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Citation: Caraher, M., Lloyd, S., Lawton, J., Singh, G., Horsley, K. & Mussa, F. (2010). A tale of two cities: A study of access to food, lessons for public health practice. *Health Education Journal*, 69(2), pp. 200-210. doi: 10.1177/0017896910364834

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Link to published version: <https://doi.org/10.1177/0017896910364834>

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A tale of two cities: A study of access to food, lessons for public health practice

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Abstract

Objectives. To map food access in the city of Preston in the north-west of England in order to determine access, availability and affordability of healthy food options.

Design and methodology. The research design employed a number of distinct methods including: surveys of shops; interviews with local people and shopkeepers; a cost and availability survey of shops in two deprived areas of Preston—Deepdale and Ingol—the former with a majority South Asian population; and the use of geographical information systems to map access and availability.

Results.

- Preston had more fast food outlets (186) [not including restaurants who operate takeaways] than general groceries outlets (165).
- There were more local shops selling affordable food in the area with the high South Asian population than in Ingol. ~~There were clear gaps in provision and access in Ingol, with shops being more than 500 m away from where people lived. Shops in Ingol stocked more familiar 'British foods' and less specialist or fresh produce.~~
- Analysis of the availability of some healthy options such as brown bread, wholemeal pasta and brown rice showed that they were not widely available within shops in the two areas.
- The price of the 'White British' basket in Ingol was £70.61 (cheapest price). For comparable goods in Deepdale, using the most expensive shopping basket, the price for the same basket was £42.47.
- A South Asian family shopping at a major supermarket outlet in Deepdale would pay £47.05. Using local shops they could pay between £38.59 and £44.28 by seeking out the best bargains in five shops (including some top-up items from a national supermarket).
- At the time of the research a mother with two children, entitled to income support and child allowance, would have to spend 28–32 per cent of her income in local shops and 34 per cent in a supermarket to buy a basket of healthy goods.

Conclusions. There is a need to engage proactively with the location of shops in urban areas, to ensure they offer a healthy range of options and are sited near to where people live. The number of fast food outlets needs to be controlled and the food they offer improved. This latter issue of the number of outlets and quality

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of fast food contributes to an overall obesogenic environment. Access to food is heavily dependent on having access to a car; local shopping and the quality of food on offer are important for key groups such as those on benefits, the elderly, single parents and others with limited access to a car. Proactive policy solutions may lie with the engagement of health agencies with the planning processes in local authorities to ensure that the food retail environment reflects a healthy choice. Local area agreements between health agencies and local authorities offer a way forward, in that they can take into account the expressed needs of local residents.

Keywords

access, affordability, food poverty, food shopping, mapping

Introduction

Research has shown that in urban areas the problems of access to healthy foods are complex and multi-layered¹⁻². Debates over access tend to split on dichotomous grounds, with access to food tending to be seen either as a consequence of social and retail planning or as the consequences of individual choices; in reality it is a combination of both structural and individual influences³. Food access can be limited by many factors ranging from physical distance to shops, to physical and social impairment, to lack of skills such as cooking and food knowledge^{4,5}. Much of the writing and evidence on inequalities in food and nutrition draws on quantitative survey work, which measures individual or household level consumption of foods, and evaluates it in terms of whether foodstuffs consumed, or dietary patterns, conform to current government guidelines for healthy eating. Such approaches omit the voice of the disadvantaged. It is important to remember that in such reduced circumstances one can survive – as opposed to going hungry or starving – on a diet unhealthy, lacking essential micronutrients and monotonous in its structure⁶. Debate over the importance of physical access to fruit and vegetables in mediating health inequalities continues, though the critical role of prices, household income available for food expenditure and cultural expectations is often ignored.

Rather than arguing the dominance of structural over individual factors or vice versa, it can be contended that there is a complex interplay of factors^{7,8}. Some studies have shown the impact of improved local retail, including food retail, on wider indicators such as crime and disorder⁹. Work by Bowyer and colleagues in Hackney in East London showed that, while availability of and access to fresh fruit and vegetables was adequate in the areas studied, there were problems with accessing other healthy food items in the 'eatwell plate'¹⁰. This same study also showed that access can be influenced by a lack of social capital as well as a lack of finances. This research follows on from and develops previous work on food access in Preston in 1988 and 1999^{11,12}.

Local context

Preston is a city of 130,000 inhabitants in the north-west of England. It has pockets of deprivation, resulting in the city being ranked 26th out of 354 local authority districts in England in the Indices of Deprivation. Nine of the 22 wards fall into the worst 10 per cent of wards for poor health across the country and ten into the worst 20 per cent. As a spearhead authority 18 per cent of Preston's overall population are classed as having a long-term illness/disability, with higher rates in the deprived wards, where poor diet and lack of exercise contribute to a lower life expectancy. Diabetes incidence is 7 per cent in some wards, compared with an average of 3 per cent in the UK. The work described here focused on two areas: Deepdale and Ingol, among the most disadvantaged in Preston. The majority of the population in Deepdale are from a South Asian Muslim ethnic background, while Ingol has a working-class indigenous White British population. Ingol is less deprived

than Deepdale using existing indices. We know from the Central Lancashire Health Survey, 2007, that data incorporating Ingol and Deepdale found that between 9 and 10 per cent of respondents reported having poor access to fruit and vegetables, while 13 per cent of females and 14 of males in the Deepdale area reported eating five or more portions of vegetables a day. Data that incorporated Ingol found that 25 per cent of females and 23 per cent of males reported eating five or more portions of vegetables a day.

Methodology

The aim of the research was:

- To measure access to healthy food in two areas in Preston – Deepdale and Ingol.

The objectives relevant to the current piece of work were as follows:

- To identify barriers to accessing healthy food for different sectors of the community, including the needs of the elderly, those with physical disabilities, lone parent families and those with specific cultural food needs;
- To assess the cost and availability of healthy food in the Ingol and Deepdale areas;
- To produce indicators of food access by constructing maps using Geographical Information Software (GIS) and *Participatory Appraisal* techniques.

A number of methods were used:

1. Participatory appraisal to gather the views of local residents and build up a profile of purchasing and eating habits.
2. A survey of all shops in the Preston area, using council data and supported by street-by-street census. In addition interviews with the retailers were carried out to capture their experience of working and business conditions, problems and potential solutions, in relation to offering healthier food.
3. Development of a healthy food menu and weekly shopping basket based on eating habits of the communities in the two areas.
4. Using the data collected above to produce maps showing access to:
 - Shops that sell fruit and vegetables: shops that sold more than five types of fruit and seven types of vegetables (based on this being a reasonable indicator of healthy options);
 - Takeaways / fast food outlets;
 - Mapping the distance from where people live to shops, using 500 m as a reasonable distance. Additionally a decision was taken to include shops in a 500-m zone buffer outside the boundary of each area, as residents on the edges of ward boundaries would have access to these shops.
 - Food availability survey, which consisted of assessing the availability of key items in shops along with a weekly healthy menu for a mother and two children.
5. A costing of a healthy shopping basket in two areas for two ethnic groups (White British and South Asian populations).

The starting point for development of the content of the food baskets was analysis and adaptation from past work on food baskets^{8,16–19} and work on nutrient profiling¹³.

Table 1. Food baskets (items in bold are additions to the core basket)

Core Items (42)	White British food basket (+3)	South Asian food basket for those with a Muslim background (+ 11)
1. Apples	Wholemeal flour	Melon
2. Oranges	Fresh salmon	Okra
3. Satsuma (or similar)	Low-fat fruit yoghurt	Karela
4. Grapes		Aubergine
5. Bananas		Wholemeal chapatti flour
6. Pears		Tinned sardines
7. Broccoli		Kidney beans
8. Peppers		Black eyed beans
9. Spinach		Lentils (any varieties)
10. Frozen peas		Chickpeas
11. Frozen mixed vegetables		Paneer
12. Onion		
13. Fresh tomatoes		
14. Lettuce		
15. Cucumber		
16. Carrot		
17. Cabbage		
18. Cauliflower		
19. Tinned tomatoes		
20. Unsweetened orange juice		
21. Baked beans		
22. Reduced sugar baked beans		
23. Potatoes		
24. Wholemeal bread		
25. White bread		
26. Weetabix		
27. Cornflakes		
28. Oats		
29. White pasta		
30. Wholemeal pasta		
31. Brown rice		
32. White long grain rice		
33. Fresh chicken		
34. Lean minced beef		
35. Fresh cod		
36. Tinned tuna		
37. Fresh eggs		
38. Semi skimmed milk		
39. Skimmed milk		
40. Low fat plain yoghurt		
41. Unsaturated margarine		
42. Hard cheese		

There was a mainstay of 42 food items that were core and common to all baskets (column 1). The core food basket was devised to reflect healthy eating options. Additional items were added to the food baskets for the White British (three extra items) and the South Asian food basket (11 items).

These additions were informed by the participatory group work and referral to experts familiar with the eating habits of the groups.

We report the findings from the various approaches under the headings of:

- Access to food shops and availability of healthy options.
- Shopping patterns.
- Shopping and availability of food basket items in the areas of Deepdale and Ingol.
- Shopping habits and local food ways, including travel patterns and times to supermarkets.

Cost and affordability are dealt with in a separate article.

Results

Access to food shops and healthy options

All the food shops and takeaways found during the mapping process (combining the data from environmental health records with the street-by-street survey) were entered on a map using GIS systems. There were 12 bakers' shops; 24 butchers; three fishmongers; 14 greengrocers; 47 grocers; 30 newsagents; nine petrol stations; one poultry/game dealer and 25 supermarkets. These all totalled 165 premises in addition to 186 takeaways, supporting the notion of an obesogenic environment. The takeaways did not include restaurants that operate a takeaway service or those that are classified as restaurants simply because they have a small number of seats at the front. Starting from this point, we moved to using the availability of certain foodstuffs and the shopping basket surveys as discriminators to test availability, appropriateness and prices of healthy options.

The maps were then further reanalysed on the basis of affordability and availability (using a proxy indicator). Availability took the form of five types of fruit and seven types of vegetables being on offer in any one shop (there was no distinction between fresh, frozen or tinned fruit or vegetables; and potatoes were excluded from the vegetable list). We produced maps showing shops selling five or more types of fruit and separate maps for seven types of vegetables. For fruit availability the results showed only one shop in Ingol selling more than five types of fruit, with five in Deepdale and three on the outskirts in the south-east corner. For vegetables a similar picture emerged, with Ingol having one shop selling more than seven types of vegetables within its boundary, and three on the outskirts in the south-east corner within the 500-m boundary of the ward. Deepdale had six shops selling more than seven types of vegetables within the defined boundaries of 500 m. Map 1 shows these two indicators combined, as we found that the shops selling the five types of fruit were the same as those selling seven or more types of vegetables.

Shopping patterns and travel times to supermarkets

Findings from the participatory appraisal work in Deepdale showed that the general trend reported was for a large shop at a supermarket once a month followed by frequent use of local specialist shops for Halal meat, specific vegetables and fresh fish – both not available in the supermarket¹⁴. In essence the local shopping was not what is usually referred to as 'top-up' shopping, but regular use of the local shops for basics.

The participatory appraisal work in Ingol shared similarities with the Deepdale findings in that nearly all the Ingol participants reported using a large supermarket for their main food shop, usually travelling out of the area to do this. Up to two-thirds reported using the bigger shops of Asda and Morrisons; a few reported using Sainsbury's and Tesco. A small minority used an upmarket

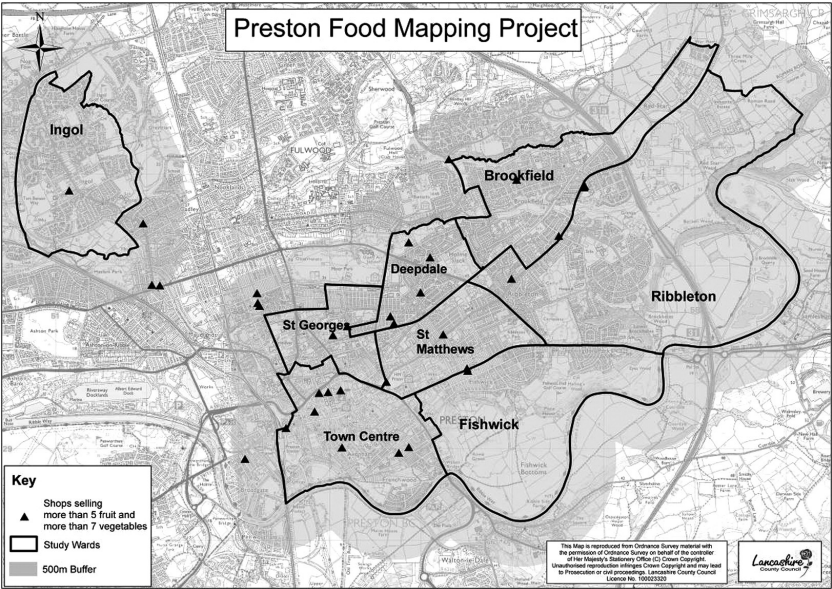


Figure 1. Shops selling five (or more) types of fruit and seven (or more) types of vegetables
Map 2 develops this analysis further by analysing data using the DfT's Accession software. This creates a 'walking distance' isochrone which shows roads within 500 m of a postcode containing one or more shops selling the two indicators of seven or more types of vegetables and five or more types of fruit.

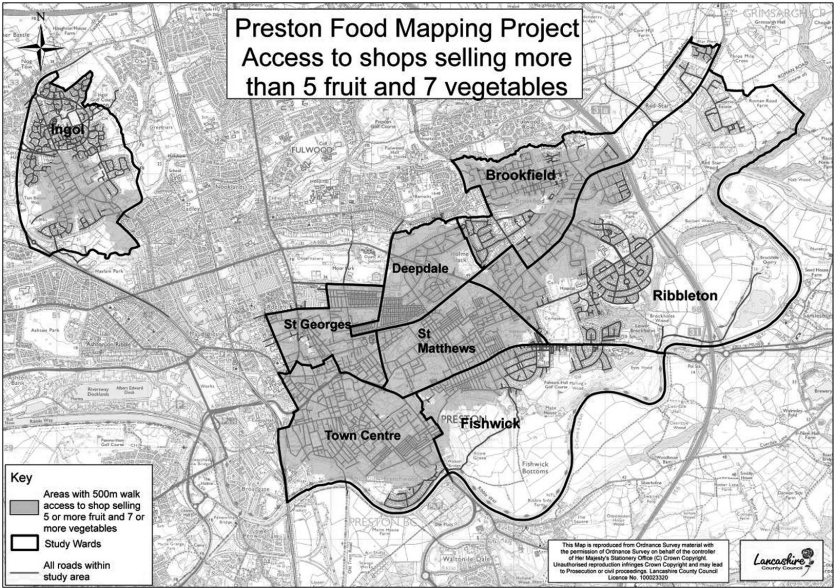


Figure 2. Access showing shops selling five (or more) types of fruit and seven (or more) types of vegetables
What emerges from the above map is that the Ingol area has limited availability and in this case access to shops selling five types of fruit and seven types of vegetables. Even on its fringes and in the surrounding areas there are few shops. In the Deepdale areas there are shops, and shops in the surrounding ward areas.

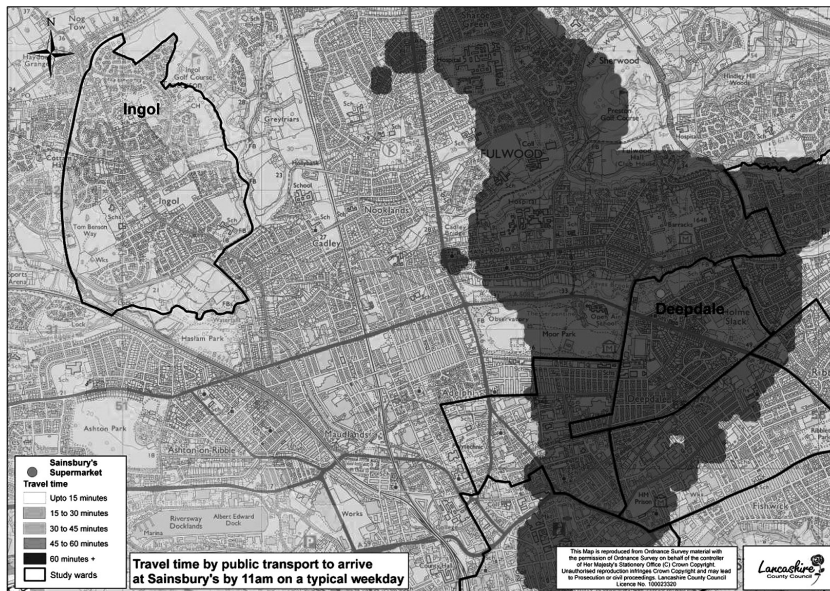


Figure 3. Public transport travel time to Sainsbury's for a typical week day to arrive by 11.00 am
Availability and Cost of Food Basket Items in the Areas of Deepdale and Ingol

In order to calculate the cost of the food basket we identified specific shops and shopping catchments (as in parades of shops) in the two defined areas that could be used by local white British or those from a South Asian background.

supermarket, called Booths Supermarket, just on the boundary of the area. They used local shops much more for top-up shopping and replacing items they had run out of, and they reported that they did not use local shops because of the high prices.

Analysis of public transport travel times for Ingol residents travelling to Sainsbury's, Morrisons and Asda was carried out. All showed poor access and extended waiting times. Map 3 shows the public transport access to Sainsbury's in Deepdale (for Ingol residents) and this shows travel times of 15–30 minutes for many residents of Ingol, but also shows that many would have to walk a considerable distance to get to the bus network. The return journey would be the same, but with heavy shopping bags. Similar long access times were found for the nearer Morrisons and Asda stores. The local experience, reported in the participatory sessions, from Ingol residents on poor access to food are supported by the public transport mapping exercise undertaken.

Analysis of the availability of other healthy options on the 'eatwell plate' (see <http://www.eatwell.gov.uk/healthydiet/eatwellplate/> (accessed 3 December 2007) – brown bread, wholemeal pasta and brown rice – showed that they were not widely available within shops in the two areas. Interviews with the shopkeepers regarding the provision of healthy foods indicates that the shopkeepers did not fully understand the concept or meaning of healthy options or had a narrow interpretation of the meaning of 'healthy'. This can be seen when set alongside the lack of availability of healthy options such as low-fat and wholemeal varieties.

For Ingol residents using the local shops, two items from the White British basket were not available at all. It was assumed that these items would be bought from the supermarket. The cost of these items was therefore assumed to be the same as the cost in the Sainsbury's supermarket, not Booths. Two other items were not available (wholemeal pasta and brown rice); these were replaced by white pasta and white rice.

In Deepdale the local shops did not stock 10 items from the 'White British' healthy basket. It was assumed that these items would be bought from the supermarket, and we applied the supermarket cost to the items in the table. Two other items were not available from local shops (wholemeal pasta and brown rice); these were replaced by white pasta and white rice. Again the replacement does not have an impact on the 'eatwell' balance, but it does have an impact on the overall healthy nature of the diet.

The majority of the items in the South Asian basket were available from the Sainsbury's supermarket in Deepdale; the exception was wholemeal chapatti flour. Again, it was assumed that the wholemeal chapatti flour would be purchased at a local shop. The South Asian family would be able to eat a balanced diet in line with the 'eatwell plate' if they shopped at the local supermarket and one local shop. Seven items were not available from the South Asian basket from local shops in Deepdale. It was assumed that these items would be bought from the local Sainsbury's supermarket and the South Asian family could eat a balanced diet in line with the 'eatwell plate'.

Conclusions

The findings paint a ~~complex~~ picture of access and availability, and there are gaps in provision of healthy items for some groups in Preston. A key finding is the matching of the normative impression of the residents of Ingol, from the participatory work, that locally food is expensive, not readily accessible and available with the cost and availability survey. This is in contrast to Deepdale, where the weekly healthy eating basket would cost up to £30/week less, depending on shopping patterns and which shops were used. Local shops in Deepdale compare well with the major supermarkets for prices, while no one local/small shop could compete like for like either in terms of price or availability with the comparator supermarket we used. Our assumptions about shopping in Ingol show that, for those who cannot shop outside the area, shopping locally comes with a huge cost. It did appear that many shopped outside the area, but this was dependent on car access and availability. In the period since this research was carried out there has been a rise in food prices accompanied by a rise in fuel costs and a clampdown on credit. Overall the rise in food prices is 5 per cent; this will reduce living standards among high-income consumers by approximately 3 per cent, while for low-income consumers this reduction in an already poor diet could be as high as 20 per cent. For the vulnerable and price-dependent poor in Preston, this will mean having to spend more on food and possibly more on travel to access basics; a healthy diet will cost more.

The situation in Ingol with only one local shop selling more than seven varieties of vegetables and five of fruit (fresh, tinned or frozen) is worrying and a cause for concern. The high prices locally seem to reflect the market situation of local shops fixing prices at what the market can stand. While the majority of those living in Ingol may travel outside the ward to do their main monthly shop, there are some vulnerable groups and those who may not have access to a car who may not have this option. Additionally, anyone wishing to do their shop locally in Ingol would be penalized in financial terms.

Access is not just about physical distance to shops. Issues of access and distance need to be balanced with the accounts from the focus groups, where problems with physical access to shops were identified as barriers to accessing shops. Although this is a key factor, for many people weekly shopping is difficult if they have to negotiate expensive taxis and inconvenient buses.

Cost is important and is a prime determinant in food choice, but culture and family food preferences are also important. It is important to represent the cultural needs of groups in the development of healthy food baskets. In terms of the availability of a range of fruit (five) and vegetables (seven) there are clearly gaps in provision in both Ingol and Deepdale. There were also problems

with availability of and access to other healthy items such as fresh fish, low-fat versions of milk, high fibre pasta and rice. There are indications of variations in cost across shops, not simply that the large supermarkets are always the cheapest option, and the data from Deepdale shows this.

It is important to look more widely than this, as fruit and vegetables should not be used as proxy indicators for the availability/non-availability of other items. In addition, for some groups, such as elderly people, there was heavy reliance on local shops for all aspects of their diet. Fresh fruit and vegetables are an important part of an overall healthy balanced diet, but the other food groups of the 'eatwell plate' are of equal nutritional importance. More work with the public and community groups on healthy eating needs to be balanced by work with retailers and the food service sector on ways of managing healthy fresh food, as in the work in Greets Green in Sandwell in the West Midlands¹⁵.

The current picture for many low-income Preston residents, living in areas of deprivation, is that local shops are important in accessing a healthy diet. The encroachment of the major retailers into convenience retailing and its impact on access to healthy foods in local areas need to be measured. The planning guidance for town centres Planning Policy Statement 6 (PPS6) says of local authorities in areas of deprivation that often have poor access to local shops and services:

To tackle this problem, local authorities should work with the local community and retailers to identify opportunities to remedy any deficiencies in local provision. This is likely to be best achieved through strengthening existing centres or, where appropriate, proposing new local centres¹⁶.

The case can be made that food premises and food access are a case for essential services. There is a need to ensure access to a range of essential services, including a choice of healthy affordable food outlets, by maintaining the viability of local and district centres. All this clearly needs to be linked with transport planning and priority communities groups identified, for example feedback from women with children, those without access to a car and those with mobility issues.

National health sector policy documents have highlighted the problems of retail access, but locate the solutions in local food projects (social enterprises, whether food co-ops or farmers markets)¹⁷, because retail and regeneration strategies are outside their capacity and possibly their understanding and skills base¹⁸⁻¹⁹. Some studies have shown the impact of improved local retail on wider indicators such as crime and disorder²⁰. The work described in this report adopts a social-environmental approach to health, recognizing that understanding, measuring and altering the obesogenic environment is also important, so it seems appropriate that food be treated not just as a physical health issue but also as a structural issue, and the wider impacts of retail shops on local social capital be considered as well as their impact on healthy food choice. The solutions may be twofold: firstly exploring the issue from a planning perspective in terms of new applications and the wishes of local people and health care professionals, and secondly working with the food service sector to produce healthy meals and options, is necessary. Samia Mair and colleagues (2005)²¹ have examined how zoning laws might be used to combat obesity in the USA. While the legislative system is somewhat different, this is something that merits further consideration in the context of UK planning laws. Currently regulation is permitted where there is an overconcentration of premises of certain use classes. However, this is usually used in an effort to curb antisocial behaviour and litter rather than promoting health. The proposed changes to town centre planning do not specifically address food outlets, but do include a section on impact assessment and food which states that '*[T]here will be a benefit to people on lower incomes through improved access to good quality fresh food and other local goods and services at affordable prices. This is because the new impact test will better promote consumer choice and retail diversity helping to control price inflation, improving accessibility*

and reducing the need to travel'. In addition there is a proposal in the reforms of PPS6 for the use of the concept 'lack of need' (this could be seen within the context of overprovision) to restrict and reject planning permission. All this is based on the notion of a proper assessment of the area taking into account economics, retail, the views of citizens and the health outcomes.

What also emerges is the need to look individually at areas: the price differential between the two areas was a surprise to all concerned, except perhaps local residents. At a time when answers are being sought in big-scale research we are confident that the current paper shows the need for research to inform practice based on local needs; if we accepted the arguments from Cummins and Macintyre²² that there are few problems at an area level then we run the danger of masking the problems that do exist and the importance of local voices and conditions as well as the amount of money available for food purchasing as well as its competition with other household priorities. Our research shows that for public health action it is necessary to build in multiple perspectives and the need to listen to and build in advocacy on the basis of local identified needs.

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