The location of food stores in urban areas: a case study in Glasgow

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Abstract *During the late 1990s there has been an increasing interest in the concept of "food deserts" (populated areas with little or no food retail provision). It has been suggested that they are more likely to be found in deprived areas; however there has been little systematic research on their prevalence and distribution. This paper describes a preliminary analysis of the location of food outlets in the Greater Glasgow Health Board Area. Data were collected as part of a project on spatial variations in the price and availability of food. Based on all 79 multiple stores, and a 1 in 9 sample (n = 246) of all non-multiple stores in the area, we did not find any evidence for the existence of food deserts, and found that food stores were more numerous in the more deprived localities and postcode districts in the study site.*

Introduction

In the late 1990s there has been extensive coverage of a range of food issues in the British mass media. This includes concerns about genetically modified foods, the prevalence of obesity, and risks to health relating to BSE transmission and food poisoning (Macintyre *et al.*, 1998). Another issue which has received increasing attention, especially in relation to the Labour government's strategic priorities in relation to inequalities in health and social exclusion, has been the availability and price of foodstuffs meeting current guidelines for a healthy diet, and the location and pricing policies of large supermarket chains (O'Sullivan, 1998; Laurence, 1998; Kibby, 1998). The term "food deserts", a phrase coined by a working group for the Low Income Project Team of the Nutrition Task Force (Beaumont *et al.*, 1995) has received increasing currency. They were mentioned in the Independent Inquiry into Inequalities in Health (Acheson, 1998, pp. 65-66), two of whose recommendations were:

> We recommend policies which will increase the availability and accessibility of foodstuffs to supply an adequate and affordable diet (p. 20), and

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> We recommend the further development of policies which will ensure adequate retail provision of foods to those who are disadvantaged (p. 20.1)

Although food deserts (that is, populated areas with little or no food retail provision) are widely assumed to exist, especially in more deprived areas (Lang and Caraher, 1998; Whitehead, 1998), there has been little systematic research documenting their prevalence and distribution. In this paper we present data on this issue from Glasgow, a large urban area (1991 census population = 949,502) in the West of Scotland which, although often thought of as generally disadvantaged, contains a mix of socio-residential types of area from extremely impoverished neighbourhoods with few amenities to affluent leafy suburbs well served with a wide range of facilities. The data reported here were collected as part of a survey examining the price and availability of healthy foodstuffs in relation to levels of neighbourhood deprivation. Here we focus on the distribution of food retail outlets by type of area, placing this in the context of recent trends in food retailing.

Retail restructuring and "food deserts"

Recently there has been a number of changes in the way in which food is delivered to the consumer which have had a subsequent impact on the distribution of food stores. During the 1980s there was a radical re-organisation of retail space as food retailing firms became larger and their total numbers diminished. These firms began to compete by concentrating on capital investment in large superstores, often situated on edge or out-of-town sites (Guy, 1994, 1996; Wrigley, 1996, 1998a, 1998b). This period, known as the "store-wars" era, saw an increase in the size of superstores which generated greater profit margins through lower wage and distribution costs, greater returns per square foot, wider product ranges and higher spends per individual customer (Shaw *et al.*, 1989) which in turn allowed further investment. By the late 1980s the number of suitable city centre development sites were dwindling and start-up costs, through heightened land prices, were escalating (Wrigley, 1998a). As a result of these changes the bulk of the food supply began to decentralise out of urban areas to locations at the edge of, or out of, towns, or into purpose built retail parks capable of delivering the economies of organisational scale sought by the large retailing companies.

What were the implications of such a change in terms of individual food choice? As the traditional food shopping centres in British cities began to decline, there was a corresponding decrease in the number of small shops in these traditional locations. Guy (1996) demonstrated that the opening of seven edge-of-town superstores in the mid-1980s brought an almost simultaneous wave of small food store closures, especially in inner city and suburban areas. However, Guy stressed that this "trading impact" is often a simplistic diagnosis for the demise of small food stores, and that other factors may well come into play such as changes in the local market and population structure. This decline in the traditional shopping centres left many British urban areas with what began to be termed "food-deserts" (Beaumont *et al.*, 1995), with the price and

food choice benefits of the grocery retail boom primarily accruing to the mobile car-owning affluent consumer. This had the net effect of creating a tier of disadvantaged consumers, chiefly characterised by their mobility problems. They include the elderly, the disabled, lone-parents, the unemployed, those without access to cars, and the sick and the infirm, all of whom tend to be concentrated in the poorest places (Westlake, 1993).

There have been two more recent developments with implications for individual food choice. First, European limited-line deep discounters (stores with highly discounted products and few recognisable brands) such as Aldi, Netto and Lidl entered the UK food retail industry. The existing British multiples were initially not worried about the entry of these firms, since: "the discounters had entered a sub-sector of the market... with direct price-competition effects being unlikely to cross the market segment boundaries" (Wrigley, 1996, pp. 123-24). However, their impact was felt in the second tier of food retailing (smaller regional chains and symbol groups) which then had a knock-on effect on the whole industry, beginning a round of intense price-competition which hit the profit margins of all food retailers. The price of certain core foods went in a downward spiral particularly in urban areas of the North and Midlands (Wrigley, 1998a; Sparks, 1996). The major retailers responded by sacrificing quality to develop ranges of core foods (such as breads, cereals, meats and certain tinned goods) at discount prices, using discrete brands e.g. Safeway "Savers", Tesco "Value" and Sainsburys' "Essential" ranges in order to compete with discounters on price. Though lower in quality than traditional own-label goods there were obvious benefits to the consumer from these ranges and from the rise in the number of discounter retailers.

Second, there was the impact of what has been called the "Gummer" effect (the tightening of land-use planning regulations through *Planning Policy Guidance Note 6 (PPG 6) Shopping Centres and their Development* (Department of the Environment, 1993a and *PPG 13 on Transport* (Department of the Environment, 1993b) which were following a more sustainable development agenda). These new planning guidelines actively discouraged out-of-town development, and provided an impetus for a return to the high street in food store development (Wrigley, 1998b). The way in which this has been achieved is the subject of debate. Briefly, one line of argument holds that a return to the high street was directly prompted by PPGs 6 & 13 and the symbolically important refusal of planning permission for large centres in the South of England. The other argument is that there was a straightforward response of the big multiples to recent market changes and the reassessment of locations previously thought to be unprofitable, together with innovative market development into non-food areas such as banking and media products (Wrigley, 1998b). Whichever of these explanations is correct, it was certainly the case that the major retailers returned to central locations through "neighbourhood" or "compact" outlets, such as Tesco Metro (Tesco, 1995) These stores were typically 15-20,000 sq. ft. in size with a smaller more own-

brand product range than would usually be found in larger stores (at the time of the survey reported below there was however only one "metro" style store in the study area, most outlets of this nature being found in England). This is the contextual background for the observations of food retail distribution described below.

Design and methods

The site of the research project is the Greater Glasgow Health Board area in the West of Scotland. This area exhibits the full range of social deprivation, and has a wide variety of socio-residential settings ranging from post-war peripheral public housing schemes, through ethnically mixed inner city areas to affluent, leafy suburbs. A representative random 1 in 9 sample (n = 246) of food stores was drawn from all the non-multiples[1] listed in the freely available Public Register of Food Premises, a list of shops which comply with the British Food Safety Act, 1995, and all 79 multiples[2] in the area were studied. These shops were categorised as shown in Table I).

A Carstairs-Morris DEPCAT (deprivation category) score was assigned to each store in the sample by matching the deprivation score of the geographical area in which the store was located to the store itself. Carstairs-Morris DEPCAT scores are an area-based measure of deprivation constructed using routine census data on overcrowding, male unemployment, low social class and car ownership at the postcode sector level. A score of 1 indicates the most affluent areas and a score of seven indicates the most deprived (Carstairs and Morris, 1991). We used 1991 scores as calculated by Mcloone (1994). We calculated the average deprivation level for each of the 19 localities then used by the Greater Glasgow Health Board (GGHB) for planning purposes (population range 23,998-97,967), and the average deprivation score for the postcode district[3] in which each shop was located. Postcode districts were used in this analysis as they represent areas and population sizes that might be considered to be the most appropriate available scale for shopping. Postcode sectors, the next area unit down, might be considered as being too small an area in which to expect a "multiple" store to locate, or consumers to confine their

Shop type	Per cent	N
Independent grocers	36.3	118
Multiple-owned superstore	12.3	40
Discounter	8.0	26
Butchers	7.7	25
Fruit and vegetable shops	7.7	25
Bakers	4.6	15
Freezer stores	4.0	13
Affiliated independents/Symbol groups	2.8	9
Fishmongers	2.2	7
Delicatessen	1.8	6
Changed function	12.6	41

Table I.
Shop formats in the survey sample

shopping forays. However, we are currently repeating this analysis at the postcode sector level since this is the area unit for which DEPCAT scores were developed. There are 43 postcode districts in the study area. We used MAPINFO[4] and SPSS[5] to investigate the distribution of food stores and store types across areas characterised by different levels of deprivation.

Results

Figure 1 shows shops in the survey sample by postcode district. The darker areas indicate a higher density of food stores and the pale grey areas indicate a lower density of stores. The map shows us that there are few places in the GGHB area without food stores of some description. Those areas that are without shops tend to be predominantly rural or semi-rural, such as Strathkelvin and parts of Bearsden and Milngavie. Peripheral council housing estates such as Drumchapel, Castlemilk and Easterhouse which were built in the post-war period with little input of community resources and infrastructure, and which have high levels of deprivation by UK and European standards, all have food stores within their boundaries.

One of many criticisms of the modern food retailers is that the price and choice benefits offered by the larger multiple-owned retail formats are simply not available to those who live in poorer areas. Figure 2 shows the location of multiple store formats in GGHB. The picture is very similar to that of Figure 1.

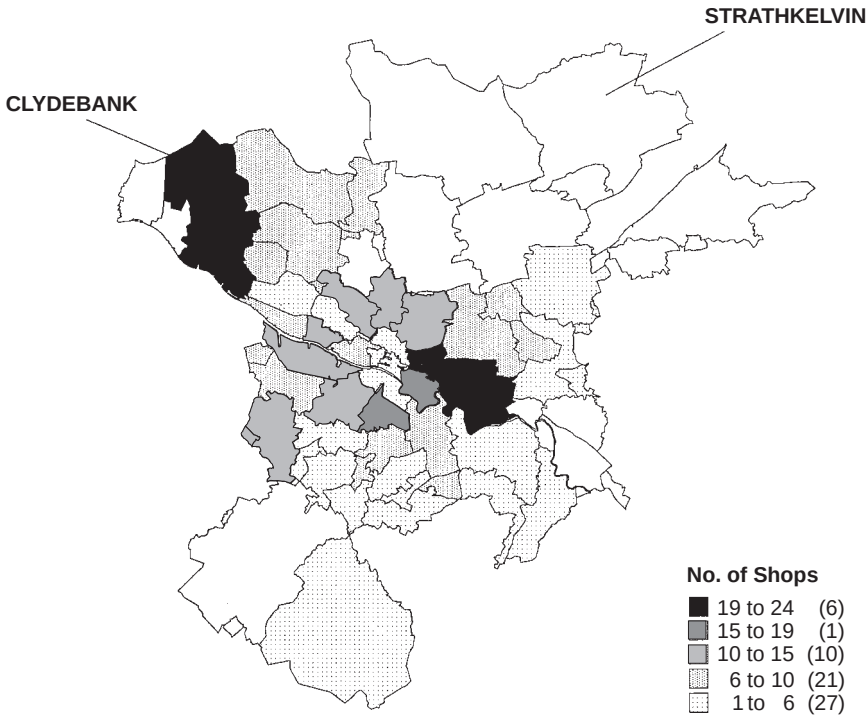

Figure 1.
Map showing distribution of food retail outlets in the survey sample by GGHB postcode district

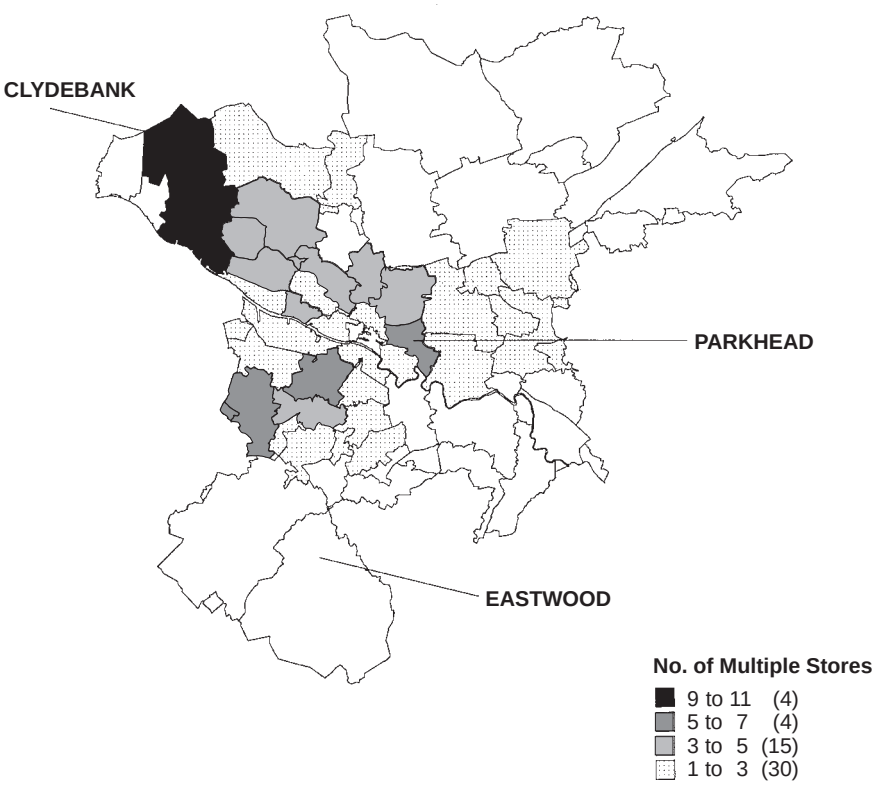

Figure 2.
Map showing distribution of all multiple food stores in GGHB by postcode district

The highly urbanised areas of Glasgow show the highest density of multiple-owned retailers, with areas such as Anniesland, Parkhead and Maryhill each having 5 to 7 multiple-owned superstores and Clydebank having 11 multiple stores within their postcode districts. There are no multiples in some Northern, Eastern and Southern fringes of GGHB and in some middle class areas such as Eastwood and Bishopbriggs (although equally middle-class areas such as Bearsden and Milngavie do have multiples in their boundaries). Although they do not present an entirely consistent picture, both maps point towards a core distribution of stores in the more densely populated urban areas, surrounded by outlying less well-served areas.

We next addressed the question of whether stores and particular store types are differentially distributed by deprivation level, here measured at the area level of postcode district. Figure 3 shows the number of shops by format and by postcode district deprivation category.

Postcode districts that fall into the more deprived DEPCATs of 5, 6 and 7 have the greatest number of stores, with small grocers being the most prevalent, while the more affluent DEPCATS of 1, 2 and 3 have the fewest stores. The graph shows that the multiple-owned outlets have relatively fewer outlets in more affluent postcode districts and relatively more in the more

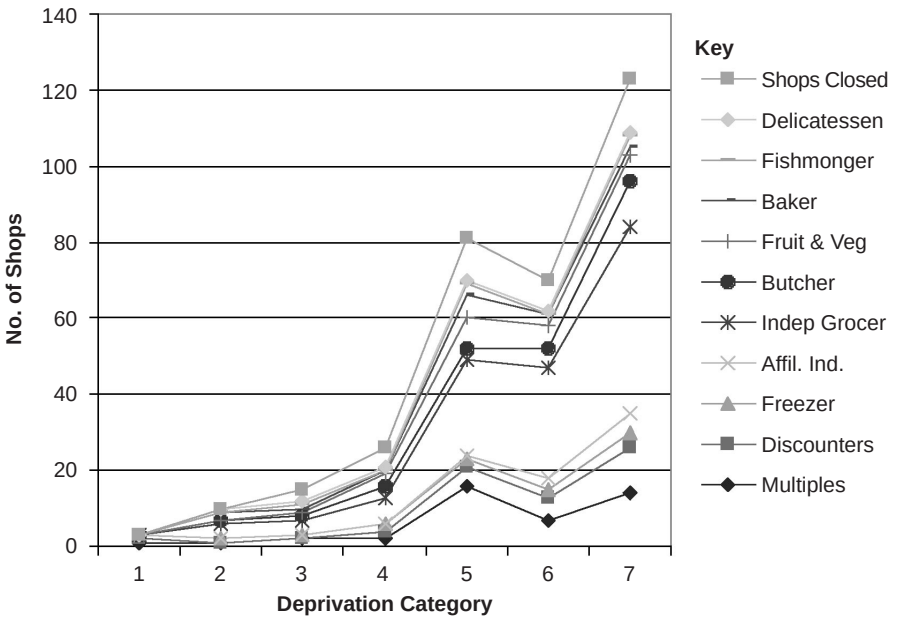

Figure 3.
"Stacked" distribution of shops in the sample by postcode district DEPCAT

deprived postcode districts, DEPCAT 5 containing the most. We can also note the concentration of "discounters" in the poorer areas, and their relative absence in more affluent areas.

Discussion and conclusions

These preliminary results from a study of food price and availability in the West of Scotland show that food stores tend to be relatively evenly distributed in the study area, with multiple-owned stores also tending to be relatively evenly distributed within a large central part of the Greater Glasgow Health Board area. However some outlying areas, on the fringe of the study site, did not have shops represented in the study sample; these were mainly rural or semi-rural areas. When we organise the data by level of socio-economic deprivation as measured by Carstairs-Morris DEPCAT we find that more food retail outlets tend to be located in the poorest areas of the study site, with the majority of these stores being small, independent grocers. The multiple-owned retail outlets, often criticised as being inaccessible to the urban poor, are found in greater numbers in the poorest places.

These findings about the location of food stores cannot be directly compared with our earlier report on retail provision in two socially contrasting localities in Glasgow City (Macintyre *et al.*, 1993). That research found more strategic and major shopping centres in the more affluent areas, the same numbers of minor local centres in both areas, and more single outlets in the poorer areas (Macintyre *et al.*, p. 224). The earlier research collected data in 1989, nine years

earlier than the present study; did not differentiate food stores from other retail outlets; and compared only the two localities rather than all areas in Greater Glasgow.

What can these preliminary, descriptive, findings tell us about the urban foodscape of GGHB and what does this mean for the health of its inhabitants? Contrary to expectations, at the time of the survey food outlets were more likely to be situated in the more deprived areas of the city studied, including multiple-owned food stores. We are currently exploring whether these findings are replicated when we map the location of all food outlets in the study site classified by the level of postcode sector deprivation. These results are not wholly unsurprising as current trends indicate stores returning to the high street, market towns, and other areas previously thought of as unprofitable (Wrigley, 1998a, 1998b). The impact of "discount" superstores can also be observed, as they are more likely to locate in poorer places, the price competitive nature of which can bring cost benefits to those individuals who use them. As multiple food retailers have now begun to reassess other, previously undesirable, sites they are increasingly bringing their price, food-choice and availability benefits to those consumers previously disadvantaged by income, mobility and geographical location during the "store-wars" era of the 1980s.

However some vulnerable groups continue to find food expensive and inaccessible (Acheson, 1998) and policies that would increase access to affordable "healthy" food should be expanded to include initiatives that tackle income and benefit levels, and personal mobility and social support issues for groups such as lone mothers and the elderly. This would give these groups the ability to choose between healthy and less healthy eating practices, and to enable them to take advantage of the price benefits offered by the modern food economy.

Notes

1. For the purposes of this study "non-multiples" were defined as "symbol groups" (e.g. Spar), small independent grocers, butchers, bakers, fishmongers, fruit and vegetable stores and delicatessens.
2. Multiples were defined as national/regional chains, e.g. Safeway, Asda, Tesco, J. Sainsbury. Freezer stores, e.g. Iceland, Farmfoods, and discounters, e.g. Kwik-Save, Aldi, Lidl and Netto.
3. A postcode district is an artificial construct used to define postal areas. A postcode district is denoted by the first three characters of a postcode (e.g. G12) and has an average population size of 30,000.
4. MAPINFO version 4.0, MapInfo Corporation, Troy, New York, NY.
5. SPSS for Windows version 6.13, SPSS Inc. Chicago, IL.

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