Retail-led Regeneration and Store Switching Behaviour

Steven Cummins (Queen Mary, University of London)

Anne Findlay (Institute for Retail Studies, University of Stirling)*

Mark Petticrew (MRC Social and Public Health Sciences Unit, University of Glasgow)

Leigh Sparks (Institute for Retail Studies, University of Stirling)

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*** contact author**

Institute for Retail Studies
University of Stirling
Stirling FK9 4LA
UK

Phone: 01786 467386
Fax: 01786 465290
Email: a.m.findlay@stir.ac.uk

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Abstract

Retail-led regeneration of 'food deserts' has become accepted policy in the UK, although the impacts of such stores remain under-researched. It is assumed that residents will switch their shopping behaviour to the new store and then alter their purchasing patterns to include more healthy options. A pre- and post 'intervention' study in a deprived area and an equally deprived non-intervention area of Glasgow finds that high switching rates to the new store were identified, indicating some success in altering shopping behaviours. Many switched from large food stores outside the area to shopping within the area. Dietary patterns in the intervention area were maintained after store development; store switching did not induce dietary switching. Results suggest policy should be based on attempting to change both shopping and purchasing behaviours rather than assuming the latter will automatically be transformed by new retail spaces and offers.

Keywords: Retail, regeneration, store-switching

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Using retail-led regeneration to 'solve' the problems of 'food deserts' and reduce dietary inequalities in the UK has been embraced by government, planners and leading food retailers. However, there remains much debate over the impact of such renewal based policy and practice. For food retail-led regeneration to have an impact on diet, there needs to be a corresponding change in two key individual shopping behaviours. First, consumers have to 'switch' their patronage from their existing food retailer to the new shopping provision and second they then need to purchase and consume the products required to maintain a healthy diet.

Perhaps surprisingly given its centrality to shopping behaviour, store-switching behaviour, both at the macro- and the micro-levels appears to have been subject to only limited research. New stores have 'impacts' on existing store networks but these tend to be discussed in terms of store closures and loss of market share. Only rarely however are the consumer behaviour changes underpinning these impacts analysed. Moreover, the constant strategic and tactical battle by retailers for consumer spend and market share is played out against a background of shifting population (household change, mobility and location moves) and a consumer market that exhibits both consistency (inertia and 'loyalty') and variety-seeking tendencies.

The contribution of this paper is at this intersection of retail-led regeneration and store-switching behaviour. It presents an analysis of consumer store-switching behaviour in the context of the development of a new food hypermarket in a deprived area. This paper is more concerned with store-switching per se than with the diet and health dimension of any consequent food purchase changes. Its aim is to use the lens

of store switching to explore and highlight the outcomes of retail-led regeneration in relationship to the ambitions of such a planning intervention.

To meet this aim, the paper is presented in four sections. First, a literature review is presented to contextualise the study and to promote the development of the research questions. Secondly, the methodology is briefly presented (full details are available elsewhere). Thirdly, results are provided and analysed before finally, conclusions are drawn.

Retail-led Regeneration and Store-Switching Behaviour

As noted above, this paper examines store-switching behaviour in the context of retail-led regeneration in a deprived area. Two sets of literature are therefore important: (a) retail-led regeneration in the UK in the context of food deserts and (b) store-switching behaviour analysis. These are presented separately here, as this is how they have developed, not being brought together in previous research. Research questions are then proposed.

a) Retail-led regeneration and food deserts

The social exclusion agenda in the UK was developed in part on the fact that there were areas which had proven unattractive to retail investors and had therefore become poorly served in terms of food retailing (Mooney, 1990). Although initially small scale community based initiatives were favoured as a 'solution' (Social Exclusion Unit, 2000) the coming together of tighter planning restrictions for large stores, regeneration partnerships and the need to provide food retail facilities in deprived areas meant that many opportunities were grasped by the major retail operators. It was

anticipated that by making access to affordable healthy food better, diet might also be improved (e.g. Acheson, 1998, Department of Health, 1999a, 1999b, 2004, Wanless, 2004), though this relationship was unproven. Excellent summaries of this background are presented in Wrigley (2002) and Wrigley et al. et al. (2002a).

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Three major research studies have recently been conducted in urban areas of the UK investigating the existence of 'food deserts' and evaluating the effects on local food consumption patterns of large scale retail-led regeneration. First, a multi-level observational study in Newcastle (White et al., 2004) investigated retail access to a 'healthy' and affordable diet, in order to determine whether 'food deserts' existed and, if so, to describe their characteristics. White et al.(2004) concluded that 'food deserts' only exist for a minority of people who do not or cannot shop outside their immediate locality and for whom the locality suffers from poor retail provision of foods that make up a 'healthy' diet. They suggested that improving retail provision for those people whose diet is 'less healthy' than desirable, may not be as important as previously thought, showing that there is no evidence that poor retail provision is a primary cause of an 'unhealthy diet', although poor retail provision may be an important contributing factor in some well-defined circumstances.

Secondly, a study in Leeds (Wrigley et al., 2002b, 2003) analysed the effects of major new food retail provision on diet in a 'food desert'. This involved an uncontrolled before-and-after 'intervention' (the intervention being a new Tesco superstore) study of changes in food consumption patterns in a highly deprived area. Wrigley et al. (2002b, 2003) concluded that there were significant improvements post-intervention in terms of food retail access, accompanied by improved diet amongst some groups of

residents. A statistically significant increase in fruit and vegetable consumption was observed amongst those switching to the new store and a non-significant increase among those respondents who had switched from limited range discount stores.

Thirdly, a study in Glasgow (Cummins et al., 2005a, 2005b, 2007) not only assessed the impact on diet and health of improved access to food through the development of a large new Tesco hypermarket in a deprived community, but also considered impacts on the broad retail structure, general well-being and perceptions of the local area. The effects of the 'intervention' were evaluated through a quasi-experimental design utilizing a 'before and after' approach, comparing the intervention site with an equally deprived comparison area where no intervention took place. This study found less positive results on diet and health than did the Leeds study and suggested that improvements were likely to be attributable to other local social interventions and secular change. It is this study that provides data for this paper.

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b) Store-Switching Behaviour

Consumers collectively make millions of decisions a day on where to shop for food. The results of these decisions are critical to retailer performance. Much effort is expended on getting consumers to 'switch' their main food store shopping trip behaviours. The outcome of this is seen in market share figures and in store closures and openings. Research however, both at the general and the detailed level on this store-switching behaviour is sparse. The Cardiff panel study in the 1980s represents a rare, but early, exception (Dunn and Wrigley, 1984)

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East et al. (1995) quote previous commercial research as identifying a store loyalty rate of 72-75% per annum in grocery/food retailing in Great Britain; a level which was which was confirmed by their own mail survey. They later extended their work and disaggregated and differentiated between First Store Loyalty (FSL) based on the share of spend in the main store, and First Store Retention (FSR) based on the time period the main store remains the main store. In their survey over 21 months for households across England and Wales, they calculated a FSR rate of 65%, which equates to an annual main food store switching rate of 20%. More recently Mintel (2005) calculated a switching rate of 15% per annum across the United Kingdom.

One of the key elements in this identified switching behaviour is accessibility. East et al. (2000) saw FSR as strongly related to the competitive environment and in particular to new market entrants at the local level. New market entry and its effects on store choice and store switching behaviour were examined in four markets in the USA by Seiders and Tigert (1997). They were interested in how 'primary shoppers' (i.e. the main shop frequented) switched under different competitive or new market entry situations. They identified a 'control' area with 10% primary store switching despite no new store entry (though noted other commercial research identifying a national USA 25% switching baseline). In their 'non-control' survey areas they found switching rates of 25% to 55%, depending on the number of new entrants and the competitiveness locally. At the heart of this store-switching behaviour may be a trigger mechanism: 'major changes in a market (by a new competitive entry) on location/convenience, price, assortment … quality or service might trigger a new review of all alternatives (old and new) by consumers' (Seiders and Tigert, 1997, p230, emphasis added).

Support for this level of switching generally has also been presented by Rhee and Bell (2002) who found nearly 75% attachment to the main store in their USA based study. They accounted for this level by the benefits of location (accessibility) and through consumers developing store-specific knowledge (e.g. layout) which they might be reluctant to lose. Switching (or in their terminology 'transitioning') probabilities fell the longer time people had been loyal to a main or primary store. They also noted that there tended to be 'format loyalty' in that switchers tended to change to the same formats as their previous main store. 'Familiarity' with a store or format was also seen as important by Seiders and Tigert (1997) and Popkowski-Leszczyc and Timmermans (1997).

These various authors account for the levels of retention/switching they identify in a number of ways. Popkowski-Leszczyc and Timmermans (1997), whose study is more about variety-seeking than main store switching, identify the more 'loyal' shoppers as having dual employment, being better educated, spending more per trip and taking more time between shopping trips. These latter two elements were also identified by Rhee and Bell (2002), who equated them to 'shopping style', and then related this to format loyalty and degrees of 'stickiness' with main stores and store types. They did not find any relationship between demographics and 'transitioning' probabilities. Demographics were also dismissed as a predictor by East et al. (1995), though their later study did find that FSR rates increased with age (East et al. 2000).

Seiders and Tigert (1997) noted that switching rates were not constant amongst stores and that different switching motivations could be identified. They saw three types in

their study; price, location and variety based switching. At the aggregate level however, they found no differences between switchers and non-switchers on either store choice criteria or demographics. They conclude that 'to understand and diagnose switching behaviour, researchers need to disaggregate switchers by the stores to which they switched' (p243).

In a retail-led regeneration initiative there is an expectation that a new store entry will trigger store-switching. This study therefore offers an opportunity to consider whether this happens and if so with what effects. As such it is able to contribute to the existing literature on store switching.

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c) Research Objectives

The intervention of a new store has not often been studied explicitly in terms of store-switching behaviours. The context of this study is however even different to that previous work in that the intervention was specifically intended to result in store-switching behaviour amongst consumers in the deprived area, and indeed amongst those who could most benefit from a more 'healthy' diet. The only similar research appears to be the Seacroft study introduced above , but it did not relate store-switching behaviour to previous work (they did suggest a rate of 45% of shoppers switching to the new Tesco store but more detailed and specific retention/switching rates are not presented) (Wrigley, 2002b). This explicit welfare approach and the limited previous work on store-switching behaviour invites a number of research questions:

- What is the level of store-switching in this deprived area and how does this relate to levels found in previous work?

- What are the characteristics of switchers and non-switchers and how do these differ and relate to (i) previous research and (ii) policy expectations for retail-led regeneration in deprived areas?
- What, if any, store specific switching characteristics can be identified, how can these be explained and what are their implications?
- What policy recommendation, if any, stem from this analysis?

Design and Methods

As noted above, the data used in this paper are taken from a broader study into the impact of a retail intervention on diet and health in a deprived area of Glasgow. It is not proposed to provide in detail the project methodology as a whole, as this can be found elsewhere (Cummins et al., 2004, 2007). Instead, a brief summary is presented.

A 'before and after' postal survey of a representative sample of residents was undertaken in two areas of Glasgow City. Intervention (Springburn) and comparison (Shettleston) sites were matched by area level of deprivation (Carstairs-Morris DEPCAT), with each area having a DEPCAT of 7 (a Carstairs-Morris DEPCAT score of 1 represents the most affluent areas and 7 represents the most deprived). The new hypermarket (the intervention) opened in November 2001. A random sample of households, stratified by these two areas, was drawn from the postcode address file supplied by CACI Ltd. A total of 3975 postal questionnaires were administered pre-intervention during October 2001 (wave one). Respondents were followed-up after a 12-month interval (wave two). Response rates for the wave one postal survey were disappointing, though comparable in the comparison and intervention areas (15.5% vs 14.84%). Retention of respondents at wave two follow-up was good (68.40% overall) and broadly comparable between comparison and intervention areas (71.29% vs 65.18%).

The questionnaire included questions about the location and other attributes of the main food shopping trip for the household. The survey thus contained details about shopping behaviours in the intervention and comparison areas before the hypermarket opened and shopping behaviours one year after opening. For wave two respondents data are available for pre- and post intervention shopping behaviours, allowing investigations of switching behaviours. There is thus scope to consider both the differences between the two areas, to understand general switching behaviours and rates and the impact of the new store, and secondly to consider the store-specific details of the switching behaviour in the intervention area itself.

It is important to describe the main food retail provision of the two areas. Springburn, prior to the opening of the hypermarket, had a small Safeway (formerly Presto and now Morrisons) supermarket in the Springburn Shopping Centre. A discount store (Lidl) is adjacent to the new Tesco hypermarket. Many Springburn residents shopped outside Springburn travelling to Asda in Robroyston, Somerfield on the edge of Bishopbriggs or stores near to their work. Shettleston was similarly provided for with a small co-operative supermarket in Shettleston Road, the main shopping street. As in Springburn many shoppers frequented stores further afield including Asda at Parkhead Forge. Shopping at more distant locations is a confirmation of the limitations of local facilities. Due to access problems however a significant proportion of residents do not have this 'choice'. Beyond these large stores, food shopping was mainly provided by dispersed local convenience outlets or small parades. Further details can be found in Cummins et al. (2005b).

Survey Results

a) *General Shopping Patterns*

It has sometimes perhaps been assumed that those living in deprived or under-served markets somehow managed or got by on the limited provision available locally. The reality however is that they have searched out alternative locations suitable to their needs and mobility capabilities (Hitchman et al., 2002). In both the intervention and the comparison areas, a high proportion of shoppers in wave one of the survey left the immediate area to do their main food shop (58.5% and 77.3% respectively). The Asda superstore at Robroyston, some 5 minutes from Springburn by car, attracted 32.2% of all Springburn main food shoppers. Despite this however, superstore format shopping accounted for only 48.6% of main food shopping, well below the national UK average of 75% (Mintel, 2005). The Safeway supermarket in Springburn appeared to act as the main food shop for those who undertook their main food shopping in Springburn. Virtually no respondents undertook their main food shopping trip in small independent stores, though discount chains were more important (7.7% in Springburn and 12.7% in Shettleston). Superstore penetration for Shettleston was higher (67.6%) but still below the Mintel national figure of 75%. Superstore shopping occurred outside the immediate Shettleston area.

b) *Retention/Switching Matrices*

The retention/switching matrices for the two areas are presented in Table 1. East et al (2000) suggested that the annual national switching rate for England and Wales was c20% per annum and Mintel (2005) recently suggested 15%. In Shettleston (the non-intervention area) the switching rates for the main food superstores (Asda and Safeway) are 14% and 23.7% respectively, which accord broadly with previous

research. Much higher figures are found however for the smaller store formats (Co-op 44% and Kwik Save 42.9%) suggesting a move from one format to another even when transport and access difficulties have to be overcome. In terms of format and store loyalty (here only considered as repeat patronage), the superstore format is highly successful.

The retention/switching matrix for Springburn, where the new store intervention occurred, reveals more dramatic changes. This would be expected from the presence of a new store and would also accord with the policy of using such a store to lead the regeneration of the area. If people did not switch behaviours in the immediate area of the intervention, then the policy would clearly have failed. The impact of the new store is felt across all formats. The Safeway supermarket lost almost half its main food shoppers from Springburn, though not only to the new Tesco store. The Asda superstore format had the highest retention rate in Springburn (62.4%) but even then it lost 25.9% of its main food shoppers from Springburn to the new Tesco i.e. a newer and differently located (more locally accessible) version of the same retail format. Overall superstores increased their penetration in Springburn to 63.7%, which whilst significantly higher than in the previous year (48.6%) remains below the Mintel national average (75%).

The opening of Tesco increased shopping in the immediate Springburn area. In terms of switching, Tesco gained its shopper base through switching from both Asda and Safeway. With over 40% transferring from another superstore Tesco does not provide a new store format for a proportion of Springburn shoppers but instead represents a new store operator within their own community i.e. it is a locational or access

attraction rather than a new format attraction. Others, for example, the shoppers transferring from Safeway (a small supermarket) or Lidl (the hard discount store), are by contrast able to participate in a new format of shopping. Two processes are at work therefore, one of new shopping opportunity and one of increased localisation of shopping.

c) *Switchers and Non-Switchers Compared*

Switching rates described by a range of socio-economic and demographic variables are presented in Table 2. Chi square tests were used to explore this data. The only statistically significant variable was that of gender, with male shoppers more likely to be switchers. There were no other statistically significant associations with socio-economic or demographic variables. This is similar to the findings of Seiders and Tigert (1997) and East et al., (1995).

In order to assess whether the different stores were associated with different shopper profiles a series of variables were entered into a logistic regression model. Models were developed to test whether propensity to switch is a factor of income, socio-economic characteristics or access. The variables used in the analysis comprise income and socio-economic variables. Shopping access was assessed by car access and postcode. Socio-economic variables were age and size of household. Income was measured by the proportion of income from benefits, reflecting the nature of the area and the policy focus on the most deprived households.

The first model to be fitted tested for whether the variables were statistically significant predictors of switching to Tesco or not. The Tesco results showed a final

model with a chi square value of 17.223, 9 degrees of freedom and a probability of 0.045 (Table 3). The only variable which made a significant difference to the deviance was postcode (p=0.028), showing the model underestimated the importance of shopping at Tesco by those in postcode G21_1 (i.e. the postcode furthest from Asda at Robroyston).

None of the variables associated with socio-economic status or income had any significant effect or resulted in a model that was statistically adequate as a predictor of switching or not switching. Generally this accords with previous research which has found no significant predictor effects of this form. The results appear to confirm that shopping in Tesco is not associated with particular transport availability, particular income levels or particular socio-economic characteristics. On the one hand this confirms that the store is accessible to all groups in Springburn society. On the other it confirms a specific definition of access in terms of proximate location.

There are two main groups of shoppers which switched to the new Tesco store, those that previously shopped at the Asda superstore at Robroyston and those that used the Safeway in Springburn Centre itself. Switchers from Asda appear to be those who find it convenient to walk to the new store, are from 2 person or more households and who live comparatively close to the new store. For this group Tesco has provided a new and more accessible shopping opportunity. In studies of switching there is usually a particular concern with the level of spend of switchers with operators anxious to retain the highest spenders. The average spend of switchers to Tesco from Asda was substantially lower than the average spend of Asda shoppers (£44.64 compared with £52.46). Switchers from Safeway appear to be those who live close to

the new store and are in a position to walk to it. They are predominantly single person households, including both younger (16-29) and older (65+) households. Switchers tended to be less than average Safeway spenders (£35.53 compared with £39.43).

Logistic regression models were fitted to test whether there were particular associations between the socio-economic and demographic variables and those continuing to shop in Asda and Safeway following the opening of Tesco. The results of the model for Asda gave a final model with a chi square value of 36.680, 9 degrees of freedom and a probability of .000 (Table 3). The two variables which have a significant effect as predictors are postcode (p= .000) and access to a car (p=.001). The parameter estimates reveal that Asda is likely to attract more customers who own a car and live in G21_3 (i.e. the postcode closest to Asda). The importance of car ownership is not surprising given the location of Asda. However it is indicative of greater selectivity in the shopping profile of those from Springburn who will shop at Asda. The Safeway results show a final model with a chi square value of 35.273, 9 degrees of freedom and a significance of .000 (Table 3). Two variables have significant values in reducing deviance within the model; postcode (p=.013) and car ownership (p=.007). In the test of two way interactions, car ownership has a significance value of .006 and postcode .015. Unlike Asda however, the former is an inverse relationship, with lower than expected car ownership amongst those shopping at Safeway suggesting that indeed Safeway shoppers are impeded by access in taking up other opportunities.

It may be concluded that the new retail landscape has produced a new shopper landscape. New differentials have emerged. The new store seems to have gained

market share particularly from the area close to the store. However a gradation has emerged with relatively more affluent car-borne shoppers continuing to patronise Asda and the least mobile shoppers patronising Safeway. Tesco has been successful in reaching a wide segment of the Springburn population but there still remain those whom it has not reached.

The results would seem to indicate that the new store has gained a proportion of local store shopping trips from the local population. It has generated store-switching behaviour but of a particular kind. Thus, the first policy impact has been achieved in that the main food shopping store patterns overall have changed. As our sub-group analyses show however, the store-switching groups are quite different and specific and many of the least well off in the community, but not living in close vicinity to the new store, appear not to have switched their main food store. It remains open therefore as to the extent to which the new store has impacted the main target market that policy-makers had in mind.

d) *Store patronage and fruit and vegetable consumption*

The second component of the policy intervention was the aim to impact health inequalities and diet and health in this deprived area. A simple but much used proxy for this is the consumption of fresh fruit and vegetables. Purchase of these products can be considered from the data collected. For example, Wrigley et al., (2002b, 2003) investigated the way that shoppers switched their store for the purchase of fruit and vegetables. The Seacroft study suggested that whilst shoppers switched away from limited line discounters for their fruit and vegetable purchasing those who patronised smaller shops for fruit and vegetable purchasing were less likely to switch. Asda

shoppers were less likely to switch their fruit and vegetable purchasing. Overall these changes led them to conclude that there had been a marked improvement in diet from the switch to the superstore format. Our study allows a similar consideration.

In 2001, before Tesco opened, 15% of shoppers bought fruit and vegetables in local shops. In 2002 this figure had more than halved to 7%. One stop shopping increased following the opening of Tesco with 93% of Tesco shoppers buying fruit and vegetables in Tesco. Of switchers from Safeway only some 75% previously bought fruit and vegetables in Safeway and of switchers from Asda only 86% previously bought their fruit and vegetables in Asda. The importance of the superstore format in the case of Tesco is therefore a new aspect of shopping to emerge in Springburn, particularly in relation to fruit and vegetable purchase.

A second dimension to consider is whether following the Tesco opening and store switching new differences in fruit and vegetable consumption emerged related to store patronage. Table 4 cross-tabulates the mean number of fruit and vegetable portions consumed with store operator. For the 2001 data the comparison of means using the t test showed that the distributions by store operator were not significantly different; an Asda shopper was not more likely to consume more fruit and vegetables than a Safeway shopper ($p = 0.254$). By 2002 some differences had emerged ($p = 0.013$). Tesco shoppers had the highest average fruit and vegetable intake although this group also had the highest standard deviation. The Safeway figures showed a fall in mean number of portions of fruit and vegetables and a smaller standard deviation. Many of the Safeway shoppers who were the higher consumers of fruit and vegetables had bought their fruit and vegetables in small shops. This was the group which switched

to Tesco. Table 5 confirms the low retention rates amongst Safeway shoppers for those with the best diets. Although average intake of fruit and vegetables is higher amongst Tesco shoppers this reflects the fact that it has attracted those who already were high purchasers of fruit and vegetables and presumably liked the fruit and vegetable range provided by Tesco. It does not suggest that shopping in Tesco of itself is correlated with a higher intake of fruit and vegetables. Indeed the higher average values reflect a switch in the location of purchasing of fruit and vegetables rather than a change of diet. Equally, changing to a new store format is not itself related to increased fruit and vegetable purchasing. This is reflected in responses to a series of potential reasons for their choices. Accessibility of fruit and vegetables was cited by only 5.9% and 4.7% as important before and after the Tesco opening. More important inhibitors in both waves of the survey were price (cited by 45.2% and 46.6% in the two waves) and family preferences (cited by 20.2% in the first wave and 26.2% in the second). This would resonate with the findings by White et al. (2004). This result, which has not been articulated in this way before, has implications for assessing the likely impact of a new store on diet.

Conclusions

This paper has contributed both to the general understanding of store-switching behaviour and the specific understanding of store-switching behaviour in a regeneration area. The results provide a number of conclusions:

1. The switching rates found in the comparison area broadly accorded with previous research findings of an annual switching rate of 20-25% in the UK. There was some evidence of higher switching rates away from smaller formats towards superstores, even in this deprived area with access issues.

2. Higher store-switching rates were found in the intervention area suggesting that the development of the new store has made the impact on overall shopping behaviours that had been predicted and desired.
3. However, the specific characteristics of the switching behaviours show that the store attracted format transfer switchers (i.e. they switched from shopping in other superstores) resulting from a trigger effect, particularly from those living in the immediate vicinity in the store. This represents both responses to a new shopping opportunity and an increased localistion of shopping. The intervention was inclusive in its appeal attracting both the less well of and the better off within the area, the less mobile and the more mobile, the young and the old. For the most disadvantaged groups not living in the immediate vicinity of the store it had less impact.
4. Those already most likely to buy fruit and vegetables (a proxy for diet and health) were those that tended to switch to Tesco. This suggests that store impact and dietary impact need to be addressed separately.

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In specific terms, the intervention store did affect the shopping behaviours in the area and acted as a trigger for a realignment of shopping patterns. To that extent the regeneration policy has worked. The impact on diet and health does not automatically follow from this realignment. Area based initiatives should be differentiated from target group based initiatives. The Tesco store has been successful in providing a retail facility which meets the needs of people in Springburn as evidenced by switching patterns. Target group based initiatives may additionally be required, however, to address the diet and health issues.

More generally, the paper has underscored the existence of store-switching capacity in the UK for main food shopping and affirmed that a proportion of the population is going to switch stores each year. This is an important confirmatory result, but one that has not really been integrated in general research on shopping patterns. The lack of demographic and socio-economic explanations for this is also confirmed. This leaves store and company specific reasons for switching, together with locational changes as the driver for altering shopping behaviours. This has retail planning implications given the debate over what regeneration can achieve, the role of qualitative impacts in retail planning, accessibility arguments, appropriate scale of store development and desired levels of consumer choice. For health authorities it would seem that new retail facilities alone will not 'solve' health inequalities.

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Table 1: Retention/Switching Matrices

(a) Shettleston (comparison area)

	Store used for main weekly shopping 2001			
Store used for main weekly shopping 2002	Safeway %	Asda %	Coop %	Kwik Save %
Safeway	76.3	5.0	8.0	
Asda	18.4	86.0	16.0	28.6
Coop	2.6	4.0	56.0	9.5
Kwik Save		1.0	8.0	57.1
Local shop		1.0	4.0	
Other		3.0	8.0	4.8
Total (Sample size)	100 (38)	100 (101)	100 (25)	100 (21)

Shaded boxes indicate store retention rate

(b) Springburn (intervention area)

	Store used for main weekly shopping 2001		
Store used for main weekly shopping 2002	Safeway %	Asda %	Lidl %
Safeway	54.4	7.1	
Tesco	30.8	25.9	50.0
Asda	10.3	62.4	
Lidl	2.6	1.2	50.0
Local shop	0.0	1.2	
Other	2.9	2.3	
Total (Sample size)	100 (68)	100 (85)	100 (10)

Shaded boxes indicate store retention rate

Table 2: Switching Rates by Demographic and Socio-Economic Characteristics in Springburn

Characteristics	Switching rate (%)
(a)Demographics	
Male	54.4
Female	36.7
16-44	48.6
45-59	47.2
60+	33.3
(b)Socio-economic	
Employed	42.0
Not employed	44.5
Professional and managerial	33.3
Manual skilled and non-skilled	48.4
Retired	34.1
Car owners	40.0
No car	46.9
Family with children	37.8
Household with no children	45.6
Single household	46.7
Couple in household	45.7
3+ adults in household	37.0
Household relying on benefit	46.0
Household with no benefits	45.5

Table 3: Results of Logistic Regression

a) Results of Logistic Regression Model for Tesco Shoppers, 2002

Model Fitting

Model	-2 Log Likelihood	Chi-square	df	Sig.
Intercept only	143.473			
Final	126.250	17.233	9	.045

Likelihood Ratio Tests

Effect	-2 Log likelihood Reduced Model	Chi-Square	df	Sig.
Intercept	126.250	.000	0	
Postcode	135.370	9.120	3	0.028
Household Size	126.435	0.185	1	0.667
Benefit Income	128.126	1.876	1	0.171
Car Ownership	126.396	0.146	1	0.702
Age	128.899	2.649	3	0.449

b) Results of Logistic Regression Model for Asda Shoppers, 2002

Model Fitting

Model	-2 Log Likelihood	Chi-square	df	Sig.
Intercept only	154.694			
Final	118.014	36.680	9	.000

Likelihood Ratio Tests

Effect	-2 Log likelihood Reduced Model	Chi-Square	df	Sig.
Intercept	118.014	.000	0	
Postcode	137.097	19.083	3	.000
Household Size	118.046	0.031	1	.859
Age	119.809	1.794	1	.180
Car Ownership	129.915	11.901	1	.001
Benefit Income	118.612	.598	3	.897

c) Results of Logistic Regression model for Safeway Shoppers, 2002

Model Fitting

Model	-2 Log Likelihood	Chi-square	df	Sig.
Intercept only Final	135.484 100.211	35.273	9	.000

Likelihood Ratio Tests

Effect	-2 Log likelihood Reduced Model	Chi-Square	df	Sig.
Intercept	100.211	.000	0	
Postcode	111.022	10.811	3	.013
Household Size	100.282	.070	1	.791
Age	101.282	1.019	1	.313
Car Ownership	107.503	7.291	1	.007
Benefit Income	106.096	5.885	3	.117

All results were calculated using SPSS

Table 4: Mean Number of Portions of Fruit and Vegetables (per day) by Store Operator

	2001		2002	
	Mean	**Standard Deviation**	**Mean**	**Standard Deviation**
Name of store				
Safeway	3.8	1.98	3.5	1.86
Tesco	-	-	4.6	2.16
Asda	4.1	1.94	4.5	2.03

Table 5 Retention Rates by Diet Group amongst Safeway Shoppers

Daily Portions of Fruit and Vegetables	Retention Rate
1-3 portions	68.6
4-5 portions	47.0
6 or more portions	15.3