The Influence of Deprivation and the Food Environment on Food and Drink Purchased by Secondary School Pupils Beyond the School Gate

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Food Standards Scotland
For safe food and healthy eating

University of Hertfordshire

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Final Report

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Executive Summary

This research was commissioned by the Food Standards Agency in Scotland[b] to provide insights about the food and drink purchasing practices of secondary school aged pupils who go 'beyond the school gate' at lunchtime.

Aim

The aim of the study was to investigate what food and drink young people aged 13-15 years purchase beyond the school gate at lunchtime and to explore the factors related to this purchasing. The importance of relative deprivation and the food environment were investigated.

Methods

Seven case study schools that varied in terms of deprivation and food environment in five local authority areas were selected to participate. Young people in S2 and S3, Head Teachers, Kitchen Supervisors and local retailers were invited to take part. The study used a mixed methods approach, typical of a case study design. Qualitative methods including participant observation, informal group and individual interviews, focus groups, go-along tours and a semi-structured written exercise were used. A Purchasing Recall Questionnaire (PRQ) was developed and administered online at the participating schools to pupils across the selected year groups. Questions in the qualitative study and the PRQ focused on whether and how often young people purchased food or drink at outlets beyond the school gate at lunchtime; what food businesses they visited and why; what food or drink was purchased including portion size and price; the marketing promotions used by stores or manufacturers and the importance of marketing-related factors when purchasing food or drink beyond the school gate at lunchtime. More limited questions were also asked about purchasing and/or consuming food and drink before school, at mid-morning break and in the school cafeteria to provide additional context to the data collected about purchasing habits beyond the school gate.

Local authority lists of registered businesses selling food and drink and the Scottish Index of Multiple Deprivation (SIMD) rank of each school were digitally mapped and this was later contextualised with qualitative data to inform the overall analysis. Analysis was underpinned by case study methodology; findings from each data source were integrated into a coherent whole to aid interpretation of each case study school as well as to provide insights about the role of deprivation and the food environment in explaining young people's food and drink purchasing practices beyond the school gate.

Findings

A total of 651 young people from S2 and S3 participated in one or more qualitative elements of the study. Thirteen Head Teachers and Kitchen Supervisors were interviewed and 25 retailers. The PRQ was administered to 535 young people in S2 and S3. Some young people took part in the quantitative as well as qualitative parts of the study. The seven case study schools differed in terms of being classified as relatively deprived by SIMD and by the proportion of pupils registered for free school meals; they also differed in terms of their local food environments with 5-249 food businesses being registered within 800 metres of each case study site.

[b] On the 1st April 2015, Food Standards Scotland took on all of the functions previously carried out in Scotland by the Food Standards Agency

Purchasing food or drinks beyond the school gate at lunchtime

More than three quarters (77.0%) of young people said they bought food or drink beyond the school gate at least twice each week; this rose to more than 90% of pupils at some of the most deprived schools studied. Just over half (53.6%) reported purchasing outside school at lunchtime on the day they completed the PRQ; between schools the proportion purchasing food and drink from the external food environment on the day they completed the PRQ ranged from 23.0% at the least deprived school, with the fewest available outlets, to two thirds at some of the more deprived schools in the study.

Where did young people purchase food or drinks beyond the school gate at lunchtime and why?

The most popular outlet categories where pupils reported purchasing food or drink on the day the PRQ was administered were takeaway, chip shop or fast food outlets (25.8%), newsagent or sweet shops (25.1%); supermarkets (23.0%) and grocery or corner shops (20.1%). The PRQ data suggests that going to the places their friends go to and an outlet being close to school were important factors when selecting the places visited beyond the school gate on the day young people completed the questionnaire, with 88.9% and 87.3% agreeing that friends going there and proximity were important, respectively. The qualitative data, however, suggests that many young people are prepared to go further at lunchtime, including to outlets beyond 800m of their school, in order to avoid queues, to spend time with friends and to purchase food and drink that they particularly wanted from specific food outlets. The **service** young people received beyond the school gate was found to be critical, with rapport between young people and retailers highlighted as important by the qualitative data and 73.8% of pupils agreeing that service was important in the PRQ.

What did young people purchase beyond the school gate at lunchtime and why?

The most commonly reported food items purchased on the day the PRQ was administered were chips (purchased by 26.1%), hot or cold sandwiches, filled rolls or baguettes (23.9%), sweets (21.4%), chocolate (20.2%) and crisps or similar snacks (19.3%). Few pupils said they purchased fruit (4.2%) or salad (1.7%). Of those who reported buying a drink in the PRQ, 42% bought a regular soft drink and 33.5% said they purchased an energy drink. Together these sugar sweetened beverages were purchased at lunchtime by 28.2% of all young people who completed the PRQ.

The qualitative and quantitative data suggest that taste and price were rated by many young people as important factors when deciding what to purchase beyond the school gate. Some marketing factors such as branding, packaging and advertising were not rated as very important by young people.

The cost of food or drinks purchased beyond the school gate at lunchtime

Discussing the cost of food and drink was a sensitive topic for many young people at the more deprived schools in the study. Young people were acutely aware of the price of food and drink at outlets beyond the school gate. Many retailers discounted their prices for the benefit of young people though some pupils were not aware of this discount. Others were aware of it but did not consider this to be a price promotion as it represented the norm when they were purchasing beyond the school gate at lunchtime. The median reported spend on food and drink beyond the school gate on the day the PRQ was administered was £1.98.

The role of deprivation and the social environment beyond the school gate at lunchtime
The school food environment interacted as a push or pull factor with the local food environment. This relationship was underpinned by deprivation and how this manifested within the school and also within the local physical and social environment. Young people at two of the most deprived schools, for example, often wanted to escape the school environment, where some did not feel welcome in the cafeteria. This pushed them into the local food environment, where they had a wide choice of food outlets to choose from and where they had good rapport with retailers who offered them a discount to shop at their stores. Young people at schools located in more socio-economically mixed areas were forced to choose between modern outlets with higher prices and a wider range of food and drink or outlets where they perceived they were offered better value and lower prices, but which were very often run down. Retailers in more affluent areas were often more wary and less respectful of young people purchasing food and drink at lunchtime.

Spending time with friends was often seen as essential by young people and this informed where they spent the lunch break, with the place (location and customer service) being more important than the food or drink on offer. Families were reported as having fleeting conversations with young people about the food or drink they purchased during the school day and only at the least deprived school in the study were parents in touch with the school about their children's food choices.

Conclusions

Whilst the aim of this study was to investigate the food environment beyond the school gate, the findings point the way for ***improvements that could be made within schools***. The external food environment can be controlled in a limited way, depending on what policy measures might be introduced, but the school food environment is more conducive to further changes, ***which would potentially benefit a larger proportion of young people in Scotland***. In relation to the school food environment, **w*e suggest that current initiatives aimed at schools are appropriate and should continue to be implemented.*** This study, however, provides further context for such recommendations, in terms of what could be developed and what might be effective.

Taking steps and planning towards ***a wholesale and long term shift in food culture*** in schools across Scotland, through improving the food, service and the physical and social environment would be an ambitious but worthwhile goal.

Our findings clearly show that it is not straight forward to determine how particular types of food, drink or outlet beyond the school gate, or particular types of area, in terms of relative deprivation, contribute to young people's overall diet. ***In short, this study suggests that national intervention relating to controlling the food environment beyond the school gate is likely to have a limited impact in terms of improvements to diet or rates of obesity among young people.***

The findings from this study clearly demonstrate that deprivation is multi-faceted and indicators such as SIMD or FSM alone cannot fully capture young people's experience of purchasing food and drink at lunchtime. ***Interventions that can take account of local variation may therefore be the most effective way of improving diet and weight among young people.*** Engaging young people to decide what changes they wish to see locally would be one way of achieving this.

The findings suggest that the lunchtime purchase and consumption of ***regular soft drinks and energy drinks is a concern*** and this might therefore be an area for further policy attention.

Glossary

BOGOF	Buy one (product) get one free
BOGOHP	Buy one (product) get one half price
DAPA toolkit	Diet and Physical Activity Measurement Toolkit, funded by the Medical Research Council
FPM	Food and drink purchasing module of the 2010 Survey of Diet among Children in Scotland
FSAS	Food Standards Agency in Scotland
FSM	Free School Meals
HT	Head Teacher
KS	Kitchen Supervisor
NMES	Non Milk Extrinsic Sugars
NSS	Statutory Nutrient Standards for Schools
PRQ	Purchasing Recall Questionnaire, developed for this study
SIMD	Scottish Index of Multiple Deprivation

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1.Introduction

1.1 Background

Almost a third of children and young people in Scotland are thought to be overweight or obese[1]. The Scottish Government is committed to addressing this issue and has published its Obesity Route Map Action Plan[2]. This includes an aim to investigate young people's access to food and drink, particularly energy dense foods and drinks, sold in the vicinity of schools. Such food and drink is a potential contributor to less healthy eating habits, which often underpin overweight and obesity. As part of efforts to improve the food and drink available to children and young people, the Scottish Government has published guidance for stakeholders with an interest in food and drink available 'beyond the school gate'[3]. In order to better understand what young people eat and drink beyond the school gate the Food Standards Agency in Scotland (FSAS) commissioned a food and drink purchasing module (the FPM)[4] as part of its 2010 Survey of Diet Among Children in Scotland[5]. This provided the first indication, from a nationally representative sample of young people, of the proportion of schoolchildren purchasing food and drink on the way to/from school and during breaks and lunchtimes. The survey showed that it was during the lunch period that most food and drink purchasing was undertaken during the school day, with 63% of secondary school pupils reporting buying something to eat or drink beyond the school gate during the lunch break[4]. It is therefore imperative to establish why young people buy what they do and what influences this purchasing behaviour.

Socio-economic deprivation is likely to be one such influence. Findings from the FPM suggest that deprivation could operate in several ways; young people from more deprived areas are more likely to walk or cycle past places selling food and drink (i.e. they have more opportunities to make purchases); they are more likely to purchase food and drink outside school at lunchtime[4] and also more likely to eat a poorer diet, with fewer fruits and vegetables and more sugar-containing foods, than young people from less deprived areas[5]. The FPM was unable to investigate these associations in greater detail. In general, the poorer availability of healthier food and drink in retail outlets could be an important factor for health inequalities in deprived areas[6, 7]. Since levels of overweight and obesity are also known to vary by deprivation[8] there is a need for further investigation to better understand the links between the retail environment, deprivation and diet[9]. Some studies[10] have not found a relationship between healthy eating and the local retail environment; one study[11] reported that age, gender and cultural influences, rather than poverty and distance to the supermarket, influenced fruit and vegetable intake. The type and density of food outlets in a given area could be important, though Ellaway et al.[12] report no clear link between outlet density and deprivation in Scotland. The density of outlets is likely to be lower outside of large cities or towns[13] with two Scottish studies reporting between 5-35 food outlets close to schools[12, 14]. How the food environment operates to influence food purchasing, diet and obesity and whether and how these relationships are mediated by deprivation is clearly not straight forward.

Food marketing has been shown to play a role in the development of obesogenic environments therefore it may be important to consider its role and how it might influence young people's purchasing practices[15-17]. While the focus to date has mostly been on advertising effects[18], all marketing mix components are potentially important influencers of less healthy eating behaviours[19], especially for children and young people, as marketers view this population as a

profitable target audience with considerable spending power[20]. The marketing mix includes elements known as the 4Ps; the *product* - including brand, packaging, ingredients and accompanying services; the *price*; the *place* of the product inside a store; and *promotion* of food and drink inside and beyond the food business itself [21]. A recent integrative review[22] demonstrated that in-store marketing has an impact on consumer purchasing practices. When it comes to retailers and caterers, there are three additional factors to consider: the *employees* in a store (attitude, support, knowledge and appearance); *physical* elements of the store including the cleanliness, colours, smell, lights, signboards and layout and the *processes* of delivering service to the customer, which, in combination, are thought to enhance a unique experience creating loyal customers[23].

The *social nature* of food and eating has been found to be important in a number of studies investigating food around the school day[13, 24]. Whilst few young people who took part in the FPM said that their parents told them what to buy or what not to buy at lunchtime[4], family influence might operate more subtly than a survey question can detect. Parents might control the amount of money young people have to spend, for example[25] or encourage young people to join them at home for lunch[26]. The extent to which young people feel they are part of a friendship group might also influence where they purchase or consume food [27]. A study of young people 13-15 years of age in the North East of England showed that there were emotional and social pressures on young people's food habits, particularly for those concerned with eating a healthier diet[28]. The social environment in which young people live therefore may need much closer attention in order to effectively address food and diet inequalities in Scotland.

1.2 Aim and Objectives of the Study

The aim of this study was to explore the influence of the food environment (the type and density of outlets; marketing and promotion initiatives), socio-economic deprivation and other factors (such as peer and family influence) on the food and drink purchased at lunchtime by secondary school pupils beyond the school gate. A key goal was to involve young people in the design and conduct of the study. A series of research questions were identified, which helped shape the following objectives:

- Where and for what reasons do young people aged 13-15 years purchase food and drink at lunchtime beyond the school gate?
- What types of food and drink are purchased at lunchtime beyond the school gate by young people and what reasons do they give for this?
- How do the types of food and drink purchased at lunchtime vary according to levels of deprivation and the food environment?
- What other factors inform the purchase of food and drink by young people, including whether, when and how families, friends/peers and other elements of the social environment influence young people's purchasing practices?

2. Methodological approach and study design

The study adopted a case study approach as this enabled the complex social phenomena of food and drink purchasing beyond the school gate to be described, explored and explained without losing sight of the overall context of the food environment or the influence of socio-economic deprivation[29]. A case study approach was also relevant as we were unable to control the food environment that young people experience during the school day but we could study young people *in situ* in order to explore and explain this context. Case studies allow multiple, dynamic factors to be described and explored (different people, in different settings, doing different things, at different times) but the aim is to draw together the varied data and its analysis to provide a coherent explanation and insights about the phenomena of interest[30 31]. Each participating school formed a case study. Explanatory findings are therefore at the level of each school but general patterns that emerged from across case study sites provide further insights about deprivation, the food environment and other social factors thereby helping to ensure that the findings inform public health and food policy about the retail and catering landscape in the vicinity of schools.

2.1 Recruitment of case study schools and participants

Seven case study schools were recruited from across Scotland. The aim was to select schools that differed in terms of deprivation and food outlet density/type. Specific local authorities in the North, South, East and West of the country were considered to find schools and areas that varied by Scottish Index of Multiple Deprivation (SIMD) rank[c] and the local food environment. One difficulty in using SIMD rank in relation to schools is that the location of the school does not necessarily reflect the socio-economic status of the catchment area that the schools draw their pupils from; this became very apparent once SIMD ranks were categorised into deciles and visually represented on maps of the area around each school (see later section on digital mapping and GIS analysis). In terms of classifying and recruiting schools according to variation in food outlet density/type, after mapping all registered food businesses (these data are described in a later section) it was difficult to classify an area around a school as having a particular 'food environment' as there are no benchmarks that clearly show what density or number of, for example, takeaways/fast food restaurants is thought to influence food and drink purchasing, consumption or health inequalities. Recent reviews of the literature suggest that this is an inherent difficulty in geographical analyses of food outlets[32, 33]. In order to select schools to contact, in the light of these challenges, we therefore decided to use a more qualitative interpretation of whether a school was more or less deprived (including drawing on SIMD and the proportion of pupils at a school who were registered for free school meals (FSM)) or had an accessible food environment (including drawing on the initial mapping of registered food businesses located within 800m of the school's postcode). We also drew on intelligence gleaned from talking with local education departments and school head teachers (HT) about deprivation and the food environment around their schools. This approach to categorising schools was in keeping with a case study methodology and has resulted in a nuanced portrait of seven quite different schools and the influence on them of deprivation and the local food environment. The approach was discussed with the study's Advisory Group and the FSAS before contact was made with a selection of local authority education departments for permission to contact individual schools[d]. Once permission was received, schools in five local authority areas across Scotland were contacted in March 2014 about participating in the research. The seven

[c] The Scottish Index of Multiple Deprivation (2012) identifies small areas (data zones) of deprivation by combining 38 indicators across 7 domains of income, employment, health, education, skills and training, housing, geographic access and crime. Data zones are ranked from 1 (most deprived) to 6505 (least deprived) providing a relative measure of deprivation for each area within Scotland

[d] FSAS were not made aware of the schools that were contacted nor the schools subsequently selected to take part.

selected case study schools are described in detail in Chapter 4. Once HTs had agreed for their school to be used as a case study site, letters were sent to parents of S2 and S3 pupils informing them that the research was taking place and asking them to contact the school or the research team if they wished their child to be excluded from the research. No parent chose to do so. Young people were provided with leaflets about the research, either during a year group assembly or in classroom visits. As a 'thank you' to the schools who took part, a voucher for an online book/DVD retailer was sent to each of them, once fieldwork was completed.

2.2 Methods

Typical of a case study approach, the study used both qualitative and quantitative methods to address its objectives[29]. Qualitative data were collected, through a variety of methods, to ensure that the context and meaning of food and drink purchasing could be explored in some depth. Written consent was obtained from all young people who took part in any of the qualitative components of the research and verbal consent was obtained from participating school staff and retailers. Quantitative data were collected via an online food and drink purchasing recall questionnaire (PRQ) developed by the research team. The PRQ was developed and administered to maximise the number of young people who could be consulted about their food and drink purchasing habits and the marketing strategies they were aware of in the stores they visited beyond the school gate. Young people were informed that completion of the PRQ was taken as assent to participate in this part of the study. Each of the methods used is now described.

2.2.1 Qualitative methods and approach

Qualitative methods, including accompanied lunchtime 'go-along' tours with young people in the local food environment; observations of the school and local food environment; semi-structured written activities and focus groups in the classroom; and individual / group interviews with young people, retailers and school staff, were used to provide context for young people's food and drink purchasing habits at lunchtime in each of the seven case study schools. Whilst the focus of fieldwork was the local food environment, it was useful to also undertake fieldwork and collect data about the school food environment as this helped to highlight why some young people elected to stay within the school whilst others venture outside to buy food or drink at lunchtime. We spent a period of approximately two weeks at each of the seven participating schools.

Written activity

Young people who completed the online purchasing recall questionnaire (PRQ) before the end of the lesson were asked if they wished to take part in a qualitative semi-structured written exercise, providing information against a series of written prompts about where they purchased food from and why; what their family felt or knew about their food and drink purchasing and any other information they wished to provide. This was a useful activity, added after the pilot study (details below) as it allowed students who wanted to tell us about their local food environment, in their own words, to do so. It also allowed us to further check details of the local food environment, with young people writing about the food businesses they visited or knew were close to school, with a print out of a map of the local area provided as a prompt.

Participant observation

Spending time with participants and becoming familiar with their social and cultural environments is an important aspect of ethnographic and case study research[34]. The research team observed within each school and in the local food environment on as many occasions over the lunch period (and during mid-morning break) as was feasible at each school. We became familiar with the

school cafeteria and service options as well as the general layout and atmosphere of each school. Beyond the school gate we walked around the local area, to check the map of food businesses produced through the GIS analysis, in terms of whether outlets needed adding to the map. We observed where young people purchased food and drink and where they gathered during the lunch period. We frequented many of the food businesses that were visited by young people to observe the internal store environment and shop keepers' rapport with their customers. Data were recorded through writing retrospective field notes, digital audio recorder or video recorder. Photographs were also taken by the research team to document the school and local food environments.

Lunchtime go-along tours

Go-along tours are an ethnographic technique useful for helping build rapport with participants during participant observation[35, 36]. Young people can dictate and direct where to go with the research team, based on their natural rhythms – not the researchers'. In addition, go-along tours are useful to investigate the context and meaning of practices that have an element of space or place – i.e. why are some food outlets frequented beyond the school gate but not others. We aimed to accompany friendship groups from S2 and S3 at each school on two occasions though at three schools we were unable to recruit young people using this method and at other schools only one go-along was achieved in the time available. In one case researchers felt the group were uncomfortable during the first go-along therefore it was not considered useful or ethical to ask them back a second time.

Informal Interviews

Short informal interviews[37] were conducted with HTs, kitchen supervisors (KS), retailers and young people. Pupils were often interviewed in small groups rather than individually, following a go-along tour or after they had completed the PRQ. We prompted young people to discuss marketing techniques that we had observed, such as discounts, 'two for one' type offers, point of sale displays and the in-store environment and prompted them to discuss food and drink purchases with the researcher. The retailers interviewed were asked about current marketing initiatives, in terms of price, promotions, products and the outlet environment, and the reasons for these. They were also asked about their attempts to build relationships with pupils, their perception and experience regarding what young people buy and the factors they perceive influence purchasing. Interviews with HTs and KSs were used to explore each school's food policy and food environment and perceptions relating to why young people do or do not stay in school to purchase food in S2 and S3. All interviews with school staff and retailers as well as most interviews with students were recorded with each participant's consent and these interviews were then transcribed.

Focus groups

Focus groups are useful when trying to explore multiple perspectives about complex issues, particularly when individuals are known to each other as the group dynamic can benefit the research[38]. One focus group with S2 and one with S3 pupils was organised at each of the case study schools. As we wanted 6-12 young people to take part in each focus group we were often dependent on the school selecting the participants on our behalf before we arrived, though there was no indication that they selected a certain 'type' of young person e.g. those with only positive things to say about the school. Overall we managed to include a range of young people who used the school canteen to purchase food or to eat a packed lunch; those who went home at lunchtime and those who purchased food or drink in the local food environment either on some occasions or every day; this meant we achieved the variation we had hoped for across the sample[39]. Visual prompts based on photographs taken by the team of the school and local food environments were

used to engage young people in discussion about what food and drink they purchased and consumed at lunchtime; where they purchased food and drink from and the reasons for this; perceptions of the school and local food environment including discussion of food prices, products, the place it was sold and how it was promoted. They were also asked to discuss their interactions with peers in relation to food and drink purchasing and what they discussed with their families about food and drink purchased or consumed during the school day. Focus groups were both video and audio recorded to ensure playback was of a sufficient quality to discern what each individual said. The video data also provided useful visual information about group dynamics.

2.2.2 Development and administration of an online purchasing recall questionnaire (PRQ)

A recall method was used to capture information about food and drink purchased by young people. The method is based on recognised dietary recall methods[e]. Using an online questionnaire enabled us to capture information on purchasing, together with the context of purchases, the amount spent and the importance of marketing initiatives that might influence purchasing habits. As the information was collected online via PCs and laptops in the classroom, this removed the need for manual double-entry inputting of questionnaire data by researchers. Using an online format also meant routing error was reduced from young people not following instructions about which questions to answer, which was a problem with the self-completion element of the FPM[4].

The questionnaire asked young people what they ate/drank at lunchtime; what, if any, food and drink they purchased during the lunch period; where it was purchased from, information on brand and portion size (if known), and how much items cost. Questions were also asked about frequency of purchasing lunch in school and about the proportion of purchased items that were consumed during the lunch break. In addition, the survey included questions to investigate why pupils shopped at specific outlets to purchase food and drinks and about a range of areas of marketing, including monetary and non-monetary sales promotions, the store environment, in-store placement of products, and product characteristics. Moreover, to measure the influence of price and peers on pupils' purchasing practices, shortened and specially adapted versions of two scales were also used[27, 40]. Limited information was asked about food and drinks consumed before school and at mid-morning break. The food and drink items on the PRQ were adapted from the FPM 'Food and Drink on School Days' questionnaire (version 10)[4]. Some categories from the FPM questionnaire were adapted to ensure that where a food or drink category contained or implicitly included more than one food that might be consumed at lunchtime (e.g. pizza as well as chips; flavoured water as well as water) they were divided into separate categories so that details of food and drink purchased at lunchtime would not be missed. To further ensure that all food and drink types that might be purchased by young people were included, the adapted FPM categories were compared with food frequency questionnaires for this age group from validated dietary assessment tools. Dietary assessment tools were identified using the Dietary Assessment Standard Evaluation Framework and MRC DAPA toolkit[f]. Additional food or drinks identified from these sources (namely yogurts and milk-based desserts) were added to the PRQ.

The PRQ was, where possible, administered online immediately following the lunch period, when recall about purchasing that day was likely to be at its best and mis-reporting at a minimum[41]. Schools were informed that we wished to administer the PRQ to 40 young people in S2 and 40 in S3 in periods following lunch and they organised who took part and when; often schools removed young people from their classes to come to an IT room to participate. We aimed for 40 young

[e] http://dapa-toolkit.mrc.ac.uk/
[f] http://www.noo.org.uk/core/frameworks/SEF_Diet; http://dapa-toolkit.mrc.ac.uk/

people in each year group from each school as this was comparable to the numbers participating in the FPM[4]. In some cases it was impossible for schools to organise for the PRQ to be completed after lunch, often because PCs or laptops were not available. This was the case for S2 year groups in Sch01, Sch02, Sch03 and Sch06 and S3 pupils at Sch05. In such cases the PRQ was administered in the morning and young people were instructed to provide information about lunchtime purchases from the previous day. When administering the PRQ to S2 pupils at Sch03, the previous day was a public holiday therefore young people were required to provide information about their lunchtime purchases from Friday the previous week; this may have influenced recall though this is not indicated by the results for Sch03. At least one member of the research team was present to answer queries on the PRQ during the sessions when it was administered.

2.3 Data processing and analysis

Analysis of qualitative data

It is usual in case study research to examine, re-examine, discuss, and reflect on data to 'recombine' findings from each source into a coherent whole and this was the approach we followed[29]. *Thick description* is often a goal of such analysis[42], to give meaning to that which has been observed in order to 'flesh out' the interpretation of data to the extent that others can understand phenomena. We undertook the following stages during the analysis:

1. Transcripts from interviews and field notes written by the research team were repeatedly read to look for emergent themes or categories.
2. Text from the semi-structured written activity was copied into one document according to the theme/category it related to at each school e.g. food outlets visited.
3. These data were imported into the software package QSR NVIVO for Windows (Version 10) to manage the analysis.
4. Data on the identified themes were highlighted (coded) in each document, for each school.
5. Photographs were viewed and notes on themes were written up in Word documents.
6. Video and audio recordings of each focus group were viewed/listened to and notes on themes, together with selected verbatim quotes, were written up in Word documents.
7. These Word documents from analysis of photographs, audio and video data were imported into NVIVO and identified themes highlighted (coded); the list of codes is in Appendix 1.
8. A summary document based on all coded data about the themes identified was produced for each school. These were discussed by the research team and revised.
9. The revised summary documents for each case study school were used to write up the findings, allowing for general themes across the schools to be identified, without losing the nuanced differences between case study sites.

Processing and analysis of quantitative data

All data were first exported from the online questionnaire software into Microsoft Excel. These data were then imported into SPSS for further analysis (version 20, SPSS Inc., Chicago, IL, USA). Analyses of the price and friends' influence variables are median composites of nine and eight items included respectively on the PRQ. Information collected from participants via the PRQ was used to help determine the portion size of the item purchased and consumed and some analysis of nutrient composition was also conducted. This is not fully reported here, however, as the results only relate to food/drink purchased beyond the school gate at lunchtime (not all food/drink consumed) and for which full nutrient information could be obtained. Further details about obtaining portion size is provided in Appendix 2.

No formal statistical tests were conducted with the quantitative data as the results are stratified by individual case study school and no categorisation was appropriate given the diversity of the schools in terms of deprivation and the food environment. The results are therefore descriptive and are presented in this report in combination with the qualitative analyses. As a qualitative and ethnographic approach underpinned this study we have drilled down into the detail of the quantitative data to try and provide further insight about young people's purchasing practices than would ordinarily be gained from questionnaire findings.

2.4 Pilot study

After discussion with one local education department we selected a secondary school to undertake some pre-pilot and pilot work before the main study commenced. The school was located within a medium sized town five minutes walking distance of a fairly wide range of shops and food outlets (e.g. this included a large supermarket and a range of small chain and independent retailers). In terms of SIMD, the school was located in the 5-6th decile (i.e. neither high nor low deprivation); 15% of pupils were registered for FSM in 2012-13. Six classes (three classes of S2 and three of S3) with 145 students (68 students in S2 and 77 students in S3) participated in the pre-pilot and pilot studies. The overall aim of the pre-pilot and pilot studies was to test and refine the methods and fieldwork information/documents ahead of the main study and to involve young people in refining the methods and fieldwork information/documents. Further details of the objectives and activities undertaken as part of the pilot work are appended to the report (Appendix 3), along with the changes made to the qualitative and quantitative aspects of the main study design.

2.5 Digital Mapping and GIS analysis

In order to begin to map and use data on SIMD and the food environment around schools, data on registered food businesses were obtained from Environmental Health Departments at local authorities in Scotland. Whilst secondary data sources such as lists of registered food businesses can under- or over- estimate the number and type of food businesses 'on the ground'[43], it takes a great deal of time to fully verify the data by checking the presence of all registered businesses in the field[44, 45] therefore this data source was considered the most practical to use in the timescales of the study[g]. Data were requested through the Freedom of Information Act for some areas and were readily available via Environmental Health Departments for other local authorities. Food business types that were not of relevance to the project were removed from the dataset in Excel. These included work canteens, caring establishments, food producer/ manufacturers and Bed and Breakfast businesses. The removal of such business types was based on discussions within the team and with the FSAS. The remaining data were classified into 23 different business types. As it would be impossible to visually represent so many business types on a map, and many were not subsequently reported as being frequented by young people, these 23 business types were eventually bundled together, resulting in nine outlet categories. Food businesses were classified and labelled according to the category allocated by the local authority source data; no attempts were made to reclassify outlets[h].

The final nine food outlet categories used are:

[g] This was supplemented, however, through adding food businesses to the datasets if they were observed during fieldwork. This is discussed later in this Chapter.

[h] Methods for local authorities classifying outlet types are haphazard and often based on a business name or on information provided by the person who registers the business therefore outlet categories may not tally with our qualitative observations about businesses[43, 44]

- Takeaways
- Sports and leisure centres
- Petrol stations
- Food vehicle/van
- Bakery
- Supermarkets and grocery stores
- Newsagent; post office; off licence
- Cafés and restaurants
- Other[i]

The postcode for each food business within an 800m radius of each school was then geocoded and each of the data points was attributed with the classification assigned to it from the nine categories, above. 800m was selected as the buffer zone as this is represents a ten minute walk from school; this distance was also used in a recent study of food outlets around Glasgow schools[14]. Food businesses outside the 800m buffer zones were removed from the dataset (though we report on businesses beyond 800m if young people were observed or reported visiting them to purchase food and drink). Further information about data cleaning and the mapping process is appended to the report (Appendix 4). Other source data used for the GIS analysis were taken from the SIMD dataset. These data were used to give an indication of the overall levels of deprivation in the areas around the selected case study sites. The deprivation rank of each school postcode and the postcodes surrounding the school were grouped into three categories: the upper four deciles (least deprived), middle two deciles, and lower four deciles (most deprived). This was conducted following the guidance available online[j].

The geocoded food business data points and SIMD decile information were used to create maps for each case study site. The mapped food business and SIMD information were then used in several ways during the study. Initially the mapped SIMD decile data were used to visually illustrate possible deprivation around each school. This, together with an early iteration of the mapped food business data points were used to help select the schools to contact. Once schools were recruited to take part the maps were used by the research team to check the food business data points, i.e. to check whether additional food businesses were present on the ground. As a result of this, some food businesses were manually added to the dataset and therefore to the maps. As food vehicles/vans were only present in the local authority datasets according to the registered postcode of the vehicle/van owner, the research team identified where such food vehicles/vans were positioning themselves around schools and this information was added to the database and maps. The maps were also used in classroom discussions to engage young people with research questions about their local food environment.

2.7 Ethics approval

Ethics approval for the pilot and main studies was received from the University of Hertfordshire Health and Human Sciences Ethics Committee with Designated Authority in February 2014 (Approval Number HSK/SF/UH/00045).

[i] This includes categories from the local authority that were rarely visited by young people but nonetheless available in the local area – Chemist, Garden Centre, Canteen, Health, Church, Social Club, Hotel, Pub, Butcher/Fishmonger, Farm.
[j] http://www.scotland.gov.uk/Resource/0043/00439496.pdf.

3. Participants

Tables 3.1, 3.2 and 3.3, below, highlight respectively the number of young people participating in each element of the qualitative study (n=651); the number of HTs (N=6), KSs (n=7) and retailers (n=25) who were interviewed and the number of young people who completed the PRQ (N=535). Some young people took part in more than one part of the qualitative study and some of these pupils also completed the PRQ.

The 25 retailers interviewed managed, owned or worked in a range of outlets including supermarkets and grocery stores; chain and independent bakeries, chain and independent takeaway outlets; independent cafes, food vans and leisure or community centres.

For the online PRQ, the aim was to include a minimum of 480 young people with 40 young people anticipated from each year group at each school. Despite concerted efforts by the research team and the schools involved, numbers were fewer than 40 in many of the year groups though overall we collected data from 535 pupils.

Table 3.1 Number of young people participating in the qualitative study[k]

	Individual and group interviews	Go-along tours	Focus groups	Semi-structured written activity	Total
Sch01	7	7	21	41	**76**
Sch02	8	0	20	79	**107**
Sch03	7	3	22	57	**89**
Sch04	16	2	24	71	**113**
Sch05	7	0	35	58	**100**
Sch06	5	4	20	65	**94**
Sch07	0	0	13	59	**72**
TOTAL	50	16	155	430	**651**

Table 3.2 Number of interviews with Head Teachers, Kitchen Supervisors and retailers

	School staff			Retailers						
	HT[l]	KS	TOTAL	Take-away	Supermarket / grocer / newsagent	Bakery	Food vehicle	Leisure or community centre	Café	**TOTAL**
Sch01	0	1	1	3	0	0	0	0	0	**3**
Sch02	1	1	2	1	0	1	0	1	0	**3**
Sch03	0	1	1	0	1	0	1	0	0	**2**
Sch04	2	1	3	3	1	0	0	0	0	**4**
Sch05	0	1	1	5	0	0	0	1	1	**7**
Sch06	1	1	2	1	1	1	0	0	0	**3**
Sch07	2	1	3	0	2	1	0	0	0	**3**
TOTAL	6	7	13	13	5	3	1	2	1	**25**

[k] A breakdown by gender and year group is provided in Appendix 5.
[l] At Sch04 and Sch07 the HT and a teacher/manager at each school were interviewed

Table 3.3 Young people who completed the online PRQ, by year group (S2 and S3) and gender

	Year group			Gender		
	S2	**S3**	**TOTAL**	**Girls**	**Boys**	**TOTAL**
Sch01	40	40	**80**	44	36	**80**
Sch02	46	50	**96**	49	47	**96**
Sch03	34	34	**68**	36	32	**68**
Sch04	42	48	**90**	54	36	**90**
Sch05	33	33	**66**	36	30	**66**
Sch06	35	26	**61**	22	39	**61**
Sch07	35	39	**74**	43	31	**74**
TOTAL	**265**	**270**	**535**	**284**	**251**	**535**

3.1 Presentation of findings

The following four Chapters each contain and present the qualitative and quantitative findings. Chapter 4 focuses on the findings on **place** – the context of the school and the local food environment where young people purchase food and drink at lunchtime. Chapter 5 discusses results relating to the **food and drink** purchased whilst Chapter 6 presents findings relating to **price, costs and money**. Chapter 7 further draws out what was observed in relation to **deprivation** and the **social environment** (the influence of friends and family).

The final chapter, Chapter 8, is a **discussion** of the findings, including implications for health improvement.

4. The Food Environment Within and Beyond the School Gate

This Chapter focuses on findings relating to ***place***. We present:

- Basic demographic information for each case study site as well as a description of each school and its local food environment;
- Results from the purchasing recall questionnaire (PRQ) about the frequency young people reported purchasing food and drink at school and beyond the school gate, and where they shopped at lunchtime.
- Findings about some of the reasons young people report purchasing food or drink beyond the school gate, including the importance of marketing factors.

4.1 Schools and their local food environments

The participating schools varied in terms of the school roll, SIMD category and the proportion of pupils registered for free school meals (FSM) (Table 4.1 and Appendix 6). Four of the case study schools had high relative deprivation according to their SIMD rank. Whilst the remaining three schools were not ranked as having high relative deprivation, two of these (Sch04 and Sch07) had higher than average numbers registered for FSM (and are hereafter described as having 'mixed deprivation'). This distinction was reflected in the qualitative findings and will be discussed, along with other characteristics observed about the socio-economic environment, throughout the report.

Table 4.1 Participating schools in terms of school roll, SIMD category and proportion of pupils registered for FSM

	School roll (pupils)	SIMD category[m]	% FSM[n]
Sch01	<600	1 (most deprived)	30-40
Sch02	>1000	1 (most deprived)	10-20
Sch03	<1000	1 (most deprived)	20-30
Sch04	<1000	3 (least deprived)	20-30
Sch05	<600	1 (most deprived)	20-30
Sch06	>1000	3 (least deprived)	0-10
Sch07	<600	2 (moderately deprived)	30-40

Schools differed enormously in terms of the number of food businesses registered within 800 metres[o], from five outlets near Sch06 to 249 outlets near Sch05, in a busy town centre (Table 4.2). The number of takeaways varied from none near Sch02 to 19 near Sch05. Only a small number of registered food businesses (n=77) were visited by young people observed or participating in the study, out of a total of 489 registered/observed food outlets. An additional 17 food businesses were visited to purchase food and drink by young people observed or participating in the study, and these were situated further than 800 metres from each school (Table 4.3). Maps showing all food outlets around each school are in Appendix 7.

m 1 = SIMD ranks 1-2602 (four most deprived deciles); 2 = SIMD ranks 2603-3903 (two middle deciles); 3 = SIMD ranks 3904-6505 (four least deprived deciles)

n % registered for free school meals (FSM) at the school based on the 2013 FSM dataset. The proportion of pupils registered for FSM at secondary schools across Scotland is 15.5% (this includes pupils attending local authority and grant-maintained schools). Ranges are shown rather than exact percentages to protect the identity of the participating schools.

[o] Table 4.2 includes businesses registered with the Environmental Health Department of each local authority as selling food or drink and also includes other additional businesses that were observed during fieldwork. See Chapter 2 for further details.

Table 4.2 Total number of registered and observed food businesses, by outlet type, within 800m of schools

	Number and category of outlet (within 800m)									
	Take-away	Sports / Leisure centre	Petrol station	Food vehicle	Bakery	Super-market / grocer	News-agent / Post Office	Café / rest-aurant	Other	**TOTAL**
Sch01	12	0	1	0	2	6	2	6	22	**51**
Sch02	0	1	0	2	1	2	2	4	4	**16**
Sch03	8	0	0	4	1	1	5	4	8	**31**
Sch04	10	0	0	1	2	5	2	0	13	**33**
Sch05	19	2	0	1	6	11	11	50	149	**249**
Sch06	1	0	0	0	1	0	2	0	1	**5**
Sch07	13	3	0	2	2	10	7	23	44	**104**
TOTAL	63	6	1	10	15	35	31	87	241	**489**

Table 4.3 Visited food outlets within and beyond 800m, according to observations and pupil reports

	Number of outlets, by type, visited by young people within 800m of schools (in brackets n=<u>additional</u> outlets visited by young people <u>beyond</u> 800m of school)								**TOTAL within 800m (n=beyond 800m)**
	Take-away	Sports / Leisure centre	Food vehicle	Bakery	Super-market / grocer	News-agent / Post Office	Café / rest-aurant	Other	
Sch01	7	0	0	1	5 (1)	1	0	0	**14 (1)**
Sch02	0 (3)	1	1	0 (2)	0 (2)	2 (3)	0	0	**4 (10)**
Sch03	3	0	2	1	1	1	0 (1)	1	**9 (1)**
Sch04	5 (2)	0	1	1 (1)	4 (1)	0	0	0	**11 (4)**
Sch05	8	0	0	3	3	5	4	3	**26 (0)**
Sch06	1	0	0	1	0	2	0	0	**4 (0)**
Sch07	2	0	0	2 (1)	3	2	0	0	**9 (1)**
TOTAL	26 (5)	1	4	9 (4)	16 (4)	13 (3)	4 (1)	4	**77 (17)**

Whilst there is no obvious way to summarise the schools in terms of their relative levels of deprivation and the 'type' of food environment around the school, as a guide we will use descriptors when presenting and discussing the findings, as shown in Table 4.4.

Table 4.4 Descriptor for each case study school

School ID	**Deprivation status**	Deprivation high on which indicator?	**Food environment classification**	Food environment based on how many outlets?
Sch01	High Dep	SIMD; FSM	Mod Food	21-99
Sch02	High Dep	SIMD; FSM	Low Food	0-20
Sch03	High Dep	SIMD; FSM	Mod Food	21-99
Sch04	Mix Dep	FSM	Mod Food	21-99
Sch05	High Dep	SIMD; FSM	High Food	100+
Sch06	Low Dep	-	Low Food	0-20
Sch07	Mix Dep	FSM	High Food	100+

School01 (Sch01; high dep/ mod food)
Sch01 is located in a small town of 10-15,000 inhabitants. It is an economically deprived area (in the lowest four deciles of the SIMD, Table 4.1) with low priced housing and a general lack of investment, highlighted by the HT. The food environment could be described as run-down; there are a range of small food businesses, mainly independent takeaways and grocers located along three main roads; all are within 800m and around a five minute walk from Sch01. These are highlighted on the appended map. With the exception of two small branches of national supermarkets within 800m of the school, there are no other national or chain food businesses. Young people were not observed and did not report purchasing from five out of the 12 registered takeaway outlets within 800m of the school (Table 4.3). Sch01 had one of the highest proportion of pupils registered for FSM in the study (30-40%) and was one of the smallest in terms of pupils numbers (Table 4.1). The lunch period at Sch01 was 45 minutes.

School02 (Sch02; high dep/ low food)
Sch02 is located in a rural and relatively deprived area (Table 4.1). The town has 10-15,000 inhabitants. There is a high street in the local town, recently redeveloped, with several types of local and chain food outlets, about 10-15 minutes' walk from the school (i.e. beyond the 800m area; shown on the appended map). Young people were able to access a considerable number of additional outlets by venturing further than 800m from school at lunchtime and many did so, with 10 of the 14 businesses used to purchase food or drink being located further than 800m from the school. Pupils at this school said that their 40 minute lunch break made it difficult for them to access these further away food businesses but it did not deter them. The KS at Sch02 also reported that a Chinese takeaway had been known to deliver to pupils at lunchtime. The fish and chip shops are modern and bright. The school is located close to an independent leisure centre in a residential area; there are very few other food businesses and those present could be described as fairly run down (around 400m away, a 1-4 minute walk). An ice-cream van parks behind the school at lunchtime, it sells pot-type noodles and hot-dogs as well as sweets, chocolate, ice cream and drinks. Sch02 was one of the largest in the study, with lower than average numbers registered for FSM (Table 4.1). The lunch break is 40 minutes. It used to be longer but had been shortened to encourage pupils to stay in school.

School03 (Sch03; high dep/ mod food)
Sch03 is situated in a town of ca. 50,000 inhabitants. It is in a peripheral and residential area of the town surrounded by many main roads and intersections and is ranked as deprived by SIMD (Table 4.1). In the town centre there are several restaurants and chain retail outlets whereas around the school area there are a few shops, mainly local takeaways and grocers (400-800m, a 2-7 minute walk; see appended map). With the exception of one takeaway that is quite new and modern, all other outlets could be described as run down. Two ice-cream vans park close to the school at lunchtime. They served hot-dogs as well as sweets, chocolate, ice cream and drinks. Young people only ventured to three of the eight takeaway outlets within 800m of the school. Sch03 is one of the largest in the study (Table 4.1) and it has a higher than average number of pupils registered for FSM (Table 4.1). Pupils get 40 or 45 minutes for lunch, depending on the day of the week.

School04 (Sch04; mix dep/ mod food)
Sch04 is located in a town of ca. 50,000 inhabitants classed as having low deprivation by SIMD (Table 4.1). This school is in a peripheral and residential area of the town and there are a wide range of outlets available within a few minutes' walk of the school (see appended map). A burger

van parks close by, after having parked in front of another high school that has an earlier lunch break. Food outlets are located in two distinct areas. Some outlets are situated close to a fairly new housing development and the food outlets here are newly built (approx. 400m away, a 5 minute walk): there are three local takeaways and a small supermarket. Within 400-800m from the school is another area with a range of local takeaways and grocers. Young people often commented that some of these places were run down; this part of the town is one of the most deprived in Scotland. There is a small park where a few students were observed socialising and playing during lunchtime. In this same part of town but closer to school (approx. 200m), there is also a rundown take-away and a grocer operated by the same retailer. Further away from the school (outside the 800m area), via a 15-20 minute walk, were a range of chain sandwich and takeaway outlets. Some pupils reported going to these outlets though it was difficult to get there and back during the lunch break. The school is relatively large in terms of pupil numbers and despite being located in an area of relatively low deprivation, it has higher than average numbers registered for FSM (Table 4.1), perhaps reflecting the mixed socio-economic status of the catchment area. Pupils get 60 minutes at lunchtime, the longest lunch period of the schools studied.

School05 (Sch05; high dep/ high food)
Sch05 is situated in a town of ca. 50,000 inhabitants. There is higher than average unemployment rate in the town and it is classified as deprived by SIMD (Table 4.1). This school is close to the town centre and there are hundreds of food businesses within 800m (see appended map). There are multiple branches of chain sandwich and takeaway outlets and national supermarkets, as well as many local takeaways, newsagents and grocers shops. There were also fish and chip shops, noodle bars and fried chicken takeaway outlets. There was a community centre for young people close to the school where pupils went to socialise, eat, drink or play pool. No pupil was observed or reported going further than 800m to purchase food or drink and pupils only purchased food and drink from a very small number of the available outlets within 800m. Sch05 was one of the smallest in the study with above average numbers registered for FSM (Table 4.1). Young people had 50 minutes for lunch.

School06 (Sch06; low dep/ low food)
Sch06 is located in a town of 20-30,000 inhabitants classified as having low deprivation (Table 4.1). It could be considered a suburb of a much larger nearby city. In proximity to the school there is one area (400-500m away) where five food outlets are located (see appended map): two newsagents, a chain bakery, a small café that sells takeaway food such as rolls, toasties, burgers, chips and ice-creams, and a pharmacy. This school had far fewer outlets located within 800m than the other schools studied. In the town centre, in a more commercial area of the town, there are several chain food outlets and national supermarkets. Young people reported that older year groups sometimes drove to popular chain takeaway outlets; parents were also said to sometimes deliver food from this takeaway to their children and a chain pizza company also delivered to the school. No pupil was observed or reported that they themselves purchased food or drink at outlets located beyond 800m.The school has a large number of pupils enrolled with the lowest proportion registered for FSM in the study and lower than the Scottish national average. Young people had 45 or 55 minutes for lunch, depending on the day of the week.

School07 (Sch07; mix dep/ high food)
Sch07 is situated in a town of ca. 50,000 inhabitants and is located in an area of moderate deprivation (Table 4.1). The town has lots of local and chain food outlets. The town centre is

perceived to be too far from the school for pupils to go there to purchase their lunch, with the exception of one bakery, which was observed being visited by pupils (approx. 1km away; see appended map). Nonetheless, the school is surrounded by a scattered selection of food outlets, many of them independent bakeries, grocers and takeaways set amongst hotels, businesses and smart looking homes (a 2-5 minute walk, approx. 200-400m away). They are generally in good decorative order, clean and modern. There is also a supermarket within 400m. In addition, there are a few small shops behind the school (200-400m away) including a grocer and newsagent, in an area where many of the students live; these are quite run down in comparison with the outlets on the other side of the school. The school has one of the smallest rolls and one of the highest proportions registered for FSM (30-40%), despite the moderate deprivation indicated by SIMD rank, reflecting the broader socio-economic nature of the catchment area. Pupils here have 45 minutes for lunch (truncated so they can leave early on a Friday).

4.2 Frequency of purchasing food and drink in school and beyond the school gate

Young people who completed the PRQ were asked to indicate how often they purchased food or drink beyond the school gate at lunchtime and how often they purchased lunch provided by the school cafeteria in a 'usual school week'. The findings (Table 4.5) show that more than three quarters (77.0%) of young people who completed the PRQ left school to purchase food and drink regularly, at least twice a week. Around a third (36.8%) of young people purchased from the school cafeteria at least twice each week.

Table 4.5 Frequency of purchasing food or drink within or outside school, per week

Frequency of purchasing food or drink	Beyond the school gate n (%)	School cafeteria n (%)
Twice a week or more	412 (77.0)	197 (36.8)
Once a week / Never	123 (23.0)	338 (63.2)
Total	535 (100.0)	535 (100.0)

There were differences in the proportion of young people from each school reporting frequently (twice a week or more) purchasing food or drink beyond the school gate at lunchtime (Figure 4.1) with the smallest percentage of pupils reporting going out at least twice each week at Sch06 (42.6%), the least deprived school studied (with the fewest number of food outlets available). The highest proportion who said that they regularly purchased something beyond the school gate were from Sch05 (92.4%) and Sch01 (90.0%), two of the most deprived of those that took part, with a high and moderate density of food outlets respectively.

On the day the PRQ was administered 53.6% of pupils (n=287) said they purchased at least one food or drink item outside school at lunchtime (Table 4.6). Across schools, this ranged from around one quarter (23.0%) of pupils at Sch06 (low dep/ low food) to two thirds at Sch01 (67.5%) (high dep/ mod food), Sch04 (67.8%) (mix dep/ mod food) and Sch05 (65.2%) (high dep/ high food).

Figure 4.1 Frequency of pupils purchasing beyond the school gate at lunchtime, by school

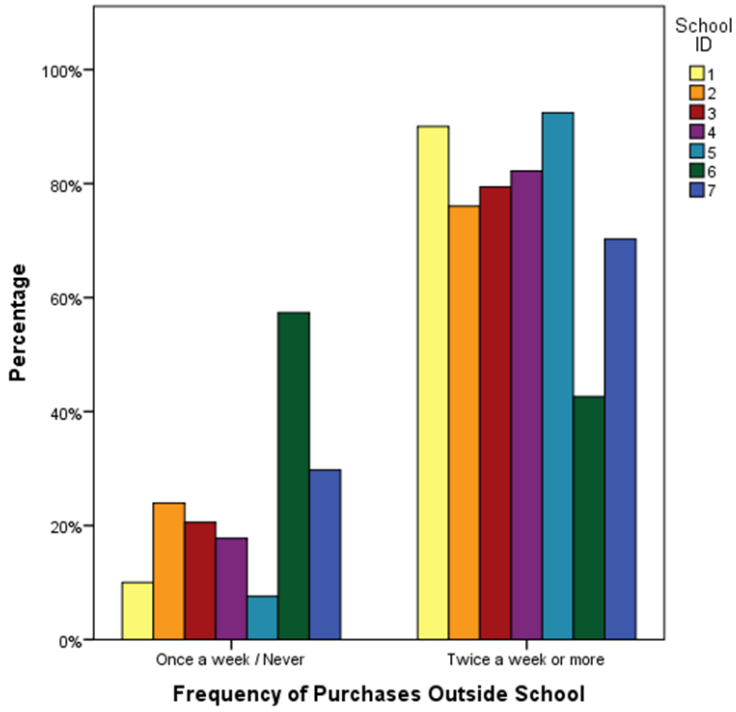

Table 4.6 Number (%) of pupils purchasing food or drink beyond the school gate at lunchtime on the day they completed the PRQ

Food or drink purchased	All	Sch01*	Sch02	Sch03	Sch04	Sch05	Sch06	Sch07
Yes	287 (53.6)	54 (67.5)	43 (44.8)	36 (52.9)	61 (67.8)	43 (65.2)	14 (23.0)	36 (48.6)
No	248 (46.4)	26 (32.5)	53 (55.2)	32 (47.1)	29 (32.2)	23 (65.2)	47 (77.0)	38 (51.4)
TOTAL	535 (100.0)	80 (100.0)	96 (100.0)	68 (100.0)	90 (100.00)	66 (100.0)	61 (100.0)	74 (100.0)

* Sch01 high dep/mod food; Sch02 high dep/low food; Sch03 high dep/mod food; Sch04 mix dep/mod food; Sch05 high dep/high food; Sch06 low dep/low food; Sch07 mix dep/high food.

4.3 Places pupils reported visiting beyond the school gate at lunchtime

Those who completed the PRQ reported buying food and drinks from a range of outlet types beyond the school gate at lunchtime on the day the PRQ was administered. The most popular outlet categories (Table 4.7) were takeaway, chip shop or fast food outlets (25.8%), newsagent or sweet shops (25.1%); supermarkets (23.0%) and grocery or corner shops (20.1%). Fewer than 17% of young people said they purchased from a sandwich shop or bakery and 11.1% reported purchasing something from a burger/chip/ice cream van. Fewer pupils reported purchasing on the day they were surveyed from other outlet types.

The *availability* of outlets was, not surprisingly, related to differences in purchasing from each outlet category at each school. Appendix 8 highlights purchasing at lunchtime by outlet type for each school. Pupils at Sch04 (38.1%) (mix dep/ mod food) and Sch07 (58.3%) (mix dep/ high food), for example, were much more likely to purchase from a supermarket on the day they completed the PRQ than pupils overall. As some schools had few takeaways, chip shop or fast food outlets close by, the overall proportion of young people purchasing from such outlets (Table

4.7) masks considerable variation across the schools. At Sch01 (high dep/ mod food), for example, 50.0% of pupils who purchased food or drink on the day they completed the PRQ said they went to a takeaway, chip shop or fast food outlet and 39.5% of pupils at Sch05 (high dep/ high food) reported the same, compared with no pupils at Sch02 (high dep/ low food) and Sch07 (mix dep/ high food). However, whereas no pupils at Sch07 reported purchasing food or drink at lunchtime from a burger, chip or ice cream van (and none were observed close to the school), 32.6% of pupils at Sch02 purchased from a food van.

Table 4.7 Any food or drink purchase reported on the day the PRQ was administered, by outlet type

Outlet category	Yes Purchased n (%)	No Purchased n (%)	Total n (%)
Takeaway, chip shop or fast food outlet	74 (25.8)	213 (74.2)	287 (100.0)
Newsagent or sweet shop	72 (25.1)	215 (74.9)	287 (100.0)
Supermarket (shops like Asda, Tesco, Co-op)	66 (23.0)	221 (77.0)	287 (100.0)
Grocery store or corner shop	58 (20.1)	229 (79.9)	287 (100.0)
Sandwich shop or bakery	47 (16.4)	240 (83.6	287 (100.0)
Burger, chip or ice cream van	32 (11.1)	255 (88.9)	287 (100.0)
Swimming pool, sports centre or community centre	15 (5.2)	272 (94.8)	287 (100.0)
Café, coffee shop or restaurant	14 (4.9)	273 (95.1)	287 (100.0)
Healthy food van (e.g. Body Fuel van)	2 (0.7)	285 (99.3)	287 (100.0)
Garage or petrol filling station	1 (0.3)	286 (99.7)	287 (100.0)
Chemist or pharmacy	1 (0.3)	286 (99.7)	287 (100.0)
Vending Machine	1 (0.3)	286 (99.7)	287 (100.0)
Other	1 (0.3)	286 (99.7)	287 (100.0)

4.4 Reasons pupils said they visited places beyond the school gate

Participants who had purchased any food or drink on the day the PRQ was administered were asked to rate eight factors in relation to why they went to particular outlets to buy food and drinks outside school at lunchtime that day; 244 (85.0%) pupils who reported purchasing something completed these questions (Table 4.8). From the eight factors included in the PRQ, the most frequently agreed with, in relation to reasons to visit places to purchase food or drink were that their friends go there (88.9%[p]) and the outlet was close to their school (87.3%). Less important were the atmosphere of the place visited (58.2%) and special offers and meal deals (57.8%). The qualitative data concurs with the PRQ analysis, in terms of the atmosphere of a store not being a factor many young people consider to be important in terms of where they buy food and drink outside school[q]. The influence of special offers/prices is discussed in more detail in Chapter 6 and the importance of being with friends at lunchtime is discussed further in Chapter 7.

[p] The percentages in brackets represent the cumulative percentage of the participants who answered slightly agree, agree and strongly agree to the corresponding statement.

[q] Pupils at Sch01 and Sch04 sometimes mentioned the lack of cleanliness within outlets as putting them off shopping there.

Table 4.8 Reasons for visiting outlets beyond the school gate on day the PRQ was administered

	All (N=244)	Sch01* (N=43)	Sch02 (N=36)	Sch03 (N=28)	Sch04 (N=54)	Sch05 (N=42)	Sch06 (N=12)	Sch07 (N=29)
My friends go to this place	217 (88.9)	38 (88.4)	30 (83.3)	25 (89.3)	52 (96.3)	35 (83.3)	11 (91.7)	26 (89.7)
It is close to my school	213 (87.3)	35 (81.4)	30 (83.3)	26 (92.9)	51 (94.4)	34 (81.0)	11 (91.7)	26 (89.7)
I like the quality	207 (84.8)	38 (88.4)	29 (80.6)	25 (89.3)	46 (85.2)	36 (85.7)	11 (91.7)	22 (75.9)
I like the variety	204 (83.6)	36 (83.7)	30 (83.3)	24 (85.7)	48 (88.9)	35 (83.3)	9 (75.0)	22 (75.9)
I like the service	180 (73.8)	35 (81.4)	26 (72.2)	22 (78.6)	44 (81.5)	29 (69.0)	7 (58.3)	17 (58.6)
I like the prices	173 (70.9)	30 (69.8)	24 (66.7)	23 (82.1)	41 (75.9)	31 (73.8)	7 (58.3)	17 (58.6)
I like the atmosphere	142 (58.2)	24 (55.8)	26 (72.2)	16 (57.1)	30 (55.6)	27 (64.3)	5 (41.7)	14 (48.3)
I like the meal deals and special offers	141 (57.8)	19 (44.2)	17 (47.2)	17 (60.7)	36 (66.7)	30 (71.4)	6 (50.0)	16 (55.2)

* Sch01 high dep/mod food; Sch02 high dep/low food; Sch03 high dep/mod food; Sch04 mix dep/mod food; Sch05 high dep/high food; Sch06 low dep/low food; Sch07 mix dep/high food.

Whilst the PRQ data in Table 4.8 suggest that proximity to school was particularly important, this was not borne out strongly by the qualitative analysis. Very few pupils mentioned distance though some at Sch02 (high dep/ low food) said they visited the leisure centre and the food van as they were the closest outlets beyond the school gate. Boys in one focus group at Sch02 said whilst the leisure centre sold similar items to other shops they would go to the centre as it was the closest place to buy them (this proximity also related to overcrowding at this leisure centre though). Similarly at Sch01 (high dep/ mod food), many young people went to a particular chip shop when it was raining, because it was one of the closest outlets to their school. At most schools, there were some young people who said they sometimes purchased food or drink in school rather than going outside, as it was the nearest option. Young people were as likely to say, though, that they were prepared to travel *further* to get the food or drink they wanted, rather than going to places that were particularly close. At Sch02 (high dep/ low food) pupils were observed purchasing food or drink at many outlets beyond the 800m zone (as discussed earlier in this chapter); these outlets included takeaways and supermarkets that were not available closer to their school. At Sch03 (high dep/ mod food) some pupils were prepared to go to chain outlets that were a ten minute walk away (i.e. not the closest outlets) but that '*you really had to run'* (boy, S2 focus group) to get there and back; many pupils were observed running to get to such places, with attractive prices, less overcrowding and the availability of a range of foods and drinks being cited as the reasons for this effort being made. Similarly at Sch04 (mix dep/ mod food) some were prepared to take a 15-20 minute walk (i.e. outside the 800m buffer zone where many food outlets were situated) to get to a wider range of chain takeaways. One girl said she and her friends refer to the decision to walk further once a week (and subsequently to spend more) to buy different food as '*Fat Friday'* (Sch04, S2 focus group).

Almost three quarters (73.8%; Table 4.8) of pupils completing the PRQ agreed that the service they received in places beyond the school gate was important and the qualitative data also suggest that service was important, particularly in relation to young people's relationships with

shop staff (but also with regard to not queuing to be served). The service young people felt they received beyond the school gate was the most frequently raised factor in the qualitative study, in relation to shopping at particular food businesses, mentioned by pupils from each of the schools. This was also mentioned by some of the retailers we interviewed, who felt they had built relationships with pupils and respected them as customers (Sch01; Sch03; Sch04; Sch05), knew/remembered their food orders or preferences (Sch01; Sch04; Sch05; Sch06) and in more than one case a retailer mentioned he also knew pupils' parents too (Sch01; Sch02; Sch04). One retailer (a newsagent) near Sch03 (high dep/ mod food) elaborated:

> '*you've got to be nice to every people and people'll always… it's not necessarily reflective on price you know, service is very important and people, if you're good with people, people will always come back you know, to you'.*

Young people expressed similar sentiments about the friendliness of retailers, building good relationships with them and each party knowing the others' name ('*they get to ken you',* S3 focus group, Sch01, high dep/ mod food). At Sch03 (high dep/ mod food) the owner of one of the ice cream vans close to the school was mentioned as being particularly friendly and nice and this being the reason young people shopped there, rather than at other outlets, including an adjacent ice cream van. For pupils at Sch02 (high dep/ low food) and Sch05 (high dep/ high food) staff at one chain sandwich outlet were particularly liked by young people (staff were noticeably younger here, compared with other outlets) though the friendliness and attitude of shop staff was commented on more generally too by pupils at Sch05; this was confirmed through the research team's observations. Pupils at Sch01 said they had the impression that '*you can take your time'* (S3, focus group) when hanging around local shops, which they liked and this was in contrast to the attitude they felt was present in the school cafeteria. At Sch04 (mix dep/ mod food) younger pupils were observed sitting on the floor of one fish and chip shop to eat the food and drink they purchased there; young people said that the shop staff did not mind them doing this (this was confirmed by the retailer), after the lunchtime rush had subsided.

Conversely, poor service and an unwelcoming attitude were raised as factors deterring some (though not all) young people from electing to purchase from some food businesses. Some staff were generally perceived by young people to be unfriendly or rude (Sch01; Sch02; Sch04, Sch07) whilst at others, specific examples were given of poor service. These included staff getting angry and shouting at pupils (Sch02; Sch04) or giving someone the wrong change (Sch06). Whilst some pupils said they would not shop somewhere if they were treated badly, others (e.g. Sch06, where there were fewer outlets) reported that they had no choice but to continue purchasing food and drink at a particular outlet. In some cases, retailers took measures to further control young people coming into their businesses; whilst this was reported to be disliked, it did not seem to deter some pupils from frequenting such outlets. Examples include a large supermarket near Sch07 (mix dep/ high food) that would not let pupils use the staffed checkouts at lunchtime (they had to use the self-checkout tills to avoid disturbing other shoppers); a smaller supermarket close to Sch07 with '*about eight surveillance cameras'* (S2, focus group) and a policy of not letting pupils take their school bags into the store ('*they think you'll steal stuff*', S2, focus group); and shops limiting the number of young people who entered the store at one time (Sch04 (mix dep/ mod food); Sch06 (low dep/ low food)). At a small supermarket near to Sch04, it was reported that staff would not give pupils receipts for their purchases (*'it's like a waste of paper'*, S3, focus group) but insisted they took a carrier bag as proof they had paid for items.

In terms of getting lunch quickly, young people at all schools mentioned trying to avoid queues, by walking to businesses that were further from the school for example, or selecting a different outlet (only possible at schools where there was a greater choice). For some, lack of a queue was given as a reason to stay in school at lunchtime and this was particularly the case when older pupils were studying for exams and not using the cafeteria.

The next Chapter moves on to present findings about the types of food and drink purchased beyond the school gate and the reasons reported for this.

5. Food and Drink Purchased Beyond the School Gate

This Chapter concentrates on the findings relating to ***food and drink***. We present results from the purchasing recall questionnaire (PRQ) about the food and drink reported to be purchased by young people on the day they completed the questionnaire. We also present findings in relation to the reasons young people gave for selecting a particular food or drink item. Where appropriate we draw on qualitative findings about food and drink available in the school as well as an overview of whether young people said they ate/drank something before school and at mid-morning break, to provide further context for the results in this Chapter.

In order to set the context for lunchtime purchasing outside school, first we present the proportion of young people who reported having something to eat or drink before school on the day the questionnaire was administered and those who said they ate or drank something at mid-morning break. Pupils were asked to describe what they had to eat and drink, if anything, before school (pre-determined categories were not provided) and to indicate using set categories (that mirrored those used when asking about lunchtime purchasing, with the addition of bread/toast) what they ate or drank at mid-morning break.

5.1 Eating and drinking before school, at mid-morning break and at lunchtime

Table 5.1 shows that more than six in ten young people reported having something to eat before school at home (62.8%) and others had food or drink on the way to school (4.9%) or at a breakfast club (1.1%). Seventeen percent said they did not eat or drink anything before school on the day they were surveyed and 12.5% of pupils reported consuming a drink only; for some of these young people this was reported as a glass of water. Almost a quarter of pupils at Sch01 (high dep/mod food), Sch04 (mix dep/ high food) and Sch07 (mix dep/ high food) said they ate/drank nothing before school or only consumed a drink.

Table 5.1 Food and drink consumed before school on the day pupils completed the PRQ (n, %)

	All	Sch01*	Sch02	Sch03	Sch04	Sch05	Sch06	Sch07
Food at home	336 (62.8)	52 (65.0)	63 (65.6)	47 (69.1)	51 (56.7)	41 (62.1)	46 (75.4)	36 (48.6)
Nothing	93 (17.4)	19 (23.8)	18 (18.8)	12 (17.6)	21 (23.3)	8 (12.1)	4 (6.6)	11 (14.9)
Drink only at home	67 (12.5)	7 (8.8)	10 (10.4)	6 (8.8)	11 (12.2)	10 (15.2)	6 (9.8)	17 (23.0)
Something on way to school	26 (4.9)	2 (2.5)	2 (2.1)	2 (2.9)	7 (7.8)	6 (9.1)	2 (3.3)	5 (6.8)
Breakfast Club	6 (1.1)	0	2 (2.1)	1 (1.5)	0	0	2 (3.3)	1 (1.4)
Missing cases	7 (1.3)	0	1 (1.0)	0	0	1 (1.5)	1 (1.6)	4 (5.4)
TOTAL	535 (100.0)	80 (100.0)	96 (100.0)	68 (100.0)	90 (100.00)	66 (100.0)	61 (100.0)	74 (100.0)

* Sch01 high dep/mod food; Sch02 high dep/low food; Sch03 high dep/mod food; Sch04 mix dep/mod food; Sch05 high dep/high food; Sch06 low dep/low food; Sch07 mix dep/high food.

At mid-morning break (Table 5.2) 58.9% of young people reported eating something and 65.0% said they had something to drink. One in ten young people reported consuming a sugar sweetened soft drink (11.8%) or an energy drink (9.7%) at mid-morning break (results not shown); these could

have been brought from home or purchased outside school. At Sch07 (mix dep/ high food) 59.5% said they did not eat anything at mid-morning break (results not shown), a considerably higher proportion of pupils than at other schools. On the day that the PRQ was administered, 24.3% of young people said they did not eat anything at lunchtime and 19.1% said they did not drink anything at lunchtime (Table 5.2).

Table 5.2 Whether pupils ate or drank anything at mid-morning break and lunchtime (n, %)

	Mid-morning break		Lunchtime	
	Food	**Drink**	**Food**	**Drink**
Yes	315 (58.9)	348 (65.0)	405 (75.7)	433 (80.9)
No	220 (41.1)	187 (35.0)	130 (24.3)	102 (19.1)
Total	535 (100.0)	535 (100.0)	535 (100.0)	535 (100.0)

Young people who reported that they purchased food or drink beyond the school gate on the day the questionnaire was administered (n=287; 53.6%) went on to answer further questions about their purchases.

5.2 Food and drink purchased beyond the school gate at lunchtime

Young people who completed the PRQ and reported purchasing something outside school at lunchtime were offered a range of food and drink items to provide further details about[r]. Results are shown in Tables 5.3 and 5.4 for all pupils who bought food or drink (and by school). The PRQ findings resonate with what was observed and also reported by young people and school staff taking part in the qualitative parts of the study regarding the types of foods and drinks typically purchased at lunchtime. Individual and small items were observed as being particularly popular purchases beyond the school gate, with few young people who purchased outside school reporting or being observed buying several items that were served together, as we traditionally might define a 'meal'. One boy at Sch02 (high dep/ low food), for example, though he said he went to a chain sandwich shop '*for the proper meal'*, was referring to buying a sandwich, or a 'meal deal' comprising, for example, a sandwich, crisps or a dessert and a drink; he was comparing such a 'meal' or main item with the purchase of sweets, chocolates, crisps, ice lollies and ice creams. Such items were seen as 'extras' by many young people - they might, for example, purchase and consume food in school then go outside to purchase additional items such as sweets or drinks. For some young people, however, small items such as sweets and drinks formed the basis of their consumption during the school day, as is discussed further below.

From the PRQ the most commonly reported food items purchased on the day the PRQ was administered were chips (26.1%), hot or cold sandwiches, filled rolls or baguettes (23.9%), sweets (21.4%), chocolate (20.2%) and crisps or similar snacks (19.3%). Few pupils said they purchased fruit (4.2%) or salad (1.7%). Sweets represented a high proportion of all food purchases reported by pupils from Sch01 (35.6%) (high dep/ mod food), Sch02 (44.8%) (high dep/ low food) and Sch03 (25.8%) (high dep/ mod food). The PRQ data and also our qualitative observations suggest, however, that few pupils consumed larger 'sharing' bags of sweets at lunchtime and some young people purchased just a small number of individual sweets (e.g. from ice cream vans).

[r] The categories were based on those in the FPM questionnaire [4] and adjusted - chips and sausage rolls were separated from pizzas/pies/burgers; chocolate, sweets and ice cream/lollies were put into separate categories; flavoured water was separated from diet soft drinks. Additional categories were added, namely, energy drinks, yogurts and milk-based desserts.

Table 5.3 Number (%) of pupils who reported purchasing food at lunchtime beyond the school gate, by food category and school

	All (n=238)	Sch01* (n=45)	Sch02 (n=29)	Sch03 (n=31)	Sch04 (n=56)	Sch05 (n=37)	Sch06 (n=12)	Sch07 (n=28)
Chips	62 (26.1)	17 (37.8)	2 (6.9)	9 (29.0)	14 (25.0)	15 (40.5)	4 (33.3)	1 (3.6)
Hot or cold sandwiches, filled rolls or baguettes	57 (23.9)	9 (20.0)	7 (24.1)	11 (35.5)	8 (14.3)	14 (37.8)	2 (16.7)	6 (21.4)
Sweets	51 (21.4)	16 (35.6)	13 (44.8)	8 (25.8)	6 (10.7)	3 (8.1)	1 (8.3)	4 (14.3)
Chocolate	48 (20.2)	10 (22.2)	5 (17,2)	6 (19.4)	13 (23.2)	8 (21.6)	0	6 (21.4)
Crisps or similar snack	46 (19.3)	7 (15.6)	6 (20.7)	4 (12.9)	16 (28.6)	6 (16.2)	0	7 (25.0)
Pizza, pies, or burgers	34 (14.3)	8 (17.8)	0	1 (3.2)	10 (17.9)	9 (24.3)	3 (25.0)	3 (10.7)
Sausage roll	29 (12.2)	4 (8.9)	4 (13.8)	3 (9.7)	4 (7.1)	0	5 (41.7)	9 (32.1)
Cereal bars, biscuits or cakes	25 (10.5)	2 (4.4)	2 (6.9)	3 (9.7)	6 (10.7)	6 (16.2)	1 (8.3)	5 (17.9)
Ice cream or ice lollies	11 (4.6)	2 (4.4)	0	2 (6.5)	6 (10.7)	0	0	1 (3.6)
Fruit	10 (4.2)	2 (4.4)	0	1 (3.2)	1 (1.8)	0	1 (8.3)	5 (17.9)
Soup/hot meal pot	9 (3.8)	0	1 (3.4)	0	5 (8.9)	1 (2.7)	2 (16.7)	0
Yoghurt or milk dessert	5 (2.1)	1 (2.2)	1 (3.4)	0	1 (1.8)	0	2 (16.7)	0
Salad	4 (1.7)	1 (2.2)	0	0	1 (1.8)	1 (2.7)	0	1 (3.6)
Other	7 (2.9)	1 (2.2)	0	0	2 (3.6)	2 (5.4)	0	2 (7.1)

* Sch01 high dep/mod food; Sch02 high dep/low food; Sch03 high dep/mod food; Sch04 mix dep/mod food; Sch05 high dep/high food; Sch06 low dep/low food; Sch07 mix dep/high food.

Schools where there were more outlets selling items such as chips nearby were those where a higher proportion of pupils reported purchasing chips at lunchtime (Table 5.3) - Sch01 (37.8%) (high dep/ mod food) and Sch05 (40.5%) (high dep/ high food). A lower proportion of all reported food purchases were chips at Sch02 (6.9%) (high dep/ low food) and Sch07 (3.6%) (mix dep/ high food), where chip shops and takeaways were less likely to be available nearby. Looking at the questionnaire data in more detail, further insights are revealed about pupils who purchased chips on the day the PRQ was administered. Focusing on pupils from Sch01 and Sch05 (as more pupils reported purchasing chips at these schools), the portion sizes of the purchased chips ranged from 128 – 538g[s]. Only one pupil from these two schools reported purchasing chips from a chain takeaway outlet, the remainder were purchased from independent outlets. The chain takeaway portion of chips weighed 128g, the smallest reported/purchased portion of chips by pupils at these schools. The nutrient composition of this portion[t] (1422 Kj/340 Kcal) was therefore considerably

[s] Portion size was assessed by purchasing the chips and weighing them using digital scales; what was purchased was based on the price young people reported that they paid; young people reported whether they consumed all, most, half or less than half of the food purchased.

[t] The nutrient composition of takeaway items was assessed using Dietplan software.

lower than for chips sold in bigger portions from independent outlets. However, this pupil also said she consumed a ham sandwich at lunchtime that she brought in from home, cereal with milk before school and chocolate, crisps and water at mid-morning break.

The largest portion of chips reported in the PRQ by pupils at Sch01 and Sch05 weighed 538g and contained around 4000 KJ/955 Kcal[u]. The purchaser of these chips also bought and consumed 'most' of a 250ml bottle of a regular soft drink but reported no other lunchtime purchases or consumption. He also reported consuming no other food or drink before school or at mid-morning break. The PRQ data also shows that many young people who purchased chips consumed them with cheese, curry sauce, fried rice or gravy, adding considerably to the nutrient composition of the 'meal'. Some pupils at Sch05 purchased chips weighing 356g, served with cheese and curry sauce, from a privately-run community centre café. The analysis shows, however, that as they reported that they consumed only 'half' or 'most' of this food, their energy, fat, saturated fat and sodium intake was lower than that of pupils who bought and consumed 'all' of a smaller portion of chips (262g) (served with cheese) from a different food outlet near to Sch05. The pupils consuming 'all' of a smaller portion of chips also reported purchasing and consuming 500ml bottles of soft drink or energy drink from a newsagent. These findings are included here to highlight the need to understand the full picture about the purchasing of a specific food item such as chips or sweets.

In terms of drinks, the most commonly purchased items amongst the drinks young people said they bought were regular soft drinks (42.0%) and energy drinks (33.5%). Very few young people reported purchasing other kinds of drinks outside school at lunchtime (Table 5.4). It is interesting to note that the number of young people reporting purchasing energy drinks and regular soft drinks (n=151) beyond the school gate at lunchtime represents 28.2% of <u>all</u> pupils who completed the PRQ (n=535). Over half of all drink purchases beyond the school gate at Sch01 (high dep/ mod food) at lunchtime were regular soft drinks (52.5%) and drinks purchased outside school by pupils at Sch02 (high dep/ low food) and Sch04 (mix dep/ mod food) were particularly likely to be energy drinks (46.2% and 44.9% of drinks respectively). One pupil (Sch01) reported purchasing and consuming a litre of regular soft drink though most young people who reported buying a sugar-sweetened beverage at lunchtime consumed 150-500ml[v]. Drink purchases were bought from a variety of outlet types though energy drinks purchased by pupils at Sch02 (high dep/ low food) were particularly likely to be made at ice cream/burger vans and pupils from this school were often not purchasing food at lunchtime, to accompany their sugar-sweetened drink. Many here also reported not consuming much before school or during mid-morning break. The PRQ data show, for example, that a 'typical' pattern for a pupil reporting a soft drink or energy drink purchase at lunch time at Sch02 was a cup of tea before school; water at mid-morning break and an energy drink for lunch (with no food consumption or purchase reported). Others at Sch02 reported items such as a cup of tea before school, chocolate and coffee at mid-morning break; and a hotdog, sweets and energy drink for lunch. Similar patterns were observed in the PRQ data for Sch03 (high dep/ mod food).

At Sch04 (mix dep/ mod food), energy drinks were as likely to be purchased at the small supermarket in the less deprived area near the school as at the smaller grocery stores in the more deprived neighbourhood behind the school. At Sch04, and to a lesser extent at Sch01 (high dep/ mod food), pupils who purchased soft drinks or energy drinks were more likely to be purchasing and/or consuming more food before and during school than those at Sch02 and Sch03. A typical

[u] Such items were purchased by the research team, weighed using digital scales and the nutrient composition assessed using Dietplan software.
[v] This was calculated based on whether pupils said they consumed all, most, half, less than half of the drink purchased.

pattern for a pupil reporting a soft drink or energy drink purchase at lunch time at Sch04, for example, was cereal and juice before school, nothing at mid-morning break then pizza and an energy drink purchased beyond the school gate at lunchtime.

Patterns were more mixed at Sch05 (high dep/ high food), Sch06 (low dep/ low food) and Sch07 (mix dep/ high food) for pupils reporting a soft drink or energy drink purchase at lunch time.

Table 5.4 Number (%) of pupils who reported purchasing drinks at lunchtime beyond the school gate, by food category and school

	All (n=200)	Sch01* (n=40)	Sch02 (n=26)	Sch03 (n=20)	Sch04 (n=49)	Sch05 (n=33)	Sch06 (n=8)	Sch07 (n=24)
Regular soft drinks	84 (42.0)	21 (52.5)	12 (46.2)	9 (45)	16 (32.7)	14 (42.4)	1 (12.5)	11 (45.8)
Energy drinks	67 (33.5)	8 (20)	12 (46.2)	7 (35)	22 (44.9)	9 (27.3)	3 (37.5)	6 (25)
Diet drinks	17 (8.5)	6 (15)	2 (7.7)	1 (5)	4 (8.2)	3 (9.1)	0	1 (4.2)
Pure fruit juice or smoothies	17 (8.5)	3 (7.5)	1 (3.8)	3 (15)	4 (8.2)	2 (6.1)	2 (25.0)	2 (8.3)
Flavoured water	15 (7.5)	5 (12.5)	0	1 (5)	3 (6.1)	3 (9.1)	0	3 (12.5)
Plain water	10 (5.0)	3 (7.5)	1 (3.8)	0	1 (2.0)	2 (6.1)	0	3 (12.5)
Other drinks	9 (4.5)	1 (2.5)	2 (7.7)	4 (20)	2 (4.1)	0	0	0
Plain or flavoured milk	8 (4.0)	2 (5.0)	3 (11.5)	0	1 (2.0)	0	1 (12.5)	1 (4.2)
Coffee	1 (0.1)	0	0	0	0	1 (3.0)	0	0
Hot chocolate	1 (0.1)	0	0	0	0	0	1 (12.5)	0
Tea	0	0	0	0	0	0	0	0

* Sch01 high dep/mod food; Sch02 high dep/low food; Sch03 high dep/mod food; Sch04 mix dep/mod food; Sch05 high dep/high food; Sch06 low dep/low food; Sch07 mix dep/high food.

Compared with purchases made beyond the school gate, in schools 'traditional meals' were more often reported to be purchased, such as fish and chips, macaroni cheese, or roast beef served in a Yorkshire pudding though often young people had little choice as they could not, for example, buy chips without fish or another accompanying item. Pasta pots 'to go' and hot sandwiches such as panini/pizzini were also popular choices in school. This was confirmed through observations, the class written activity, young people's reports in focus groups and interviews with KS.

5.3 Factors associated with food and drink purchased at lunchtime beyond the school gate

In the PRQ young people were asked to rate the importance of 19 factors in relation to all the food and drink they purchased outside school on the day the questionnaire was administered. These factors related to a product and its price, promotion and in-store placement. **Taste** was rated as the most important factor by far, with 97.5%[w] of respondents agreeing that taste was important that day, when they selected what to purchase beyond the school gate.

[w] Participants had to choose whether they believed that the provided factors were important or not (7-point importance scale from not important at all to very important); the percentage represents the cumulative percentage of the participants who answered that they find the factor a bit important, quite important, important or very important.

Table 5.5 Proportion of pupils who agreed that the following factors were important when they purchased food/drinks at lunchtime beyond the school gate on the day they completed the PRQ

	All (N=243)	Sch01* (N=43)	Sch02 (N=36)	Sch03 (N=28)	Sch04 (N=54)	Sch05 (N=42)	Sch06 (N=11)	Sch07 (N=29)
Taste	237 (97.5)	42 (97.7)	34 (94.4)	28 (100.0)	54 (100.0)	42 (100.0)	9 (81.8)	28 (96.6)
Price	216 (88.9)	38 (88.4)	33 (91.7)	28 (100.0)	49 (90.7)	36 (85.7)	10 (90.9)	22 (75.9)
Ingredients	177 (72.8)	29 (67.4)	27 (75.0)	23 (82.1)	42 (77.8)	29 (69.0)	6 (54.5)	21 (72.4)
Price discount	148 (60.9)	29 (67.4)	21 (58.3)	13 (46.4)	40 (74.1)	23 (54.8)	5 (45.5)	17 (58.6)
Product on offer (meal deal/BOGOF)	147 (60.5)	28 (65.1)	25 (69.4)	14 (50.0)	36 (66.7)	24 (57.1)	5 (45.5)	15 (51.7)
Brand	139 (57.2)	24 (55.8)	22 (61.1)	14 (50.0)	29 (53.7)	29 (69.0)	4 (36.4)	17 (58.6)
Packaging	132 (54.3)	21 (48.8)	23 (63.9)	14 (50.0)	34 (63.0)	23 (54.8)	5 (45.5)	12 (41.4)
It is easy to grab	117 (48.1)	21 (48.8)	18 (50.0)	16 (57.1)	28 (51.9)	15 (35.7)	4 (36.4)	15 (51.7)
One of the 1st products I see	112 (46.1)	22 (51.2)	14 (38.9)	16 (57.1)	22 (40.7)	18 (42.9)	4 (36.4)	16 (55.2)
Displays	106 (43.6)	20 (46.5)	17 (47.2)	14 (50.0)	24 (44.4)	18 (42.9)	3 (27.3)	10 (34.5)
Brand sponsorship	93 (38.3)	14 (32.6)	14 (38.9)	14 (50.0)	20 (37.0)	14 (33.3)	4 (36.4)	13 (44.8)
It is close to the till	92 (37.9)	16 (37.2)	15 (41.7)	15 (53.6)	18 (33.3)	12 (28.6)	3 (27.3)	13 (44.8)
Television Adverts	91 (37.4)	18 (41.9)	14 (38.9)	11 (39.3)	19 (35.2)	18 (42.9)	0 (0.0)	11 (37.9)
Celebrities endorsement	81 (33.3)	13 (30.2)	12 (33.3)	13 (46.4)	18 (33.3)	14 (33.3)	2 (18.2)	9 (31.0)
Online Adverts	79 (32.5)	12 (27.9)	13 (36.1)	12 (42.9)	19 (35.2)	12 (28.6)	0 (0.0)	11 (37.9)
Other Adverts	79 (32.5)	14 (32.6)	14 (38.9)	10 (35.7)	20 (37.0)	10 (23.8)	1 (9.1)	10 (34.5)
Cartoon endorsement	79 (32.5)	12 (27.9)	13 (36.1)	13 (46.4)	19 (35.2)	9 (21.4)	2 (18.2)	11 (37.9)
Chance to win free things	77 (31.7)	14 (32.6)	16 (44.4)	9 (32.1)	17 (31.5)	11 (26.2)	1 (9.1)	9 (31.0)
Online interactive games	74 (30.5)	12 (27.9)	10 (27.8)	9 (32.1)	19 (35.2)	12 (28.6)	2 (18.2)	10 (34.5)

* Sch01 high dep/mod food; Sch02 high dep/low food; Sch03 high dep/mod food; Sch04 mix dep/mod food; Sch05 high dep/high food; Sch06 low dep/low food; Sch07 mix dep/high food.. Table excludes those who did not report at least one purchase the day the PRQ was administered.

Price (and also offers and price discounts) was also important and will be discussed further in Chapter 7 (Table 5.5 illustrates the results across this marketing scale). The **ingredients** of a product (72.8%) were also reported as an important factor. In-store product placement factors, the chance to win a free gift or enter a competition, celebrity and cartoon endorsements,

advertisements and online interactive games were not perceived as important by most of the pupils who answered the questions in the PRQ.

When talking to young people during go-along tours and in focus groups, and during the written classroom exercise, **taste** was often cited by pupils as being a critical factor in deciding what food and drink to purchase and this was often put forward as one of the deciding factors in whether to purchase food and drink outside or within school. When food was not to their taste, young people were often quick to label it as disgusting or bad, whether bought beyond the school gate or in the school cafeteria. Few mentioned wishing to try new or different food and this was confirmed by many retailers and KSs. At Sch05 (high dep/ high food), for example, the KS said:

> '*A lot of the kids here are underprivileged, they don't know what a good meal is, they're that used to takeaways and a lot of people forget about that, and I know we try to educate them but sometimes they're just not interested, they don't want to try anything new'*

One thing that retailers seemed more able to respond to than schools was the preferences and likes/dislikes of young people; retailers were not, of course, subject to statutory nutrition standards. An employee at the café in a leisure centre near Sch02 (high dep/ low food), for example, said that they:

> *'listen to the pupils and try to accommodate to the best of their ability. If they're saying, likes of when we first started doing the chicken tikka it was what can we bring into the mix that the young ones would like and we actually asked the kids themselves, it was a wee bit of market research, and just checked to see what flavours they would like, and we've tried out quite a few different ones, and we do barbeque chicken, we do a firecracker which is like the barbeque but really hot and spicy, we do a chicken mayonnaise, we do the tikka, it was all these things that the children were asking for'*

Schools often had less capacity for 'trial and error' with serving new food to try to capture young people's attention. One KS (Sch03, high dep/ mod food), for example, had introduced a spicy wrap at mid-morning break but noted it was not popular with pupils. Many pupils perceived the narrow range in school of, for example, crisp flavours, cakes, drink types and condiments as influencing their decision to purchase something beyond the school gate. The continued and constant availability of young peoples' preferred food and drink options was also a key reason for reporting purchasing outside school at lunchtime. One S3 girl in a focus group at Sch07 (mix dep/ high food), for example said:

> *'If they [the school] made too much it would be a waste but…. Sometimes I've been behind someone and there's like one roll left or one bit of pizza and they take it, and what am I left with, a cake that I don't like, …so, I'm stuck with what, a drink of juice and that's got to fill me up for like near 3 hours'*

Larger retailers, such as chain supermarkets could, of course, offer a very wide range of food and drinks to meet young people's taste requirements though many pupils reported that they purchased a very narrow range of flavours or brands (e.g. repeatedly buying only tuna sandwiches or a particular brand of energy drink). Nonetheless, young people across the study very often complained that schools had never asked them what food or drink could be served in the cafeteria. Many were vocal about this perceived lack of consultation. One girl (Sch04, mix dep/ mod food) joked that even the local supermarket advertised food 'chosen by you' whereas the school had

never asked her opinion. Another pupil, at Sch01 (high dep/ mod food), said '*the school has never asked me'* whilst a girl at Sch07 (mix dep/ high food) said '*more people would eat there'* if they started to consult pupils about the food to be served. The KS at both Sch06 (low dep/ low food) and Sch05 (high dep/ high food) said they had organised focus groups in the past to ask pupils about their preferences and ideas; staff interviewed at the other schools did not mention consultations with pupils about the food or drink served.

Perceptions of 'healthy eating'

From the qualitative data, the analysis shows that very few young people raised the issue of the 'healthiness' of the food and drink they purchased beyond the school gate. Some explicitly said that they purchased food and drink outside school because it was not healthy and many complained that the food and drink offered by schools was not to their taste, because they could not add salt, for example or because drinks did not contain sugar. Pupils occasionally said that they shopped at particular outlets beyond the school gate because of the healthier options that were available there; this was particularly the case for some pupils at Sch04 (mix dep/ mod food), who perceived one small supermarket as selling healthier food – but this was only an option for those willing to pay the higher prices at this store (see next Chapter for further details on prices). At Sch06, the least deprived in the study (with a low number of food outlets), health was more likely to be mentioned in relation to food purchased, particularly by girls. Regarding food and drink in schools, young people often expressed the view that the food and drink in the cafeteria was not perceived as good healthy food; many said that healthy, good quality or tasty food ought to be offered in schools. For example fruit sold within schools was rarely seen as being good quality. At a focus group in Sch01 (high dep/ mod food), for example, one S3 girl said that grapes sold in school are '*really watery'.* At Sch06 (low dep/ low food) amusement was expressed by young people in one focus group that schools promote healthy eating but that cookies and pizza were easier to find in the cafeteria than fruit. Some KSs reported that they found it difficult to provide food and drink that met the NSS but was acceptable to pupils. At Sch01, for example, the KS said she could not sell chips without '*some protein product'* but that this was off-putting when young people did not want to purchase an entire meal (this was confirmed through qualitative observations).

Some of the retailers interviewed spontaneously expressed views[x] about the healthiness of young people's food and drink choices as well as views about the healthiness of the products they sold, or were perceived as selling. Some retailers felt that young people did try to make healthier choices or had positively changed their purchasing habits. An interviewee from a takeaway near Sch06 (low dep/ low food), for example, said he had noticed a difference in what some young people had started purchasing recently; perceiving that a move from sausages or potato scones toward toasted baguettes represented a healthier choice. A member of staff at a bakery near Sch07 (mix dep/ high food) said, regarding pupils' recent healthier purchasing practices *'I was wondering if maybe somebody had gone in to talk to them at school'.*

The reasons for any changes in purchasing habits cannot be ascertained or confirmed from the data analysed. Other retailers reported that young people were likely to buy less healthy items because of a need to buy food to '*fill their belly'* (Sch07, small chain grocery shop) or to purchase food or drink that they could not access at school, or at home. An employee of the small supermarket frequented by some young people near Sch04 (mix dep/ mod food) had this to say, for example:

[x] Retailers were rarely asked directly about health or nutrition as interviews focused on marketing and promotions.

'They're having brown rolls with, 99% of them have salad, and some of the boys, mmm, mmm…that's too healthy for them, but we do find that a lot, the younger girls are buying healthier stuff, but loads of fizzy juice, that's, I suppose maybe they don't get it at home and so they buy it when they're out of home'

A leisure centre employee (Sch02, high dep/ low food) said something similar about pupils purchasing food from his café that they could not get in school; but he also said he had managed to build on this custom and tried to offer healthier food that young people might be encouraged to buy:

'their food I think is limited to certain things [at school], they're only allowed to purchase water in the vending machines there, so they haven't got the likes of sweeties and juice, the naughty bits, so they come in here for that and I think it was seeing what we were doing, because to begin with as I say, it was sandwiches, and we knew that the students, I mean okay, sandwiches are fine but you needed to sort of build on that, so that's when they decided well we do soup in the wintertime, soup and a roll…'

A few retailers were aware that some of the products they sold were not likely to contribute to a healthy diet for young people. One interviewee from a local take-away, near Sch01 (high dep/ mod food), for example, said she was less concerned about health and more concerned that her young customers were happy with what they purchased. Another, near Sch06 (low dep/ low food), concentrated on telling the researchers about the pot-type noodles he sold, which he perceived as healthy, but did not wish to talk about the extensive range of chocolate, sweets, crisps and soft drinks that he offered. An ice cream van operator near Sch03 (high dep/ mod food) was worried about the council moving him away from the school because the products he sold were, in his view, being associated with obesity. He pointed out that if the van was moved on, young people would purchase the same items but from one of the local shops instead.

The next chapter moves on to describe findings relating to cost, price and money.

6. The Cost of Purchasing Food and Drink

In Chapter 6 we focus on **cost**, **prices** and **money**. We present findings from the purchasing recall questionnaire (PRQ) about how much money young people reported that they spent when purchasing food and drink beyond the school gate at lunchtime on the day they were surveyed. We also discuss findings from the qualitative part of the study about young people's perceptions of cost, prices and money, including sales promotions. This is put into context by also presenting data on the cost of buying food and drink in schools.

Not all young people involved in this study were prepared to openly discuss costs, prices or money; the amount of money pupils had to spend on food and drink beyond the school gate at lunchtime was often a sensitive topic. Young people at most of the more deprived schools, as measured by SIMD or FSM (Sch01, Sch02, Sch03, Sch05 and Sch07) were particularly unwilling to disclose how much money they had to spend or how much money they needed at lunchtime, when asked in front of peers in focus groups. This sensitivity about money meant that eligibility and receipt of free school meals (FSM) was not raised with young people by the research team; if young people themselves raised the issue of FSM then the research team asked further questions.

6.1 Buying food and drink in schools

Overwhelmingly, young people disliked the system within schools that required them to queue to load up their payment card and then to queue again to purchase food or drink. The price of food and drink in schools was viewed positively by some, though we sometimes suspected that some of these participants were in receipt of FSM and therefore not directly paying for items.

Young people at the more deprived schools we studied were particularly sensitive about money. At Sch07 (mix dep/ high food) pupils in the S3 focus group were especially vocal about how low income working families were penalised when it came to having to pay for school lunches and the responsibility of the school to ensure that young people had lunch:

> *'the school don't make sure that everyone gets lunch. If people don't eat during the day, it's bad isn't it?'*

> *'I think everyone should get money on their card, not just ones whose mums don't work'*

> *'if they work it's not fair, it doesn't mean they can afford it'*

Young people who disclosed that they had FSM were sometimes observed, and also reported, that they spent their allowance at mid-morning break thereby meaning they could not purchase food or drink at lunchtime. The KS at Sch01 (high dep/ mod food) disagreed with young people being allowed to do this:

> '*that's just my personal view, because I just feel that some of the kids that...they are...might be going home, not to get anything'.*

This practice enabled some to eat at break time then spend the lunch period away from school with their friends. This was particularly the case at Sch01 (high dept/ mod food), Sch05 (high dep/ low food) and Sch07 (mix dep/ high food). There was a perception amongst some young people that being restricted to the FSM allowance meant they could not purchase food as well as drinks at

lunchtime though some KSs explained that they tried to ensure that those receiving FSM could purchase a meal and drink; the KS at Sch03 (high dep/ mod food), for example, said those on FSM could take unlimited salad and bread at lunchtime, along with their meal and drink. The KS at Sch07 (mix dep/ high food) reported pricing food and drink so that young people on FSM at her school could afford to eat and drink at both mid-morning break and at lunchtime; she perceived that most pupils on FSM did not receive money to purchase additional food and drink.

Young people on FSM at some schools were, however, given additional money by parents, they said, and therefore could purchase food and drink beyond the school gate at lunchtime; the PRQ shows that 38 young people who said they had FSM purchased something beyond the school gate at lunchtime (41% of pupils who reported taking FSM in the PRQ). The food and drinks purchased by these young people were similar to what young people reported generally in the PRQ, ranging from sweets, chocolate or an energy or soft drink through to a pasty and chips, beef burger or chips with cheese. At Sch04 (mix dep/ mod food), 60% of young people taking FSM were spending money on food and drink at lunchtime beyond the school gate; no pupils on FSM from Sch06 (low dep/ low food) reported doing so. Young people receiving FSM at schools that finished early on a Friday were penalised as a lunch service was not available that day so for those without money to spend, they were left without lunch. Such schools did, however, often offer additional items, such as bacon baguettes, at mid-morning break, so that those on FSM could use their allowance on Fridays on something more substantial than a snack.

6.2 Food and drink prices beyond the school gate

Many pupils were keenly aware of the prices of food and drink within, but particularly outside, of school. When asked how much food and drink cost they would often call out the prices for items and variations sold at different food outlets; the price of small and large portions of chips for example, with and without cheese. At Sch01 (high dep/ mod food) young people were keen to ensure they had enough money to pay for the items they wanted to purchase; lack of visible pricing on items in some outlets was therefore very much disliked. Young people at Sch06 (low dep/ low food), the least deprived in the study, were quite different as they had a low awareness of food and drink prices, meal deals or price promotions beyond the school gate. Many at Sch06, particularly girls, had less experience of shopping locally, however, as they often brought in food and drink from home. Some at Sch06 said they would pay more to shop somewhere that was considered to be convenient at lunchtime. At Sch04 (mix dep/ mod food) there was a divide between pupils who were happy to pay more for food and drink, at a chain sandwich outlet, for example and at a small, new, supermarket, and those who said they thought the prices at these places were too high and therefore shopped at more run down outlets on the 'other' side of the school. A similar divide was evident amongst focus group participants at Sch03 (high dep/ mod food).

We reported in Chapters 4 and 5 the proportion of young people completing the PRQ who agreed that price was important when deciding *where* to purchase food or drink on the day they were asked (70.9%, Table 4.8) and in relation to the *product/s* that they purchased beyond the school gate that day (88.9%; Table 5.5) To further investigate the impact of price, pupils were asked to respond to a 10-item scale[y] measuring the overall influence of price on their purchasing behaviour.

[y] The individual items were: I looked at the prices for all food and drink before buying; Low price was an important factor when deciding what food or drink to buy; No matter what I bought, I shopped around to get the lowest price; I never bought food/drinks at more than one place just to find lower prices; I know which places near my school have the best prices for food or drinks; If a product was reduced in price, that was a reason for me to buy it; I was more likely to buy food/drinks that were reduced in price; I tried to buy the food/drinks that were reduced in price; Taking advantage of price deals made me feel good; I got a lot of pleasure knowing that I saved money.

The cumulative results from this scale[z] are presented in Table 6.1. This shows that 54.3% of pupils agreed that the price of a product was important on the day the PRQ was administered, 22.2% were neutral and 23.5% disagreed that price was an important factor when they purchased food and drinks at lunchtime beyond the school gate. These findings suggest a complex relationship exists between young people, price and practices relating to food and drink purchasing beyond the school gate.

Table 6.1 Number (%) who agreed or disagreed with the aggregated price questions in relation to purchases made beyond the school gate at lunchtime on the day they completed the PRQ

	All	Sch01*	Sch02	Sch03	Sch04	Sch05	Sch06	Sch07
Agree	132 (54.3)	24 (55.8)	22 (61.1)	17 (60.7)	28 (51.9)	23 (54.8)	7 (63.6)	11 (37.9)
Disagree	57 (23.5)	10 (23.3)	9 (25.0)	5 (17.9)	13 (24.1)	12 (28.6)	0 (0)	8 (27.6)
Neither Agree nor Disagree	54 (22.2)	9 (20.9)	5 (13.9)	6 (21.4)	13 (24.1)	7 (16.7)	4 (36.4)	10 (34.5)
Total	243 (100.0)	43 (100.0)	36 (100.0)	28 (100.0)	54 (100.0)	42 (100.0)	11 (100.0)	29 (100.0)

* Sch01 high dep/mod food; Sch02 high dep/low food; Sch03 high dep/mod food; Sch04 mix dep/mod food; Sch05 high dep/high food; Sch06 low dep/low food; Sch07 mix dep/high food.

The qualitative findings offer further insights about pricing and money. Observations of the food environment and interviews with retailers revealed that many businesses close to schools (with the exception of Sch07 (mix dep/ high food)) sold food and drink to pupils at special, discounted rates at lunchtime, right across their menus (see examples in Figure 6.1). Some of the retailers interviewed near Sch01 (high dep/ mod food) and Sch03 (high dep/ mod food) said that they kept their prices low, to attract young people but also to remain competitive with other retailers in the local area. One retailer near Sch01 said he did not offer price promotions as he kept his prices low at all times. The qualitative findings also show that many pupils were not aware that they were very often purchasing a product with a discounted price, or they did not consider this to be a discount, despite being aware that higher prices were often charged by independent takeaways in the evening, for example.

The number of purchases made beyond the school gate reported in the PRQ as being offered with a price or marketing promotion is shown in Table 6.2, overleaf. Our observations would suggest this is an under-estimate by pupils, particularly in terms of discounts and meal deals.

6.3 Spending money

Only at Sch06 (low dep/ low food) were comments expressed such as '*it's better to have a bit more [money] to be safe, in case you end up spending more'* (S2 boy, focus group). The HT at Sch06 said that his pupils *'have [a] substantial amount of money to spend on a daily basis'.* Most young people across the schools, with the exception of Sch06, reported spending all the money they were given by parents for food and drink at lunchtime; after buying a 'main' item such as a sandwich, sausage roll or chips, they would select smaller 'extras', such as chocolate, sweets, ice lollies and drinks, to use up what money they had left. Other pupils were observed purchasing small, low cost items, without purchasing a bigger portion of food such as a sandwich or chips; this was particularly the case at Sch02 (high dep/ low food). Ice cream vans often offered very low cost

[z] One item ('I never bought food/drinks at more than one place just to find lower prices') was dropped from the analysis to improve the reliability of the remaining nine items.

items. They 'bagged up' a small number of individual sweets from a larger bag (these were sold for 50p at Sch03), offered sweets for sale individually from a larger bag for as little as 2p or sold energy drinks for 39p (Sch03, high dep/ mod food), for example.

The only young people who reported earning their own money through part time jobs were two girls in S3 at Sch07 (mix dep/ high food).

Table 6.2 Number and type of promotions reported by young people who purchased food or drink beyond the school gate on the day they completed the PRQ[aa]

	Meal deals	Discounts	Multipack savings	BOGOF/ BOGOHP	Other promotion	TOTAL
Sch01*	0	4	0	2	3	**9**
Sch02	2	1	1	0	2	**6**
Sch03	0	3	0	1	0	**4**
Sch04	0	14	4	3	7	**28**
Sch05	5	2	0	2	8	**17**
Sch06	0	2	2	0	0	**4**
Sch07	0	2	3	5	1	**11**
TOTAL	**7**	**28**	**10**	**13**	**21**	**79**

* Sch01 high dep/mod food; Sch02 high dep/low food; Sch03 high dep/mod food; Sch04 mix dep/mod food; Sch05 high dep/high food; Sch06 low dep/low food; Sch07 mix dep/high food.

Pupils at Sch02 (high dep/ low food) and Sch04 (mix dep/ mod food) were most likely to discuss sharing food with friends who had insufficient money to purchase enough to eat during the lunch break. At Sch02 one girl wrote during the class written exercise that she was likely to share food with friends '*more now, since the prices were raised'* and a boy at this school said he did not have money to buy lunch when we visited. Pupils at Sch07 (mix dep/ high food) were also observed splitting multi-packs of, for example, crisps and doughnuts and negotiating with friends about the cost of each portion. From the analysis of data collected through the PRQ, the median spend on food and drink beyond the school gate at lunch time was £1.98 (Table 6.3)[bb]. The median is reported (rather than the mean) because the data were not normally distributed (because of the high total spend reported by some young people, for example).

Between schools the average reported spend on the day the PRQ was administered varied from £1.30 at Sch02 (high dep/ low food) to £2.00 at Sch01 (high dep/ mod food) and Sch05 (high dep/ high food), £2.04 at Sch04 (mix dep/ mod food) and £2.05 at Sch06 (low dep/ low food). The maximum spend reported on the PRQ was quite high in many schools but our observations would suggest that it is unlikely that pupils were spending more than £4.00, much less in most cases. The median reported spend on food alone on the day of the PRQ was administered was £1.55 (Table 6.3). Whereas pupils at Sch02 had a reported median spend on food of £1.00, pupils at Sch01, Sch03, Sch05 and Sch06 spent between £1.62 and £2.00. In terms of drinks the median spend of those who reported buying a drink was 99p.

[aa] When students reported a meal deal but they reported only buying one item (e.g. a drink or a biscuit) the data for that participant has been excluded from the analysis (n=8). Table 6.2 shows the number of promotions across all purchases (not the number of participants reporting promotions).

[bb] Young people were asked to record the price on the PRQ of items they purchased outside school on the day the questionnaire was administered; if the price was not reported the research team visited the outlet to record the price, if sufficient information about the product/brand and product size was recorded by the participant to enable us to identify the price of the product purchased.

Table 6.3 Reported spend on all food and drink and food/drink separately for pupils who purchased beyond the school gate at lunchtime

	All	Sch01*	Sch02	Sch03	Sch04	Sch05	Sch06	Sch07
All purchases								
N	262	52	33	34	55	41	12	35
Minimum	£0.20	£0.30	£0.39	£0.49	£0.39	£0.20	£0.70	£0.20
Maximum	£8.38	£6.20	£3.49	£4.00	£8.38	£4.57	£4.50	£5.39
Median	**£1.98**	**£2.00**	**£1.30**	**£1.70**	**£2.04**	**£2.00**	**£2.05**	**£1.70**
Food purchases								
N	209	44	21	28	49	29	10	28
Minimum	£0.20	£0.20	£0.50	£0.49	£0.20	£0.20	£0.70	£0.20
Maximum	£7.38	£6.20	£3.00	£3.51	£7.38	£3.09	£3.50	£4.70
Median	**£1.55**	**£1.62**	**£1.00**	**£1.70**	**£1.40**	**£2.00**	**£1.78**	**£1.65**
Drink purchases								
N	172	36	19	19	43	26	6	23
Minimum	£0.20	£0.20	£0.39	£0.35	£0.35	£0.45	£0.69	£0.35
Maximum	£2.50	£2.30	£2.35	£2.50	£1.98	£2.00	£1.30	£1.00
Median	**£0.99**	**£0.99**	**£1.00**	**£1.00**	**£0.79**	**£1.00**	**£1.00**	**£0.69**

* Sch01 high dep/mod food; Sch02 high dep/low food; Sch03 high dep/mod food; Sch04 mix dep/mod food; Sch05 high dep/high food; Sch06 low dep/low food; Sch07 mix dep/high food.

Figure 6.1 Examples of discounted prices for pupils in the local food environment (from takeaway near Sch04, left, and café near Sch05, right)

In Chapter 7 we further discuss findings relating to deprivation and the way that the social environment – through schools, friends and family influence – might shape what young people purchase to eat or drink beyond the school gate.

7.The Influence of Deprivation and the Social Environment on Young People's Food and Drink Purchasing

In this, the last findings Chapter, we further highlight the role of **deprivation** in terms of how it may underpin young people's food and drink purchasing practices beyond the school gate. We draw on the findings to highlight additional points about the overall school and social environment, including the input of family and friends, to reflect on the everyday experience of living with differing levels of deprivation. This Chapter makes the most of our case study design, in order to provide insights about deprivation that may be helpful for the FSAS and other stakeholders.

7.1 The interaction of the school and the external food environment

The influence of the school environment and school food service options interacted as 'push or pull' factors with the local food environment beyond the school gate. This was underpinned by deprivation and how this manifested within these physical and social environments.

Sch01 and Sch05 were two of the most run down schools in the study and this contributed to young people expressing a need to take a break or '*not staying in the building'* (boy, Sch01, high dep/ mod food) at lunchtime. This acted as a 'push' factor, pushing young people out into the local food environment. Also, at Sch01 (high dep/ mod food), young people strongly expressed the view that they were not welcome to 'hang out' in the cafeteria, with the doors being closed and the catering staff starting to clean up well before the end of the lunch period. Many pupils had to sit on the floor in the corridor to spend time with their friends, particularly when the weather was wet and this did not encourage them to stay in school. Few schools allowed young people to bring food or drink purchased outside into the school to eat it – with the exception of Sch06 (low dep/ low food) where the HT expressed the view that:

> *'I've always seen it as the school is a kind of safe haven for the students and you shouldn't be afraid to come in here and eat in here'*

Once beyond the school gate, pupils at Sch01 and Sch05 had a wide range of food outlets they could visit and many offered permanently discounted prices, which were very attractive to young people who wanted to maximise what they could purchase with the money that they had. Pupils at Sch02, which was also a relatively deprived school, had fewer outlets from which to purchase food and drink beyond the school gate and young people here were more likely to purchase only small items such as drinks, chocolate or sweets rather than a 'main' item such as a sandwich or sausage roll (they therefore spent less). They were also more likely to favour outlets in close proximity to the school, compared with Sch01 and Sch05.

The cost of food and drink

Within the local environment prices were sometimes seen as too expensive and this stopped young people from shopping at particular outlets in some areas close to their school. This particularly relates to young people attending schools in mixed areas of relative deprivation. At Sch04 (mix dep/ mod food), for example, some pupils lived beyond the moderately deprived area on one side of the school in an area of much higher deprivation. Though we cannot be sure from the findings, these pupils may have been the young people who told us that they would not pay to shop at the small supermarket in the less deprived area near the school. Similarly at Sch07 (mix dep/ high food), the only school where local retailers did not appear to reduce prices for school

pupils, many reported that they simply could not afford to shop in many outlets close to the school, in a relatively affluent neighbourhood. They therefore relied on the rundown local grocery store for hot food such as sausage rolls, or they went to a chain supermarket and purchased food and drink offered on a meal deal. Many at Sch07 also said they went home for lunch – much more commonly reported here than at other schools. The indicators of deprivation were so markedly different from each other at Sch07 with 30-40% of pupils registered for FSM but SIMD placing the school in one of the higher deciles i.e. having moderate deprivation. Such ambiguities may have influenced the fact that many pupils at Sch07 felt angry about the availability and price of food at school (see comments in Chapter 7 about FSM) and some said they had little choice but to go home at lunchtime if they were not eligible for FSM as they could not afford to buy lunch beyond the school gate. Some young people were not eligible for FSM despite seemingly living in a family on a low income, which some young people eluded to in the focus groups. Whether these young people ate anything substantial at home at lunchtime is not known as they were not willing to disclose this information. The amount of food consumed by young people taking FSM was a concern for many KSs interviewed.

Chain sandwich outlets offered meal deals that, unless further discounted, were out of reach or considered too expensive by many young people, who rarely said they wanted to spend as much as £3 at lunchtime on a 'meal'.

Young people in Sch06, the least deprived school, with few food outlets nearby, were less likely to consider price an important factor therefore this was not a 'pull' factor in terms of attracting them to a particular outlet or keeping them in/out of school.

The attitude of retailers in the local food environment

The qualitative findings suggest that retailers in areas of relatively high or low/ moderate deprivation treat young people differently. Pupils from Sch04, Sch06 and Sch07, the three schools with low or moderate deprivation in terms of SIMD were the only ones to discuss the measures that retailers employed to control young people at lunchtime when shopping in their stores. This included reports and observations about stores limiting the number of young people who came in at any one time, refusing to let pupils bring school bags in to the store, having surveillance cameras, refusing to let young people use staffed checkouts in the supermarket and not giving young people receipts. At Sch01, Sch02, Sch03 and Sch05, located in more deprived areas, retailers in particular highlighted their rapport with young people, knowing their names and their food/drink preferences, getting their orders ready for them in advance (or ensuring there was sufficient stock regarding food items that were popular) and generally treating young people with respect. Many retailers in schools with higher relative deprivation told us that they tried to keep their prices low at all times for the benefit of young people. Whilst some retailers did not seem to care too much about the products they were selling young people, others did. One near Sch03 (high dep/ mod food), for example, said he thought '*cancers are driving'* from cheap, processed food and families should pay greater attention to their children's diets.

7.2 Friends

In the PRQ, young people who had purchased food or drink outside school at lunchtime on the day the PRQ was administered were asked to rate the importance of a range of factors relating to the influence of their friends (Table 7.1)[cc]. Around a third (37.9%[dd]) of participants agreed that they are

[cc] Participants had to choose whether they agreed or disagreed with eight statements (7-point Likert scale from strongly disagree to strongly agree. The statements were: I buy the food/drink that I my friends will approve of; I feel part of my group of

influenced by their friends when they buy food/drinks at lunchtime, 29.2% were neutral and 32.9% reported that they are not influenced by their friends. Most likely to agree that friends influenced their purchasing were pupils from Sch01 (44.2%) (high dep/ mod food) and Sch02 (44.4%) (high dep/ low food).

Table 7.1 Number (%) of young people who agreed that friends were important when purchasing food or drink beyond the school gate at lunchtime

	All (n=243)	Sch01* (n=43)	Sch02 (n=36)	Sch03 (n=28)	Sch04 (n=54)	Sch05 (n=42)	Sch06 (n=11)	Sch07 (n=29)
Agree	92 (37.9)	19 (44.2)	16 (44.4)	11 (39.3)	18 (33.3)	14 (33.3)	4 (36.4)	10 (34.5)
Disagree	80 (32.9)	15 (34.9)	15 (41.7)	6 (21.4)	17 (31.5)	12 (28.6)	5 (45.5)	10 (34.5)
Neither Agree nor Disagree	71 (29.2)	9 (20.9)	5 (13.9)	11 (39.3)	19 (35.2)	16 (38.1)	2 (18.2)	9 (31.0)

* Sch01 high dep/mod food; Sch02 high dep/low food; Sch03 high dep/mod food; Sch04 mix dep/mod food; Sch05 high dep/high food; Sch06 low dep/low food; Sch07 mix dep/high food.

The importance of spending time with friends at lunchtime was very clear from the qualitative findings. Across the schools most young people said they spent time with friends and wanting to do so often influenced where they spent their lunch break. Some groups of young people said wanting to eat a particular food with their friends (deep fried pizza, for example, for boys at Sch01) influenced where they went, though the sharing of food was not commonly reported or observed.

More often lunchtime was about friends wanting to go to the same parade of shops or the same area beyond the school gate and this was the driving factor rather than the food itself. This is supported by findings from the PRQ whereby almost nine in ten young people (88.9%, Table 4.8) agreed that friends were important when selecting *where* to purchase their food and drink from. The qualitative data suggest that explicit discussions sometimes took place about where to go but very often it was more an implicit mutual agreement, based on routine and tried and tested outlets favoured by a particular group of pupils. Most localities had a wide enough range of food outlets to satisfy an individual's preferences when they were with a group. Friendship groups observed beyond the school gate ranged from two to around 20 pupils.

Pupils at most schools said they did not often meet up with school friends at the weekend or did not eat with peers then, therefore the school lunch period represented an important time to do this. The exceptions were pupils at Sch06 (low dep/ low food) where a few young people described visiting restaurants and other food outlets at the weekend, both with friends and family. For many young people, the period of 'hanging out', eating, drinking and chatting to friends was a key part of the lunch break. The following quote is typical, *'lots and lots of us hang out after we eat food'* (Sch01, S2, class written activity (high dep/ mod food)).

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friends when I purchase the same food/drinks that they purchase; If I haven't tried a food/drink I ask my friends about it; I ask my friends to help me choose food/drink; I get information about food/drinks from friends before I buy it; I look at what my friends eat and drink; I like to shop for food and drink with friends during the lunch break; I like to shop for food and drink by myself during the lunch break; and It is fun to shop with friends for food and drink during my lunch break.

[dd] The percentages represent the cumulative percentage of the participants who slightly agreed/agreed/strongly agreed; neither agreed nor disagreed or who slightly disagreed/disagreed/strongly disagreed to the corresponding statement. One item ('I like to shop for food and drink by myself during the lunch break') was excluded from the cumulative analysis to improve the reliability of the remaining items from the scale.

The issue of where young people felt they could hang out with their friends interacted with and was related both to the school and local food environments and therefore mediated by deprivation, as discussed in a previous section of this chapter.

7.3 Family

Whilst the influence of family could only be explored in terms of young people's perceptions of their parents' views about what they ate or drank, the qualitative data suggest some subtle ways that parents might shape what young people purchase at lunchtime. Young people said they had fleeting conversations with parents about the food and drink that they purchased and consumed during the school day. Some parents were reported as giving general advice such as 'don't eat too much' or 'make sure you eat', or they asked where young people went at lunchtime. Some said their parents would not be happy if they knew that they skipped lunch or did not choose healthier options, at least some of the time. Many perceived that their parents would be unhappy with their food or drink choices, either because they would think they were not eating enough or that the food they purchased was too high in fat or sugar. However, there was no evidence that parents did have specific conversations with young people about such topics; this was based on young people's perceptions of their parents' views. Some young people said that their parents cared very little about what they ate or bought and food was not discussed at home. When asked what they ate in the evening, few young people were willing or able to give clear examples of regular meals eaten with their family.

Sch06 (low dep/ low food) stood out from the other schools. Here the KS said that parents regularly phoned her to discuss their child's diet or food/drink purchasing; this was not reported at other schools. Pupils at Sch06 were much more likely to openly discuss the food they ate at home and the healthiness of the food offered by parents. Young people here were less likely to mention generic comments from their parents such as 'don't eat too much' and this may have been related to the much higher proportion at Sch06 who took a packed lunch from home to eat at lunchtime (the only school where packed lunches were commonly reported). Sch06 was also the only school, however, where parents were reported as delivering takeaway food to their children at school. Whilst some pupils at Sch03 (high dep/ mod food) and Sch04 (mix dep/ mod food) mentioned their parents preferring them to eat healthily, many young people at Sch06 raised this. Some felt their parents would be pleased with the food or drink they purchased and this was discussed in terms of the healthiness of the items bought. Typical statements from young people at Sch06, recorded during the class written activity, included:

> *'Always asks if I have had something. Wants to make sure it is healthy'* (girl)
>
> *'Parents are fine with what I have because it is from home and want me to be healthy'* (girl)
>
> *'Would be disappointed because I do not eat healthy'* (boy)
>
> *'They would think I am doing a good job and eating healthily'* (boy)

In this chapter we have described findings that highlight the complex yet subtle ways that deprivation might influence young people's food and drinking purchasing practices beyond the school gate at lunchtime. The findings and the methodological approach of the study are discussed further in Chapter 9, along with some conclusions relating to health improvement.

8. Discussion and Conclusions

A concerted effort is being made to improve the food served in schools in Scotland[46] as well as that sold beyond the school gate[3, 47]. In order to achieve both objectives it is important to understand the influence of the external food environment to achieve this effectively. This study aimed to provide insights that may prove helpful in addressing the diet of young people in more and less deprived areas of Scotland.

8.1 The findings from this study

Whilst other studies have considered whether the number, type and proximity of food outlets to schools are related to diet, weight, inequalities or deprivation, we found that the relationship is more complex than some studies suggest. Deprivation interacts in nuanced ways with the school and local physical and social environments. Young peoples' lived experience of social deprivation therefore manifests through what they consider to be **good, tasty, well priced** food and drink, sold through outlets where they perceive they get **good service** and in ways that offer them the opportunity to **spend time with their friends.** As Macdiarmid et al[4] also reported, from the FPM of the 2010 Survey of Diet Among Children in Scotland, supermarkets, takeaway outlets, newsagents and grocery stores are all commonly used by young people who report purchasing food or drink outside school and there is therefore a danger in focusing too narrowly on one particular outlet type for policy intervention.

Just over half (53.6%) of pupils reported buying food or drink beyond the school gate on the day they completed the PRQ whilst 77.0% said they left school at least twice a week to purchase food or drink. This differs to the findings reported by Macdiarmid et al[4] using the FPM data of the 2010 Survey of Diet Among Children in Scotland, in terms of the proportion of young people who reported that they ever purchased something at lunchtime beyond the school gate (63%) though the questions were different in each survey. Whilst chips were the most commonly reported food item purchased, as Crawford et al. also found[14], only one in ten of all young people who completed the PRQ bought chips. Regular soft drinks and energy drinks, however, were purchased by 28.2% of all young people who completed the questionnaire, which would make a significant contribution to sugar intake for these pupils.

Marketing factors related to the '4 Ps' - product, price, promotion and its location (place) in the store - were of mixed importance, the study found. Young people did not agree that promotional initiatives such as advertising, celebrity/cartoon endorsements and sponsorship were important, which is somewhat different to other studies[48, 49]. This could be because many in our study purchased from independent outlets rather than national chains, though branded products are still available in such businesses so this does not fully explain these findings. Television advertising was only found to be moderately important, which is surprising given evidence from other studies[18] but it is possible that advertising may have been more important in terms of promoting chain outlets. It was not possible to tease out such differences from our data. The qualitative data suggest that store staff and the way that they deliver service to customers are as important[23] to young people as the price or quality of a product[22]. Ours is not the first study to highlight that many retailers close to schools adopt a universal lower pricing strategy at lunchtime to attract young consumers[14] and this seems an important factor in sustaining a relationship between school pupils and the local food environment.

The social nature of food and eating is well established in the social scientific literature and this was reflected in our findings in several ways. Alongside price, the taste and quality of food was considered important by young people; this was revealed from the quantitative and qualitative components of the study and supports the recent Scottish consultation with young people about food and drink[50]. Whilst taste can be attributed to subjective or physiological preferences, it also has a social meaning. Many young people perceived that food without added salt or sugar was not to their taste and was therefore socially unacceptable; this limits their uptake of food and drink in schools since it is inherently low in such nutrients to meet the Nutrient Standards for Schools (NSS); school food and drink is also promoted as 'healthy' and this is often very unappealing to young people. Similar findings were reported in a qualitative study of young people at English secondary schools[51]. Young people reported a strong need to be with their friends at lunchtime in order to eat, drink, play, chat and generally 'hang out', as other studies of Scottish young people have also found[24, 52]. The socio-cultural and socio-economic environments within and beyond school were therefore inherently important in determining whether and how such social activity could take place.

Schools that required young people to queue to load up a payment card then to queue again to wait for food and drink (which had often run out before they got to be served), were factors that young people disliked. Schools that were run down, with few social spaces in which young people could eat their lunch acted to push pupils out into the local food environment. Conversely, schools that had managed, even within relatively deprived neighbourhoods, to create a more pleasant atmosphere and where young people's social needs were acknowledged, were perhaps more successful at keeping young people in school. Whilst some schools reduced the time young people had for lunch to try to prevent pupils going outside at lunchtime, this worked against them in some ways; young people who wanted a break from the school's physical or social environment or who strongly felt they wanted to purchase food or drink items beyond the school gate, still managed to achieve this but it resulted in a rushed lunch break that was not reported as conducive to a pleasant experience. Surely this is not something schools wish to promote? The friendly, attentive service that young people received from retailers beyond the school gate was an important social factor, according to the findings of the study.

8.2 The methodological approach of the study

The FPM commissioned by FSAS as part of the Dietary Survey of Diet among Children in Scotland in 2010 provided, for the first time, quantitative data about young people's access to and use of food businesses beyond the school gate. This study built on the findings from the FPM through taking a case study approach to investigate the context and meaning of secondary school pupils purchasing food and drink outside school at lunchtime. A case study design meant we used a mixture of methods and this presented both a number of challenges and a range of compromises that had to be considered.

Qualitative research often demands that researchers build some kind of relationship with their participants, usually in a short space of time. This was more difficult in a mixed methods study, conducted over a short period of time (fieldwork took place over three months) because the same researchers collected the qualitative as well as much of the quantitative data therefore they had to concentrate on ensuring that all data were collected over a two week period in each school, with less opportunity for simply getting to know pupils. Future studies should consider asking teachers to supervise the administration of questionnaires in schools, which other studies have successfully organised[53]. The go-along tour conducted as part of the pilot work was simple to arrange and

execute whereas this aspect of data collection proved more difficult when the main study commenced. Pressures on participating schools, notably in terms of the introduction of a new National examination for older pupils in April 2014 made scheduling fieldwork in March/April extremely difficult for schools and for the research team, resulting in a delayed start date. The annual change in year group timetables at the end of May was an additional challenge for all concerned. The only way to overcome such challenges in future studies would be to allow for a longer period of fieldwork; we were unable to extend the fieldwork period because we were constrained by the summer holidays beginning in schools at the end of June 2014.

Within the local food environment, the research team built rapport with many retailers but they often became less trusting and less willing to engage in conversation once the research team entered their store to purchase a very specific list of food and drink items to record details about portion size. Employing different research assistants to deal with such tasks would be recommended (and was achieved in another Scottish study[14]) though this has implications in terms of resources.

Young people were always at the heart of the approach we wanted to take and we were concerned to enable pupils, even in a class or group setting, to voice their opinions about participating as well as about the topics under study. This strategy was effective, for the most part, though focus groups were not the ideal method to allow some young people to discuss money with the research team, including FSM or reasons for going home at lunchtime (which may have been related to lack of money). Individual interviews would be a more effective method in future research on sensitive topics. Dominant, confident or opinionated individuals often take over in focus groups[54] and this was occasionally the case in this study though the research team made every effort to involve quieter members of each group.

The PRQ was administered online, avoiding the need for young people to manually navigate most of the questions that were relevant to them and this worked well. Out of a need to collect full information about all food and drink purchased on the day the PRQ was administered, however, the questionnaire was lengthy and repetitive as young people needed to provide information about each item they purchased (portion size, price, description etc.). Many participants said they found completing the PRQ tedious and given that a number failed to complete the marketing questions, at the end of the questionnaire, the length and detail of the PRQ may have been off-putting to some.

It was beyond the scope of the study to ask young people for full details of the food or drink they purchased in the school cafeteria or the food and drink they brought and consumed from home therefore it is not possible to determine the correlation between purchases and consumption from different sources. Whilst this was a limitation of the study there was not, in any case, opportunity to further lengthen the PRQ, given that many young people already found it took too long to complete. Other ways of investigating the full range of food and drink young people purchase and consume at lunchtime therefore needs further thought.

There is a body of literature about the myriad ways to measure and quantify local food environments, most of which highlight the inherent challenges involved in doing this[32]. Our approach highlighted, as other studies have, that secondary data sources such as lists of registered food businesses available from Environment Health Departments are often out of date or incomplete[44, 45]. However, the GIS mapping that we undertook and the identification of additional

food businesses highlighted some important methodological points. Whilst multiple food businesses, sometimes amounting to hundreds within a town or city, may lie within a 10 minute walk of a school many of these are not perceived by young people (or researchers) as feasible to visit during the lunch period. The appended maps for Sch05 and Sch07 in particular clearly show that a physical barrier such as a river may make some food outlets seem particularly 'out of reach' even though they lie within 800m of a school. Conversely, some food outlets appeared on the maps and to the research team to represent a long walk from school, but young people were observed taking a number of hard to find short cuts (hard to find for someone not local that is, or when looking at a map), meaning such outlets were, in reality, accessible to them. This would suggest that qualitative approaches to measuring and quantifying local food environments offer additional benefits over quantitative/data-driven approaches.

8.3 Health improvement

Whilst the aim of this study was to investigate the food environment beyond the school gate, the findings point the way for ***improvements that could be made within schools***, to encourage young people to purchase food and drink in the school cafeteria, at least on some days of the week, rather than venturing beyond the school gate. Whereas the external food environment can only be controlled in a limited way, depending on what policy measures might be introduced, the school food environment is more conducive to further changes, ***which would potentially benefit a larger proportion of young people in Scotland***. Our findings build on those from another recent Scottish study about potential improvements to food and drink provision in schools[50] and they also support recommendations from the Scottish Government about encouraging young people to 'stay on site'[3] and for food and drink in schools to be something to celebrate[46]. ***We suggest that current initiatives aimed at schools are therefore appropriate and should continue to be implemented.*** This study provides further context for such recommendations, in terms of what could be developed and what might be effective. Recommendations based on our findings are that schools should:

- Undertake regular consultations with young people about the food, drink and social environment within schools.
    - Consultations need to be organised systematically and on a regular basis and young people need to be informed that their views will be listened to.
    - This requires that schools instigate mechanisms to both undertake and document such consultations and to have a process for dealing with the findings.
- Experiment with ways to develop food and drink that appeal to young people in schools whilst still meeting the NSS. Ensure that sufficient amounts of popular foods are available throughout the lunch service.
    - Young people are discerning consumers and not easy to persuade to try new or different food.
    - This does not mean, however, that they cannot be engaged and schools can perhaps find innovative ways to trial new, tasty menus. Sch07, for example, regularly played loud, popular music and offered tasters for pupils once a month.
    - Young people acknowledged that it was not easy for schools to have the food they liked available at all times without undue wastage yet they were aware that local retailers managed this. Schools might consider how they could improve in this area.
- Address young people's need to socialise with friends during and after they eat lunch.
    - Setting up tables and chairs, that are in good repair, with tablecloths and jugs of fresh, iced water (which one school in the study did), in an attractive, well lit or light

dining space, or providing more low level sofas and tables, or high level tables and stools, could help to achieve this.

- Provide a 'youth club' space at lunchtime, within school but not run by the school, might also attract many young people who want a break from the school environment. The food and drink sold here would meet the NSS.
- Catering staff who engage with young people, get to know them and their preferences and provide a friendly, efficient service that puts the 'customer first', are more likely to mirror the service provided in the local food environment. Many KSs tried to achieve this within the constraints they were under due to the NSS and the resources available to them, but more could be done to enable this to be the norm in schools.

Taking steps and planning towards a ***wholesale and long term shift in food culture*** in schools across Scotland, through improving the food, service and the physical and social environment would be an ambitious but worthwhile goal.

We draw these conclusions because our findings clearly show that it is not straight forward to determine how particular types of food, drink or outlet beyond the school gate, or particular types of area, in terms of relative deprivation, contribute to young people's overall diet. The social meaning attached to where young people gather with their friends is strong and altering the external food landscape beyond the school gate will not prevent young people from venturing outside school or receiving friendly customer service. ***The study findings therefore suggest that intervening in, for example, the rejection or restriction on the number of planning applications for fast food outlets within 800m of a school might be futile***, given the other factors that draw young people to a wide range of outlets within the external food environment. Young people frequently purchase food and drink from outlets such as newsagents, convenience stores and supermarkets, for example, which are not subject to the same criticisms as fast food outlets despite selling a range of food and drinks high in fat, sugar or salt. It would be difficult to control the presence of all outlet types near schools.

In short, this study suggests that national intervention relating to controlling the food environment beyond the school gate is likely to have a limited impact in terms of improvements to diet or rates of obesity among young people. The findings from this study demonstrate the specificity of local food environments; deprivation is a multi-faceted phenomenon and indicators such as SIMD or FSM alone cannot capture young people's 'lived experience' of purchasing food and drink at lunchtime. ***Interventions within and beyond the school gate that can take account of local variation may therefore be the most effective way of improving diet and weight among young people***. This might include engaging young people to decide what changes they wish to see regarding the food and drink sold locally and urging (and enabling) them to push for change.

The findings suggest that the lunchtime purchase and consumption of ***regular soft drinks and energy drinks is a concern***, given that more than a quarter of all young people reported buying them beyond the school gate. The purchase of sugar sweetened beverages also related to worrying patterns of overall food and drink consumption and this might therefore be an area for further policy attention.

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APPENDICES

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Appendix 1 Summary of qualitative NVIVO codes/themes

Young people – codes used

Nodes\\Family
Nodes\\Food environment_appearance_atmosphere_service
Nodes\\Food environment_food_tastes
Nodes\\Food environment_price_promotions
Nodes\\Food environment_type of food outlet_density
Nodes\\Food environment_usage_access
Nodes\\Gender differences
Nodes\\General comments about lunchtime experience_food available_not eating
Nodes\\Money
Nodes\\Peers
Nodes\\Reasons to buy in certain places (in and outside school)
Nodes\\Reasons to do not buy in certain places (in and outside school)
Nodes\\School_appearance_atmosphere_service
Nodes\\School_food_tastes
Nodes\\School_price_promotions
Nodes\\School_type of food outlet
Nodes\\School_usage_access

Interviews with HTs & KS

Nodes\\difficulties keeping students in school
Nodes\\discussion of cost over health
Nodes\\eating at home for lunch
Nodes\\family influence
Nodes\\food served during lunch break in the canteen
Nodes\\food served during mid-morning break in the canteen
Nodes\\free school meal
Nodes\\friends influence
Nodes\\health food policies
Nodes\\healthy options not wanting to stay in school
Nodes\\keeping students in school - initiatives used by the KS and council
Nodes\\negative statements about retailers around the school
Nodes\\not enough seating
Nodes\\number of students who eat in school at lunch and throughout the day
Nodes\\number of students who leave school
Nodes\\packed lunch
Nodes\\payment for food in the canteen
Nodes\\prices outside of school
Nodes\\problems with food purchased outside school
Nodes\\queuing
Nodes\\reasons students leave for lunch and mid morning break
Nodes\\trying to keep students in school
Nodes\\weather effecting number of students and types of food the purchase in the canteen

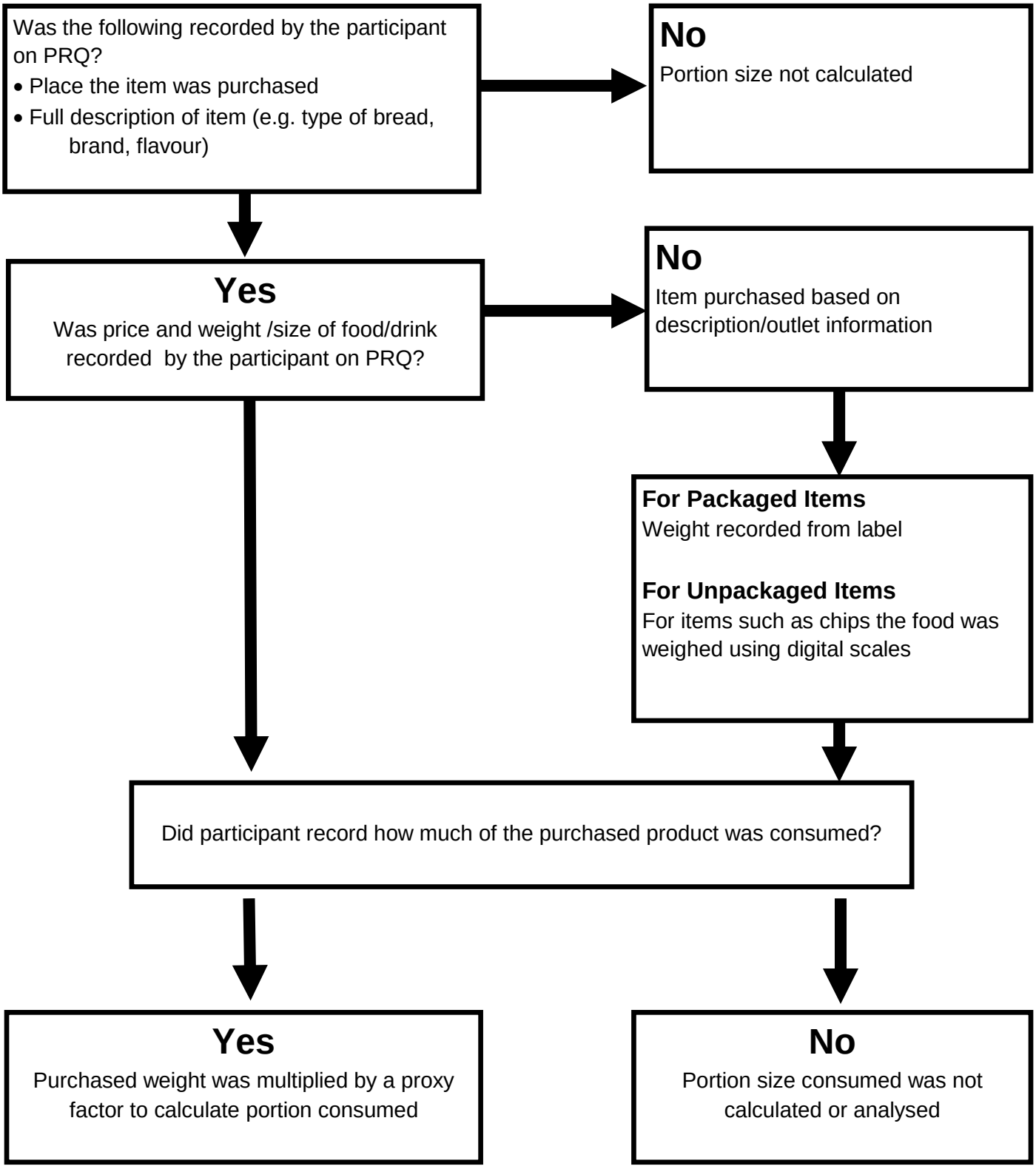
Interviews with retailers about marketing and promotions

Nodes\\customers

Nodes\\opening hours
Nodes\\Physical Evidence:
Nodes\\Physical Evidence\atmospherics
Nodes\\Physical Evidence\interior
Nodes\\Physical Evidence\music
Nodes\\Physical Evidence\seating area
Nodes\\Place:
Nodes\\Place\popularity
Nodes\\Place\proximity
Nodes\\pre order
Nodes\\Price Issues:
Nodes\\Price Issues\price
Nodes\\Price Issues\price decisions
Nodes\\Product:
Nodes\\Product\food portions
Nodes\\Product\menu
Nodes\\Product\packaging
Nodes\\Product\preferred products
Nodes\\Product\products sold
Nodes\\Promotion
Nodes\\Promotion\advertising
Nodes\\Promotion\free samples
Nodes\\Promotion\loyalty cards
Nodes\\Promotion\meal deals
Nodes\\Promotion\promotions decisions
Nodes\\Promotion\promotions for pupils
Nodes\\Promotion\sales promotions
Nodes\\pupils purchase behaviour
Nodes\\relationships
Nodes\\research
Nodes\\views on healthy-unhealthy food

Other
Nodes\\Context_general description of area

Appendix 2 Recording of portion size information



Explanatory Notes:

- For foods such as a filled roll, the individual components were weighed separately (e.g. cheese, cucumber). For components that were unable to be weighted (e.g. Ketchup, butter) an assumed weight was used, based on the suggested weight available in Diet Plan.
- Although not presented in this report, the nutrient composition of items for which sufficient information was available was calculated following the same protocol as described above.

Appendix 3 Pre-Pilot and Pilot Study Details

The aim of the pre-pilot study was to test the wording and phrasing of the PRQ (this involved one class of S2), and to ask the opinions of young people about the proposed visual cues and questions we planned to use during the focus groups for the main study (this involved one class of S3). The aim of the pilot study was to test timings for administering the PRQ, ease of use in regard to completing the PRQ (this involved one class of S2 and one class of S3) and to gauge the response given by young people (one class of S2 and one class of S3) to the revised visual cues and questions for the planned focus groups. A pilot go-along tour was also conducted with a group of young people.

The objectives of the pre-pilot and pilot studies were to:

a. Explore the food environment in and outside the pilot school, to test and validate the map of food businesses (i.e. check if other outlets need adding to the map); to test the go along tour technique with young people; develop focus group discussion prompts and visual cues based on observation/images; test ease of access to/speaking to retailers about the marketing environment / food outlets.

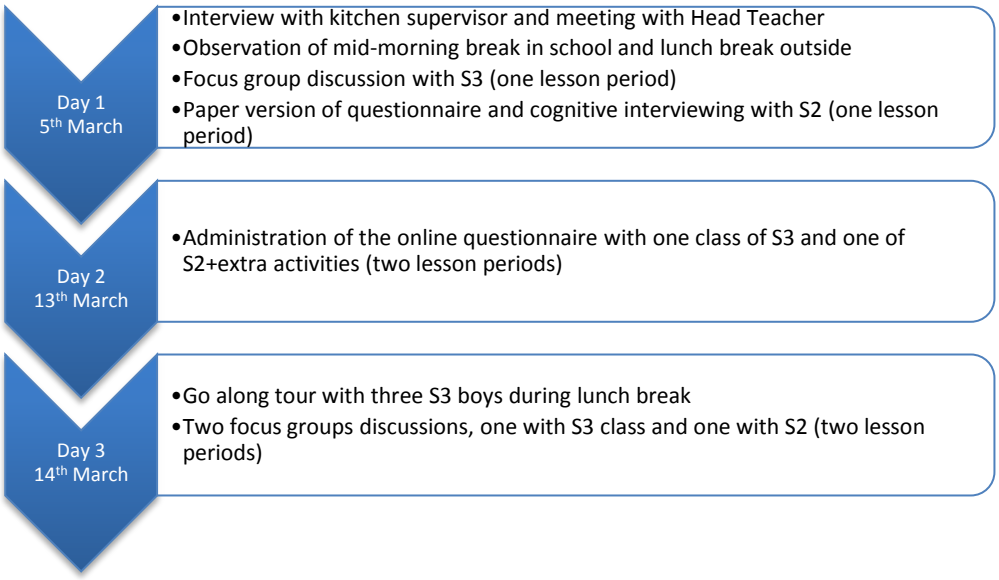
b. Involve pupils in the design of the study, including developing the visual cues, and the questions and activities for focus group discussion. We also wished to ‘sense check’ and determine best practice with regard to the type of information we can collect using the planned methods and techniques to ensure we obtain in-depth information on pupils’ views about their purchasing practices during the lunch break.

c. Test the willingness and involvement of pupils for go along tours and determine the effectiveness of the ethnographic approach.

d. Test pupil understanding of the PRQ, both paper (pre-pilot) and online (pilot) versions in regard to wording and questions. We also wanted to assess pupil ability to complete the questionnaire and to identify problems encountered with completion, as well as checking technical problems with the survey’s online format and the duration of completion. This enabled us to then consider and develop a number of activities for pupils finishing the online completion before the class ended, to fill the entire class period as well as collecting additional information that would benefit the research overall.

In addition to the tasks outlined on the next page we also undertook a period of food environment observation involving most of the authors, near to one school in Scotland, in order to discuss and refine the information that needed to be collected about food businesses and their marketing/promotion initiatives. After the first interview with a retailer was undertaken in the main study the topic guide was discussed again to ensure it was fit for purpose.

Content of pre- and pilot study phases:



The following changes were made as a result of the pilot studies:

Qualitative methods/processes

Interviews with KS/managers and HTs were included to gain further information about the school food environment as well as their perceptions of the food environment beyond the school gate.

Questions and images were included in a Powerpoint presentation to help engage young people in the focus groups. A worksheet was developed for pupils who finish the online questionnaire before the end of the class period; those who do not engage with subsequent focus groups (or had no opportunity to do so); and those who mainly purchased food/drink in school or brought a packed lunch from home (as these were not covered in detail in the PRQ).

Quantitative methods

Schools were asked to ensure that laptops were charged before pupils completed the online questionnaire to ensure data were not lost. A Powerpoint presentation was used to stress to pupils what information is needed at particular points when completing the questionnaire[ee].

True/false response categories in the online questionnaire were reworded to yes/no categories, to aid pupil comprehension.

Examples of each food/category in the PRQ, along with portion size and brand were made more detailed and specific to the food/category to assist pupils to identify the information they needed to provide (e.g. 'one piece of fruit or snack pot of fruit salad' was used to illustrate an example of a 'small' portion of fruit).

Questions in the PRQ about friends' influence were reworded to ask about lunchtime generally rather than 'today' to improve the reliability of the aggregate scale.

[ee] After having used this presentation in Sch01 in the main study it was dropped because it took too long to show to pupils and prevented young people from starting to input their information into the PRQ.

Appendix 4 Digital Mapping and GIS analysis

Data Cleaning and Assumptions

The data obtained from local authorities consisted of comma separated value tables which contained various data headers. These headers included, Main Use of Property, Trader Name, Postcode and Usage Code. These headers were present in some of the obtained datasets, but not all.

Once the original data were obtained, a collation and cleaning exercise was undertaken to decide how to use the data to the best effect. During this initial phase some important factors were identified. The source data contained a good level of detail, however there was a lack of standard data collection and recording method across the local authority areas. There were also issues surrounding out of date or missing information in the data sheets.

As a result of the limitations of the source data resulted in the necessity to make some generalisations and assumptions about the information. To make the data more uniform the data were classified into a set of initial groups, dependant on the type of business or production. This was conducted using automated code in order to process the large volumes of data. This process involved using existing classifications that were present in some of the source data, as well as matching of keywords to classification groups (e.g. “Jim’s Café” was classified automatically in the “Restaurants and Café” group, “Kings Arms Hotel” in the “Hotels” category etc.). While this process will inherently introduce some small errors, it was deemed to be the most efficient way of dealing with the vast amounts of source information. It also makes the assumption that, where present, the original classification was correct.

Mapping process

In order to use the data with a GIS, the data required some location information. The postcodes provided with the datasets were used for this task. Each postcode was cleaned to ensure that they were of valid formatting and style, then geocoded to provide an easting and northing coordinate value. This data gives each record an approximate location that can be used for mapping and analysis. The rationale for using the postcode as the standard identifier is that the process could be semi-automated to work with the large amount of data, as well as providing a relatively accurate level of location detail. A postcode record was also present for over 98% of the data records used, whereas an exact address was not. Postcodes are also recorded in a standardised format, so could be used across all the datasets.

The mapping outputs for the project consisted of the producer geocoded and attributed points, the study site location, 800m radius and SIMD data represented in grouped deciles. The data presented has been anonymised as much as possible (e.g. names of roads are not visible) without distorting the results to any significant level.

Appendix 5 Details of young people who took part in the qualitative study, by school, year group and gender

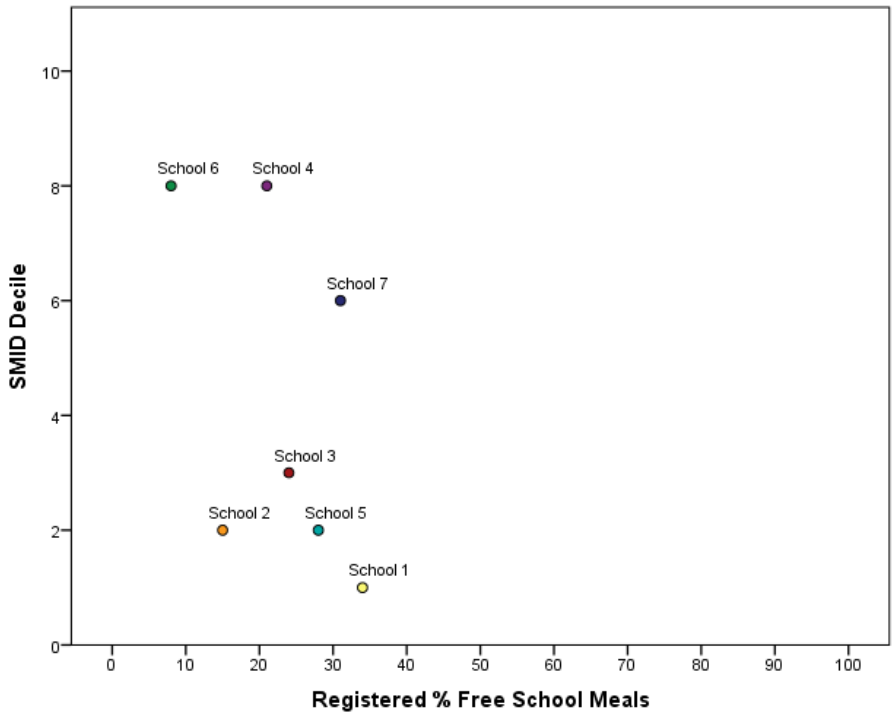
Method	Individual and group interviews						Go-along tours					Focus groups					Written activities						Total
	Year group		Gender			Tot	Year group		Gender		Tot	Year group		Gender		Tot	Year group		Gender			Tot	
School no.	S2	S3	G	B	U[ff]		S2	S3	G	B		S2	S3	G	B		S2	S3	G	B	U[gg]		
Sch01*	4	3	6	1	0	7	4	3	7	0	7	10	11	13	8	21	28	13	18	17	6	41	76
Sch02	7	1	1	2	5	8	0	0	0	0	0	10	10	10	10	20	40	39	41	36	2	79	107
Sch03	3	4	4	3	0	7	3	0	0	3	3	11	11	10	12	22	24	33	30	27	0	57	89
Sch04	10	6	5	2	9	16	2	0	0	2	2	14	10	11	13	24	34	37	41	29	1	71	113
Sch05	7	0	4	3	0	7	0	0	0	0	0	17	18	13	22	35	25	33	33	24	1	58	100
Sch06	4	1	0	5	0	5	4	0	0	4	4	10	10	11	9	20	39	26	25	38	2	65	94
Sch07	0	0	0	0	0	0	0	0	0	0	0	8	5	10	3	13	30	29	36	23	0	59	72
TOTAL	35	15	20	16	14	**50**	13	3	7	9	**16**	80	75	78	77	**155**	220	210	224	194	12	**430**	**651**

* Sch01high dep/mod food; Sch02 high dep/low food; Sch03 high dep/mod food; Sch04 mix dep/mod food; Sch05 high dep/high food; Sch06 low dep/low food; Sch07 mix dep/high food.

[ff] The gender of some students interviewed after administering the PRQ was not recorded because they joined an interview that was already in progress (i.e. with their friends).

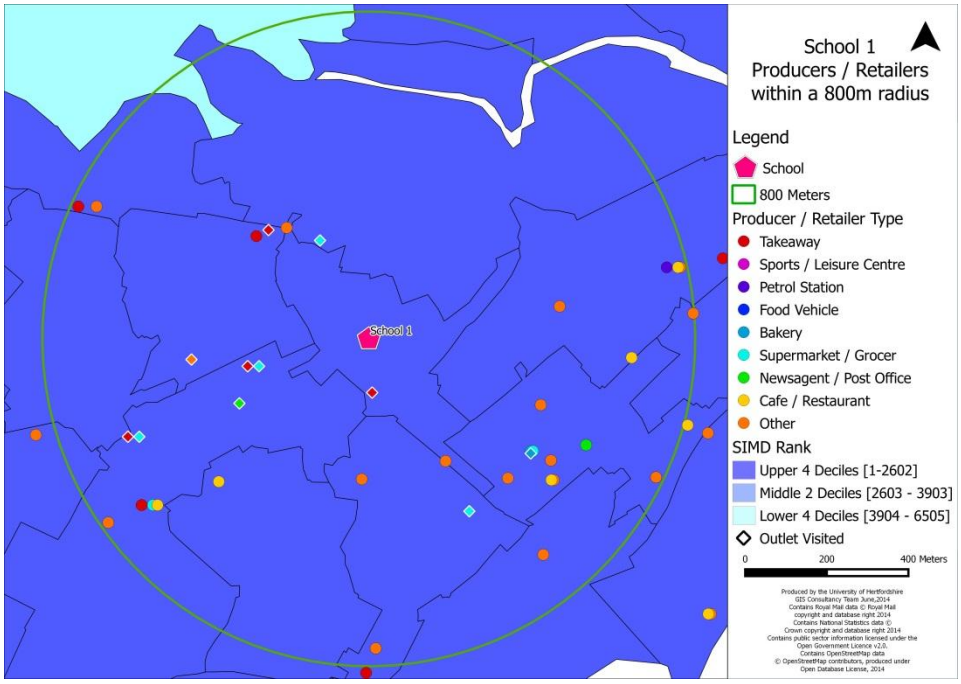
[gg] The gender of some students is unknown as they did not complete this section on the worksheet.

Appendix 6 Scatter plot showing case study schools in terms of SIMD and FSM



Appendix 7 Maps of registered and visited food outlets and SIMD, by school

SCHOOL01



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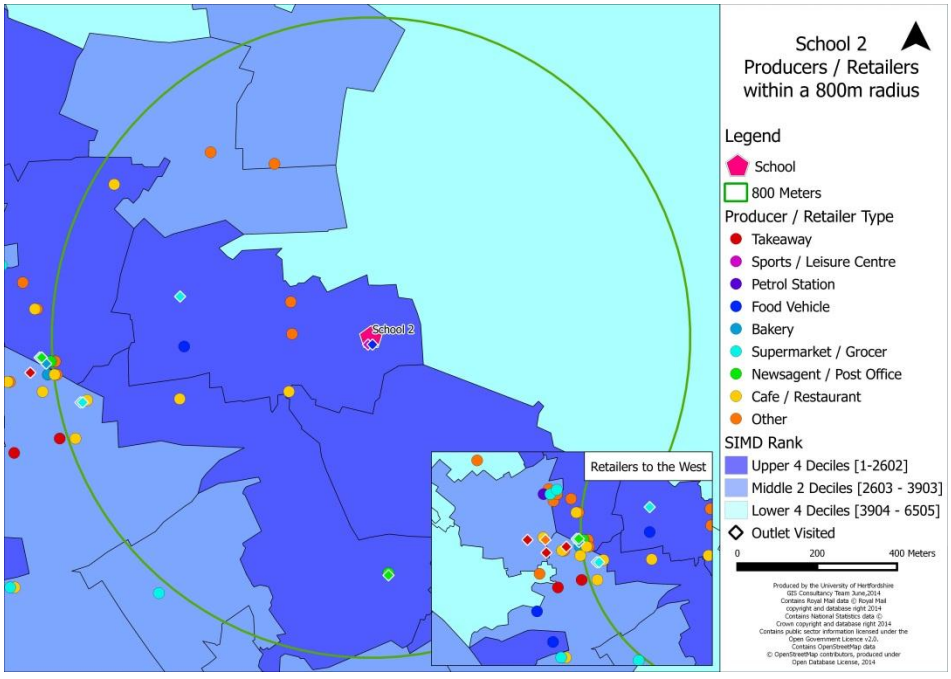
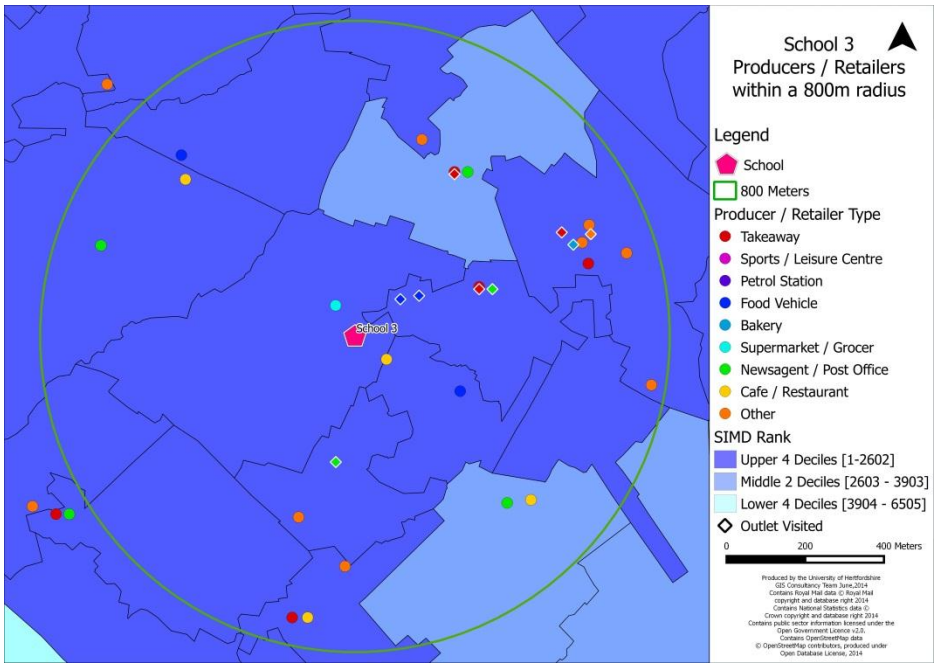
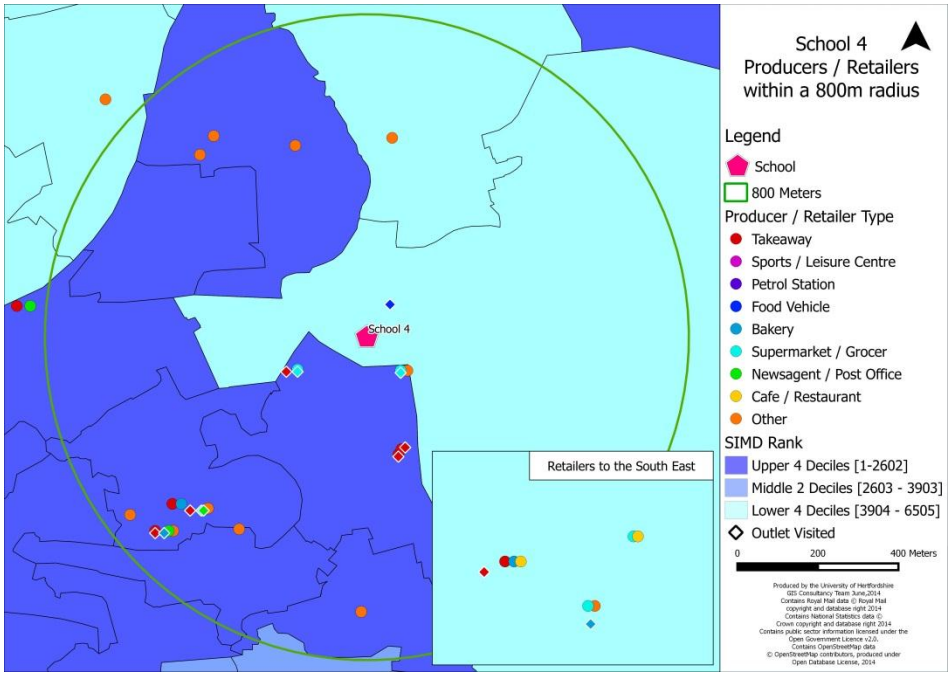


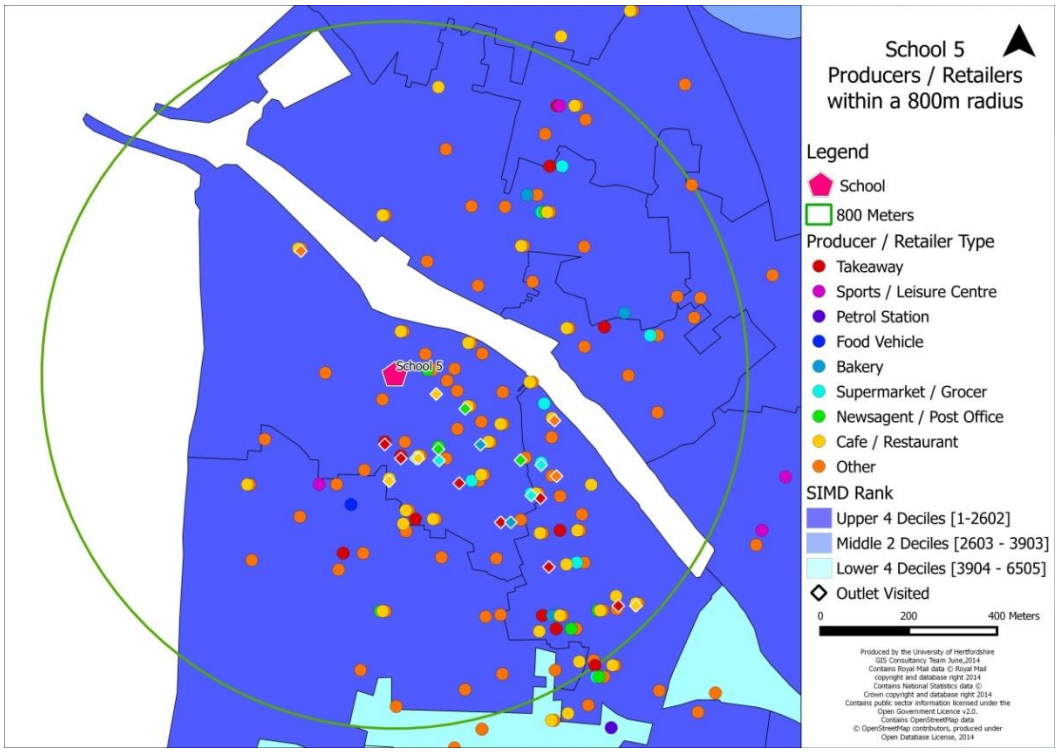
SCHOOL03



SCHOOL04

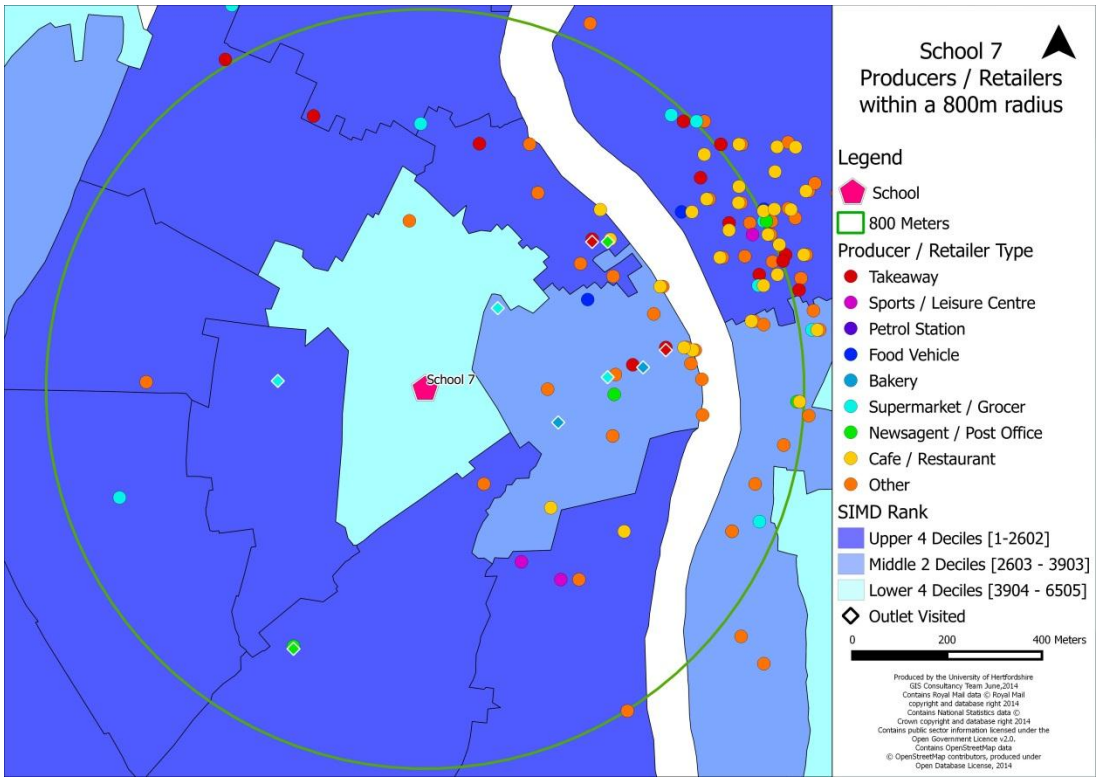


SCHOOL05



SCH00L06

SCHOOL07


School 7
Producers / Retailers
within a 800m radius
Legend
School
800 Meters
Producer / Retailer Type
Takeaway
Sports / Leisure Centre
Petrol Station
Food Vehicle
Bakery
Supermarket / Grocer
Newsagent / Post Office
Cafe / Restaurant
Other
SIMD Rank
Upper 4 Deciles [1-2602]
Middle 2 Deciles [2603 - 3903]
Lower 4 Deciles [3904 - 6505]
Outlet Visited
0
200
400 Meters
School 7

Appendix 8 Purchasing by outlet type and by school

(n=287)	School 1*		School 2		School 3		School 4		School 5		School 6		School 7	
	Yes N (%)	No N (%)	Yes N (%)	No N (%)	Yes N (%)	No N (%)	Yes N (%)	No N (%)	Yes N (%)	No N (%)	Yes N (%)	No N (%)	Yes N (%)	No N (%)
Supermarket (shops like Asda, Tesco, Co-op)	13 (24.1)	41 (75.9)	3 (7)	40 (93)	1 (2.8)	35 (97.2)	22 (38.1)	39 (63.9)	5 (11.6)	38 (88.4)	1 (7.1)	13 (92.9)	21 (58.3)	15 (41.7)
Newsagent or sweet shop	20 (37)	34 (63)	5 (11.6)	38 (88.4)	10 (27.8)	26 (72.2)	12 (19.7)	49 (80.3)	16 (38.2)	27 (62.8)	4 (28.6)	10 (71.4)	5 (13.9)	31 (86.1)
Grocery store or corner shop	13 (24.1)	41 (75.9)	2 (4.7)	41 (95.3)	9 (25)	27 (75)	17 (27.9)	44 (72.1)	5 (11.6)	38 (88.4)	4 (28.6)	10 (71.4)	8 (22.2)	28 (77.8)
Sandwich shop or bakery	4 (7.4)	50 (92.6)	7 (16.7)	36 (83.7)	9 (25)	27 (75)	8 (13.1)	53 (86.9)	9 (20.9)	34 (79.1)	5 (35.7)	9 (64.3)	5 (13.9)	31 (86.1)
Café, coffee shop or restaurant	1 (1.9)	53 (98.1)	0	43 (100)	2 (5.6)	34 (94.4)	1 (1.6)	60 (98.4)	7 (16.3)	36 (83.7)	3 (21.4)	11 (78.6)	0	36 (100)
Takeaway, chip shop or fast food outlet	27 (50)	27 (50)	0	43 (100)	11 (30.6)	25 (69.4)	17 (27.9)	44 (72.1)	17 (39.5)	26 (60.5)	2 (14.3)	26 (85.7)	0	36 (100)
Burger, chip or ice cream van	0	54 (100)	14 (32.6)	29 (67.4)	14 (38.9)	22 (61.1)	3 (4.9)	58 (95.1)	1 (2.3)	42 (97.7)	0	14 (100)	0	36 (100)
Healthy food van	0	54 (100)	1 (2.3)	42 (97.7)	0	36 (100)	1 (1.6)	60 (98.4)	0	43 (100)	0	14 (100)	0	36 (100)
Garage or petrol station	0	54 (100)	0	43 (100)	0	36 (100)	0	61 (100)	1 (2.3)	42 (97.7)	0	14 (100)	0	36 (100)
Chemist or pharmacy	0	54 (100)	0	43 (100)	1 (2.8)	35 (97.2)	0	61 (100)	0	43 (100)	0	14 (100)	0	36 (100)
Swimming pool, sports centre	0	54 (100)	14 (32.6)	29 (67.4)	0	36 (100)	0	61 (100)	1 (2.3)	42 (97.7)	0	14 (100)	0	36 (100)
Vending Machine	0	54 (100)	0	43 (100)	0	36 (100)	0	61 (100)	0	43 (100)	1 (7.1)	13 (92.9)	0	36 (100)
Other	0	54 (100)	0	43 (100)	0	36 (100)	0	61 (100)	1 (2.3)	42 (97.7)	0	14 (100)	0	36 (100)

* Sch01high dep/mod food; Sch02 high dep/low food; Sch03 high dep/mod food; Sch04 mix dep/mod food; Sch05 high dep/high food; Sch06 low dep/low food; Sch07 mix dep/high food.

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