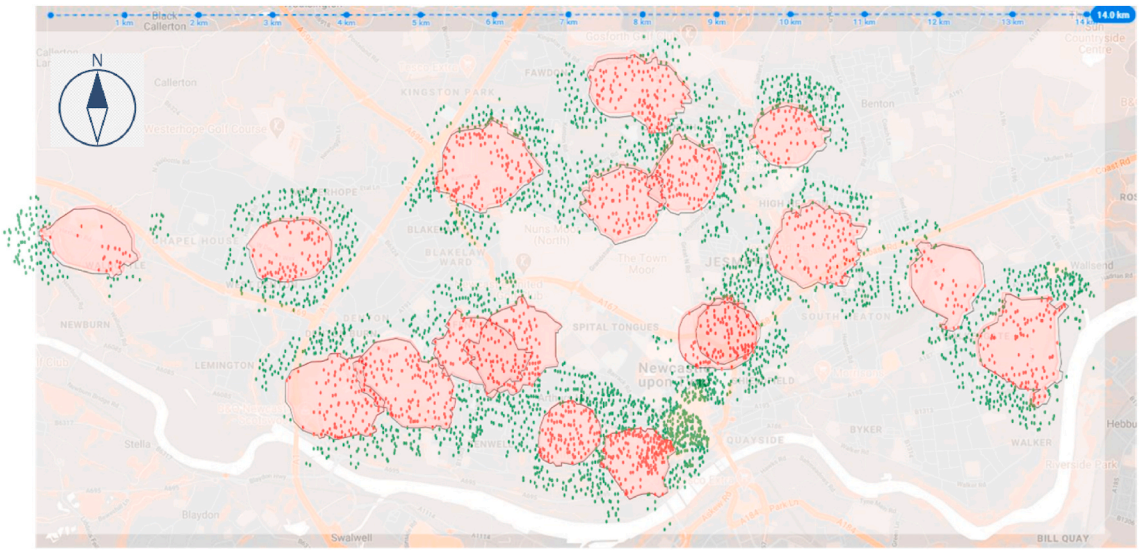

Fig. 2. *Location of restaurants and fast-food outlets in Newcastle Upon Tyne.* Green: control zone; Red: exclusion zone over the period 2012–2015.

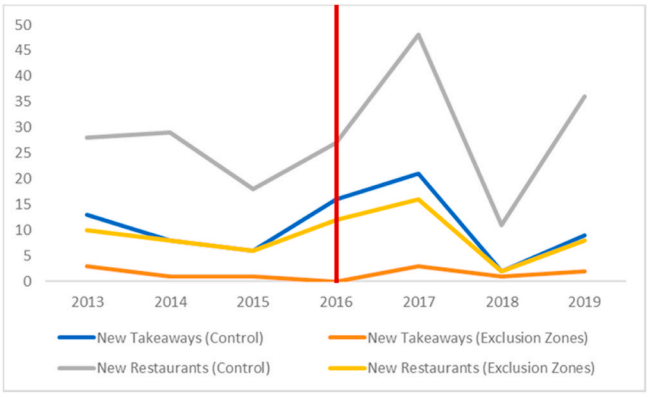

Fig. 3. Number of new fast-food/sandwich shop or restaurant/café/canteen in the control and exclusion zones. Policy introduction marked by red vertical line.

of the exclusion zones.

4. Discussion

Our study has shown that the implementation of planning guidance to restrict planning permission for fast-food outlets within a 10 min walk (400 m) exclusion zone of secondary schools did not lead to a statistically significant change in the number and type of food outlets in the exclusion zones compared to control zones within 3 years. We also explored potential spillover effects, i.e. whether businesses were tempted to open just outside the exclusion zone. It is possible that the post-codes immediately adjacent to the exclusion zone differ in the type and density of new and existing outlets post guidance. By comparing with a control zone further afield (between 250 and 500 m) we could understand if and how business location is motivated by the planning guidance as well as acting as a robustness check on our findings. However, this did not change the statistically insignificant differences between the exclusion and control zones.

Our findings may partially be explained by the fact that each year there are very few new outlets opening anywhere in Newcastle upon Tyne. Thus, the statistical approach we use may not be able to detect a statistically significant difference because of small numbers. In the analysis, we have also excluded designated retail zones within the exclusion zones which are not subject to the same restrictions in planning. Therefore, if businesses choose to open in these retail zones this may have an impact on the food environment which we are not able to detect in this analysis. Many of these retail zones are located on high streets (main shopping streets) which are desirable locations for businesses.

Our findings illustrate that the food enviornment of Newcastle upon Tyne was slow to change pre-Covid-19 pandemic. Thus, restricting fast-food outlets in certain areas may have a long-term impact on the food environment but we are not able to detect any change in the short term (3 years).

To date there has been no evaluation of using planning guidance to promote a healthy food environment in the UK. However, evidence from a similar type of planning guidance in Los Angeles also found no impact of the zoning legislation on the composition of food outlets in the impacted areas three years after implementation (Sturm and Hattori, 2015). In South Los Angeles, which had been subject to the zoning ban, there were 17 applications for larger fast-food outlets over the period 2008–2013. This was not statistically significantly different from other areas of Los Angeles. There was no statistically significant difference between South Los Angeles and other parts of the city in terms of the share of new restaurants belonging to a fast-food chain, large grocery stores, or smaller restaurants (Sturm and Hattori, 2015). This suggests that even in a large city such as Los Angeles it is difficult to change the underlying food environment in the short term and a longer term of study is required.

Using planning to improve population health is likely to be a long-term policy plan to create a healthy food environment. Local authorities and the central government need to be realistic about what can be achieved with planning guidance in the short term. In the long term, restrictions on new businesses may help to shift consumer spending away from fast-food outlets if different types of businesses fill the gap. However, if the central government is serious about trying to reduce obesity rates then this pledge will need to be accompanied by additional funding to local authorities to support this long-term objective and help to reduce existing geographical inequalities in the built environment. Our results support the idea that it is very hard to change the underlying food environment in the short term.

Local authorities need to have the resources available to proactively work with existing businesses. It may be more cost-effective to focus limited resources of local authorities on helping business owners make existing food outlets healthier (Hiller-Brown et al. 2017; Goffe et al. 2018, 2019A, 2019B). There is also a need to engage with stakeholders at all points of the supply chain including food ordering platforms (Goffe

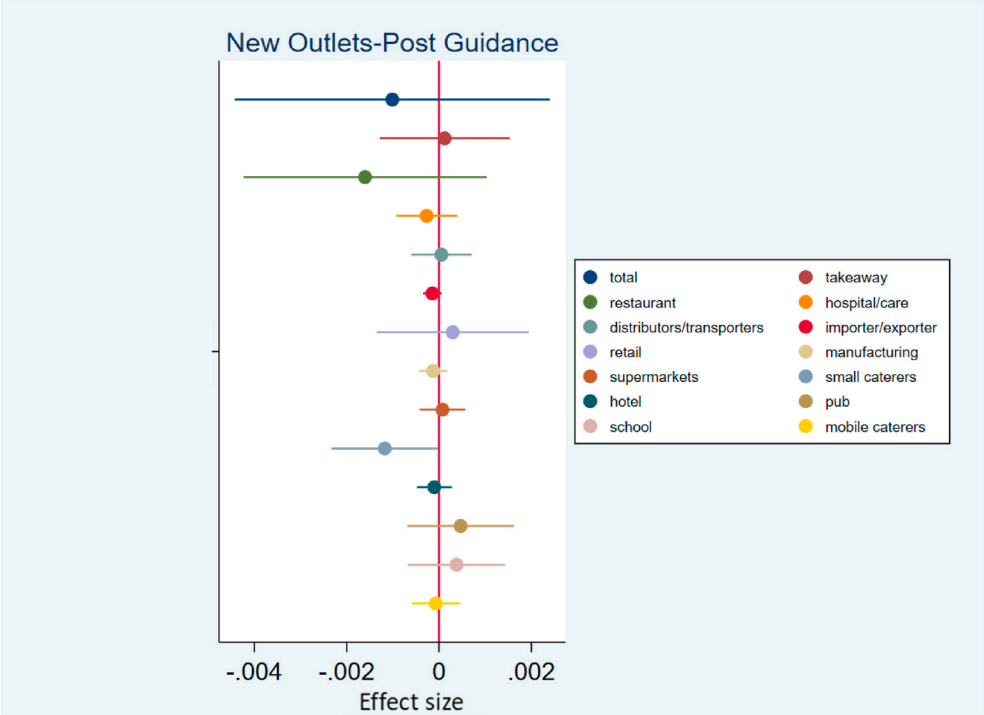

Fig. 4. Number of new food outlets within Exclusion zone postcodes in Newcastle Upon Tyne after the implementation of planning guidance in October 2016.
Note: The legend is truncated. The complete classification of outlet type is: Restaurant/Café/Canteen; Retail; School/College/Universities; Supermarkets; Distributors/Transporters; Hospital/Childcare/Caring; Manufacturing/Packing; Mobile Caterer; Fast-Food/Sandwich shops; Import/Export; Hotel/B&B/Guest House; Other Catering; Pub/Night Club/Bar.

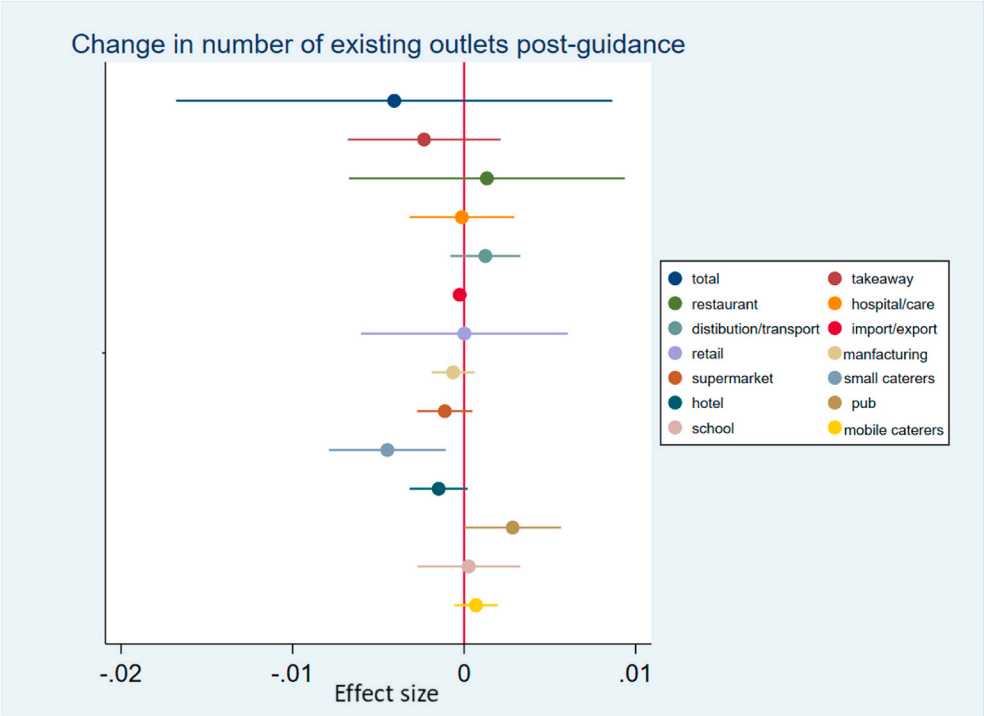

Fig. 5. Change in number of existing food outlets within Exclusion zone postcodes in Newcastle Upon Tyne after the implementation of planning guidance in October 2016
Note: The legend is truncated. The complete classification of outlet type is: Restaurant/Café/Canteen; Retail; School/College/Universities; Supermarkets; Distributors/Transporters; Hospital/Childcare/Caring; Manufacturing/Packing; Mobile Caterer; Fast-Food/Sandwich shops; Import/Export; Hotel/B&B/Guest House; Other Catering; Pub/Night Club/Bar.

et al., 2018). There is a clear evidence base that food consumed outside of the home is more energy dense than food consumed in the home (Lachat et al., 2012). Thus, by focusing on making existing food outlets healthier this will help to reduce the calorie load for those eating food prepared out of the home. These strategies align with the need for local areas to protect existing businesses and jobs in a post Covid-19 economic recovery whilst also promoting the health of the population.

Central government and local authorities may also want to consider more restrictive licensing requirements, where continuation of licenses are tied to health criteria as well as hygiene. In Philadelphia, USA, the city government enacted 4 different measures to reduce the number of outlets licenced to sell tobacco products including a density cap, tobacco free school zones, increased tobacco permit fees, and strict permit penalty fees for selling tobacco products to children. In combination, these measures led to a 20.3% decline in retail density 3 years after the implementation of these measures (Lawman et al., 2020). This suggests

that multiple planning elements or a whole systems approach focusing on numerous factors related to both food options may be required to significantly change the environment in the short term.

Our results have important implications for current and future policy given the impact of the Covid-19 pandemic on health and the economy. Because of the containment measures associated with Covid-19 pandemic, the UK food environment is currently in a period of flux and change. The survival of the hospitality sector and high streets is a politically hot topic in the UK (Chang et al., 2020; UK Hospitality, 2020). To support food businesses, planning guidance has been relaxed to allow all food outlets to act as takeaways until March 2022 (Town and Country Planning, 2020). Additionally, nationally a dramatic change in how food businesses are classified for planning purposes has recently been implemented (Town and Country Planning, 2020B) granting blanket permission for new restaurants and refusing permission for all new fast-food outlets. Given that there are likely to be changes to the underlying food environment driven by the Covid-19 pandemic, it is important to understand going forward how planning can shape the built environment for health and economic sustainability. Our findings suggest that planning guidance may have more scope to make a difference if the food environment is more volatile in the short term. Planners and public health teams should have a clear vision of what they want the underlying food environment to look like if this period of volatility is short lived. Our findings suggest that after this period of flux, there may be little change in the food environment from year to year which will limit the scope of planners and public health teams to make significant changes to the food environment in the short term if they rely on a single element of planning policy.

4.1. Strengths and limitations

There are several strengths in our analysis which enhance its validity. We have used longitudinal data on food outlets in a local authority to look at changes over time (2012–2019) in the food environment. We employ a robust quasi-experimental approach to attempt to estimate a causal impact of the policy on the food environment. Thus, provided useful insights into the scope for planning on influencing the food environment and promoting population health. We also utilise a unique dataset on the food environment, the FSA FHRS which has been externally validated for this type of evaluation work in the North East of England (Kirkman et al., 2020).

However, limitations remain. We cannot rule out that this legislation may have an influence on the food environment over a longer time period. Changes to the built environment in the late 19th century/early 20th century have directly impacted on the risks of non-communicable disease in the 21st century suggesting a very long lag on impacts (Pinter-Wollman and Wells, 2018). The fact that the opening of new and closing of existing food outlets in a postcode is a rare event suggest that there will be a long time lag before we are able to see any impacts on the food environment. Additionally, we conduct the analysis for a local authority in the North East of England. It is possible that these findings may not be the same for other local authorities with similar planning guidance creating exclusion zones around schools. The North East of England on average has higher rates of deprivation which may impact on the type and number of food outlets. However, our results are similar to the findings of an evaluation in Los Angeles (Sturm and Hattori, 2015) suggesting that in the short term this type of guidance may have little impact on changing the composition of the food environment. Future analysis should replicate this study for other local authorities with similar planning guidance to cement the evidence of planning guidance on food environments across different local contexts.

5. Conclusions

This study employed a quasi-experimental approach to evaluate the impact of planning guidance on the number and type of food outlets. Our study found that in the short term of three years, planning guidance restricting planning permission for new fast-food outlets within a 10-min walk (400 m) of a secondary school exclusion zone did not lead to significant changes in the food environment between control zones. This suggests that alternative/complementary strategies will need to be introduced to help create an environment which promotes a healthy weight. Evaluation of different types of planning guidance over different time periods is important to better understand how this policy tool impacts on the food environment.

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Data sharing

All data used in this study is publicly available to download from: https://data.food.gov.uk/catalog/datasets/38dd8d6a-5ab1-4f50-b753-ab33288e3200.

Ethical approval

This data is on businesses which is not subject to GDPR legislation and therefore does not require ethical approval for their use.

Declaration of competing interest

"All authors have completed the Unified Competing Interest form (available on request from the corresponding author) and declare: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years, no other relationships or activities that could appear to have influenced the submitted work."

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.healthplace.2021.102600.

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