

The Financial Cost of Healthy Eating in Ireland

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Abstract

Access to and availability of healthy foods are the two main determinants of food choice among low-income households. This study aimed to determine the cost of healthy eating over the course of a week for low-income households comprising two parents with two children, lone parents with one child and single older people. Market brand and economy-line 'own brand' products were used to determine the retail cost of baskets of foods developed for these population groups. The food baskets were based on purchasing patterns of these household groups combined with dietary recommendations of the Irish food pyramid. National level prices were identified and pricing was also undertaken at local level in a representative selection of different retail outlet types.

Healthy food baskets are approximately 15 per cent less expensive if nutritionally similar own brand choices are made. The type of retail outlet in which low-income groups tend to shop does not carry many own brand items, is less likely to stock healthy options but when it does these are more expensive than in other outlets. Very high proportions of household income would be necessary to purchase the food basket based on economy-line products (Lone parents 80 per cent, two adults with two children 69 per cent and single older people 38 per cent).

Healthy eating is not currently feasible among certain groups on social welfare benefits or minimum wages. This research should act as a scientifically robust information base to inform policy makers in their development of policy and action towards not only ensuring financial capacity but also guaranteeing that affordable healthy food choices are physically available to all groups in society.

Key words: food poverty, retail cost, healthy eating

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Disclaimer

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1 Introduction

As in other developed countries, socially disadvantaged individuals and households in Ireland have poorer dietary behaviour than richer members of Irish society (Friel and Conlon, 2004; Friel *et al.*, 2003; Nelson, 2000; James *et al.*, 1997; McElduff and Dobson, 2000), and there is documented evidence that certain groups in Irish society do indeed experience food poverty (Friel and Conlon, 2004; Vincentian Partnership for Social Justice, 2001; Hickey and Downey, 2004). Food poverty is multidimensional, referring not only to the lack of access to a nutritionally adequate diet but also to the related impacts on health, culture and social participation (Friel and Conlon, 2004).

An individual's social position affords him/her opportunities or otherwise to make healthy dietary choices (Shaw *et al.*, 1999) and this is strongly affected by structural, material and psychosocial factors which each influences the choices made (Dowler and Dobson, 1997; Friel, 2003). It is generally accepted that in the rich, developed world the main structural barriers to healthy food choices are access to healthy food, its affordability and levels of disposable income (Dowler, 1998).

Certainly a much wider range of foods has become available in the market of most industrialised countries including Ireland, determined to a large extent by international and national food production and manufacturing practices (Robinson *et al.*, 2000; WHO, 2003; Lang, 1998). The type of retail outlet accessible to individuals determines the availability of the range of foodstuffs and the prices paid for food (Watson, 2001). Inconvenient geographical placement of retail outlets affects the individual's access to healthy foodstuffs, often because of inadequate transport (Department of Health, 1996; Watson, 2001).

These factors run in parallel with the amount of money an individual or household allocates to food expenditure. Compared with households on at least average incomes, low-income households spend a greater proportion of their money on food, but in real terms the amount spent is less (ONS, 2004; Graham, 1992). In Ireland consumer spending on food dropped from an average of approximately 38 per cent in 1951 to 20 per cent in 2000. However, those in the bottom 20 per cent of income distribution still spend over 40 per cent of their disposable income on food (CSO, 2001). Worth noting are other often neglected marginalised groups such as people who are homeless, who in some instances spend more than 50 per cent of disposable income on food (Coufopoulos, 1997).

The money available and the costs of food are the most important factors when considering food priorities among low-income groups and they define taste, cultural acceptability and healthy eating boundaries (Dobson *et al.*, 1994; Coakely, 2001; Moloney, 2001). These factors are determined most significantly by national policy. In Ireland a number of government policies including the National Health Strategy, *Quality and Fairness* (DoHC, 2001) and the National Anti-Poverty Strategy (Government of Ireland, 1997) aim to address in some way issues relating to food and nutrition and low-income and social disadvantage. However, a recent investigation into the extent of food poverty in the Republic of Ireland and the policy response to address it (Friel and Conlon, 2004) notes the continuing marked inequalities in income, health, social participation and nutritional status among sub-groups of the Irish population, and the lack of integrated policy to tackle the issue.

The same report demonstrates that people from socially disadvantaged positions are less resourced than other social groups to make healthy food choices and low-income families, lone parents and older people are particularly at risk of food poverty.

Of all European Union member states, the Republic of Ireland has the highest proportion of people living in poverty (21 per cent), and poverty is particularly high among women, children and older people (European Commission, 2003). Social welfare payments are the main source of household income for many low-income groups and are therefore central to determining the living standards of these households (Russell *et al.*, 2004). Within Ireland, the general consensus, based on a review of payments and research, is that social welfare payments are not explicitly linked to a standard of adequacy, allow a restricted level of living and bear little relation to the cost of living in Ireland today (Combat Poverty Agency, 2001; Nolan, 1995).

Veit-Wilson (1994) recommends that governments should employ an adequate income benchmark, internationally known as a Minimum Income Standard (MIS). An MIS is described as a set of criteria for evaluating the adequacy of income levels (based on welfare rates, pensions and minimum wages) required for people to be able to take part in ordinary social life and stay out of poverty. One of the basic approaches used in the development of an MIS is that of budget standards. These are based on baskets of goods, such as food, clothing, household goods, household services, leisure goods, and leisure services which when priced can represent the income required by households of different composition to reach predefined living standards (Parker, 1998). Different types of budget standards exist. Modest-but-adequate standards, also known as Reasonable standards, cost all components of a typical household budget which would ensure living comfortably without debt, whereas Low-cost but acceptable standards operate around the poverty line (Parker, 2001).

Much of the development of food budget standards has taken place in the UK, where at the start of the twentieth century Rowntree highlighted the implications of financial paucity on dietary and health outcomes through the use of a nutritional poverty line (Rowntree, 1901). Not until the early 1990s was this approach revisited (Stitt and Grant, 1994) and then further developed by Parker and others to estimate the realistic costs of a healthy diet for a number of population groups (Parker, 2001, 1998; Nelson *et al.*, 2002) and more generally a healthy way of living among single males (Morris *et al.*, 2000). In Ireland, work carried out by Murphy-Lawless in the early 1990s identified that the standard of living in relation to food which could be purchased by individuals dependent on social welfare was lower than that of other household types (Murphy-Lawless, 1992). More recently, the Vincentian Partnership for Social Justice (2001) documented the experiences of people on low income and found a severely compromised diet among those living on social welfare payments.

The recent study on policy response to food poverty (Friel and Conlon, 2004) highlights the over-riding effect financial resources, costs of food and physical barriers have when considering food priorities among low-income groups. In the course of the study one of the main points that arose was the lack of knowledge on the current cost of a healthy diet. In Ireland a healthy diet is depicted graphically by a five-shelf food pyramid. Each shelf of the pyramid recommends daily consumption of a number of servings of a particular food group,¹ compliance with which will provide a balance of energy and nutrient intake (NAG, 1995; FSAI, 1999). The direct financial

¹ Irish Food Pyramid Recommendations:
Cereals, Breads and Potatoes: 6 or more servings daily
Fruit and Vegetables: 4 or more servings daily
Dairy Products: 3 servings daily
Meat, Fish and Alternatives: 2 servings daily
Top shelf (foods high in fat and high in sugar): eat sparingly

cost of purchasing the foodstuffs necessary to achieve these recommendations has not been determined fully in the Republic of Ireland and it is therefore unclear as to how achievable they are based on the financial capacity of low-income households.

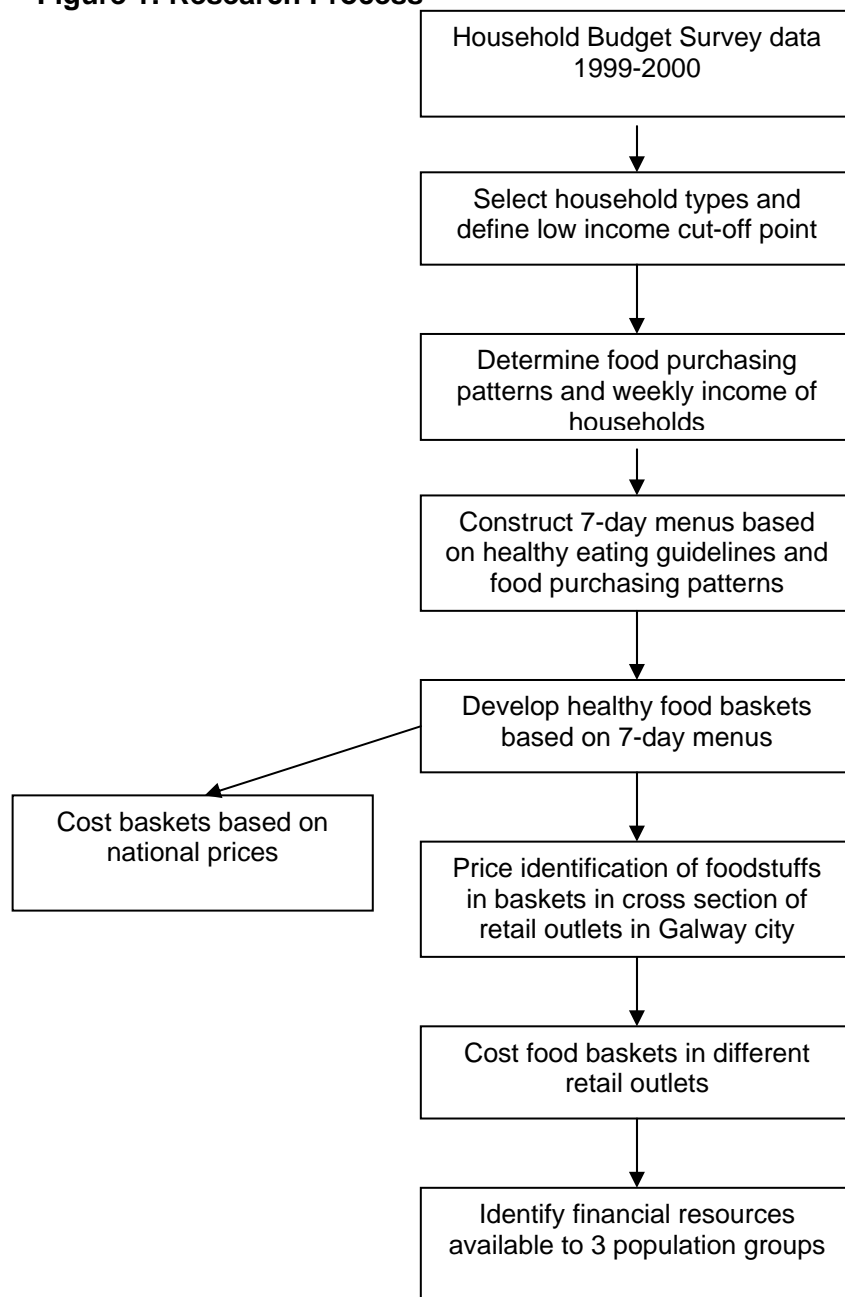
This study aims to respond to that lack of knowledge and instigate the development of an evidence base with which future social policy can be informed. The overall objective of the study is to determine the direct financial cost of purchasing a healthy diet, based on habitual purchasing patterns and the food pyramid recommendations, among three low-income household types in the Republic of Ireland; two parents with two children, lone parent mothers with one child and single people aged 65 years and over. In doing so a benchmark, or food budget standard, will be set which indicates the amount of money different household types need to purchase a nutritionally balanced diet, based on both reasonable and low-cost prices.

In addition to establishing the overall cost of a healthy diet for these three population groups, the study aims to identify if issues of availability exist which might affect the ability to purchase a healthy diet. This will be explored in relation to food item availability and price variation by type of retail outlet. The results of this research should act as a scientifically robust information base to inform policy and action by policy makers to not only ensure financial capacity but also guarantee that affordable healthy food choices are physically available to all groups in society.

2 Research Process

A summary of the research process used to determine the direct costs of healthy eating for three population groups (two parent two children, lone parent one child, single older person) in the Republic of Ireland is shown in Figure 1. There are four main stages in the research process: determination of food purchasing patterns, food basket development, pricing of food baskets and assessment of financial capacity of the three household types. In the remainder of the paper, the methodological details and results are reported for each stage of the process, followed by a final discussion section.

Figure 1: Research Process



3 Food Purchasing Patterns

The 1999-2000 household budget survey data were used to provide information on the food purchasing patterns of low-income households containing two adults and two children, lone parents with one child and single older adults. The Irish Central Statistics Office carries out household budget surveys (HBS) every five years to determine the pattern of household expenditure, including that on food, across a representative sample of private households in the State (CSO, 2001).

Based on considerations of information from other studies (Parker, 1998; HEA, 1989; VPJ, 2001), and recommendations from the Combat Poverty Agency, a cut-off value of the bottom 20th percentile of the income distribution in the HBS data was adopted to represent low income in each of the three population groups. The 20th percentile cut-off for income for each household grouping is: Two adults with two children (\leq €368.17), Lone parent (female) with one child (\leq €165.04), and Adult aged >65 yrs (\leq €114.26). Table 1 indicates the average weekly disposable incomes of each group and the average weekly food expenditure, broken down by income quintile. As expected there are large variations in household income across the three groups.

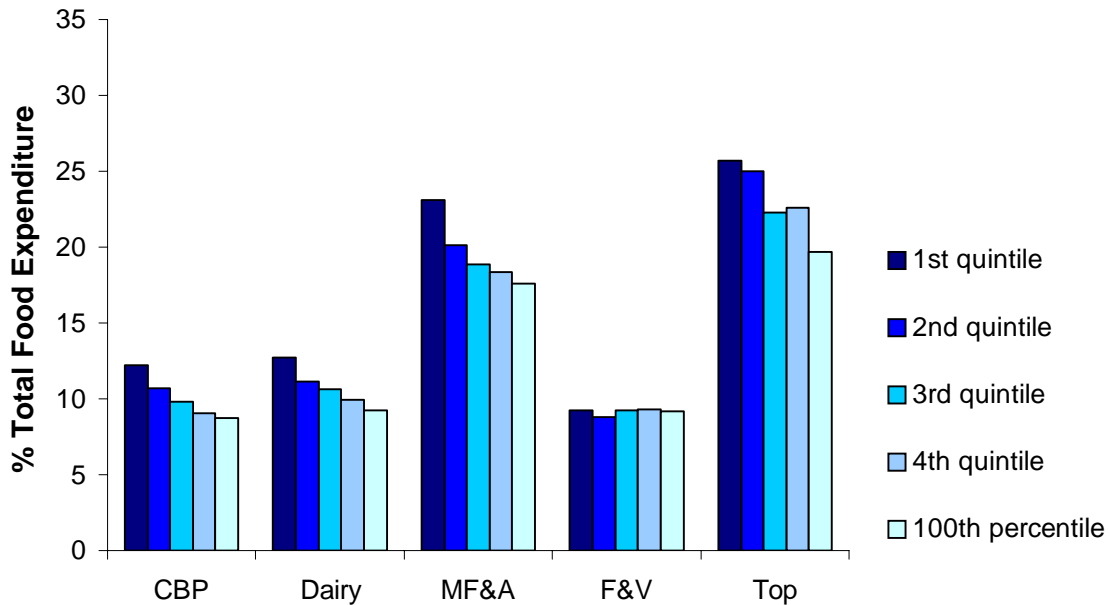
Table 1: Average Weekly Household Income and Food Expenditure for the Different Household Types

Income Quintiles	N	Average weekly income (€)	Average weekly food expenditure (€)
Two parent, two children (N=864)			
1 st	176	282.34	114.41
2 nd	199	476.32	130.78
3 rd	165	630.44	140.38
4 th	175	801.31	155.12
5 th	149	1011.50	175.16
Single mother with one child (N=123)			
1 st	34	141.95	58.26
2 nd	18	213.03	51.05
3 rd	24	291.99	60.41
4 th	23	367.15	86.96
5 th	24	566.97	89.85
Single older people (N=827)			
1 st	230	109.18	39.61
2 nd & 3 rd *	282	139.65	38.59
4 th	181	195.01	40.93
5 th	134	375.53	53.29

* Note: The 2nd and 3rd quintiles for income are identical for the single older people households.

The 1999-2000 HBS contains 146 food items purchased for home consumption. The average amount of money spent on each individual foodstuff was identified and added together to determine overall food expenditure. The aggregate expenditure on each shelf of the food pyramid was also determined and is presented in Figures 2-4. The observed patterns of food expenditure in the low-income households were used to inform the development of the food baskets.

Figure 2: Food Pyramid Purchasing Patterns of Two Parent Two Children Households, Broken Down by Income Quintile



CBP = Cereals, Breads & Potatoes, F&V = Fruit & Vegetables, Dairy = Milk, Cheese & Yoghurt, MF&A = Meat, Fish & Alternatives, Top = Top shelf (foods high in fat and sugar)

Cereals, Breads and Potatoes (CBP)

Of the three household types, single older people spend the highest proportion of total food expenditure on foods from this group, and eat proportionately more potatoes than the other two household types across each of the different income quintiles. Detailed analyses of the data show that purchases mainly consist of white bread, potatoes and breakfast cereals across all incomes for the three household types and the amount spent on brown bread was low overall.

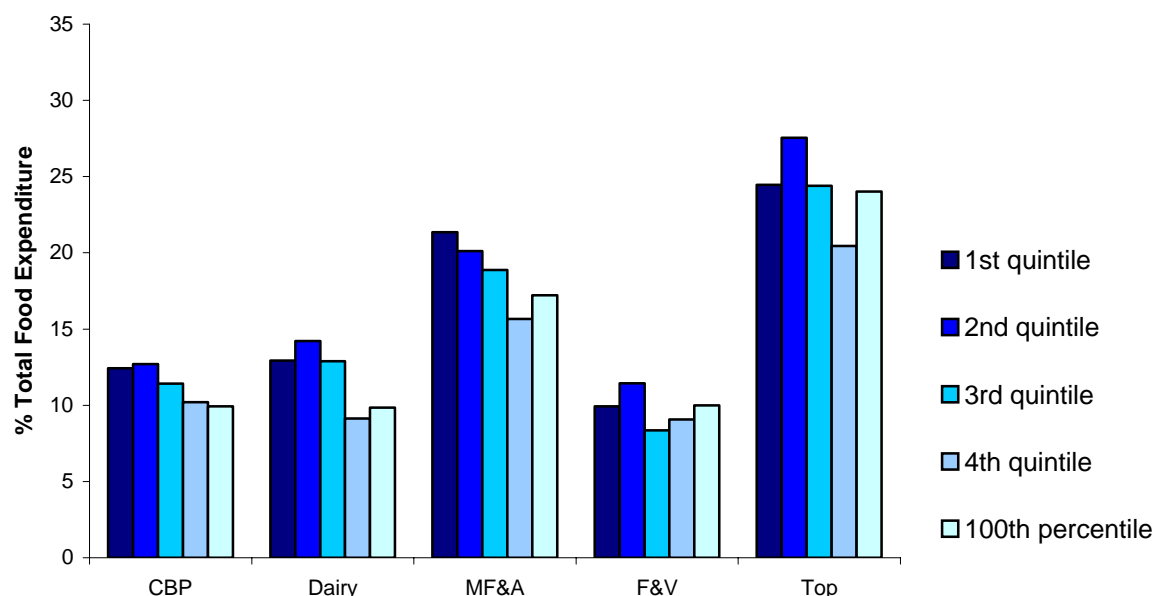
Fruit and Vegetables

Expenditure patterns on this food group are similar across all income categories of two parent two children households and single older people. In the case of lone parents the 1st income quintile (low-income group) and 3rd income quintile exhibit the lowest expenditure on fruit and vegetables and the 2nd income quintile the highest. The largest proportion of total food expenditure across all groupings is on fruit and vegetable juices. Other popular fruit and vegetables are carrots, tomatoes, other fresh vegetables, cabbage, onion, tinned peas and parsnips, bananas, eating apples and oranges.

Dairy products

Expenditure on dairy products as a percentage of total food expenditure decreases linearly with increasing income in the case of the single older people and two parent two children households. Across all categories the largest proportion of total food expenditure for the dairy shelf is on fresh milk.

Figure 3: Food Pyramid Purchasing Patterns of Single Lone Parents with One Child, Broken Down by Income Quintile



CBP = Cereals, Breads & Potatoes, Dairy = Dairy products, MF&A = Meat, Fish & Alternatives, F&V = Fruit & Vegetables, Top = Top shelf (foods high in fat and sugar)

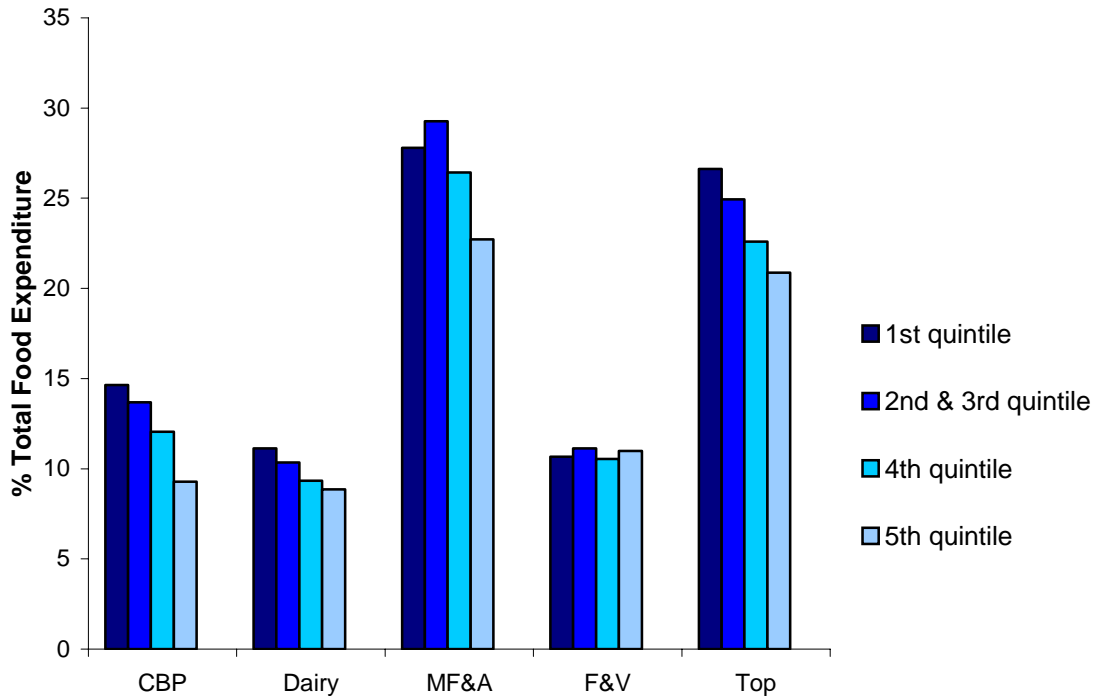
Meat, Fish and Alternatives (MFA)

Generally, MFA purchasing as a percentage of total food expenditure decreases with increasing income. Of the three population groups, single older people spend the highest proportion of total food expenditure on meat, fish and alternatives. Across all income groups purchases mainly consist of chicken as well as cooked ham and pork. Purchasing patterns of individual food items in the MFA food group do not vary greatly by income but families on a low income tend to spend higher proportions of their total food bill on less healthy meats such as sausages and rashers compared with families on a higher income. A very small proportion of total food expenditure is spent on fresh fish across all of the income quintiles in the different households.

Top shelf (Foods High in Fat and High Sugar)

Foods from the top shelf of the food pyramid should be eaten sparingly and consist mainly of fats and confectionery. Top shelf foods account for the largest proportion of total food expenditure across all the income groupings and household types except in the case of single older people where the MFA group accounts for the greatest proportion of total food expenditure. Purchasing patterns also vary according to the income gradient, with those in the low-income category spending higher proportions of their food bill on top-shelf foods compared with their wealthier counterparts. Across all income groupings large amounts are spent on sweets, soft drinks, biscuits, crisps, sauces and creams, cakes and buns and tea.

Figure 4: Food Pyramid Purchasing Patterns of Single Older People, Broken Down by Income Quintile



CBP = Cereals, Breads & Potatoes, Dairy = Dairy products, MF&A = Meat, Fish & Alternatives, F&V = Fruit & Vegetables, Top = Top shelf (foods high in fat and sugar)

4 Food Baskets

In the study, food baskets were based on an aggregate of 7-day menus which were developed to reflect the habitual food purchasing pattern identified in the HBS data of each household type but which also ensure a balance in the number of servings from the different shelves of the food pyramid and hence daily consumption of a nutritionally balanced diet. It is important not to develop baskets that are unrepresentative and unacceptable to the populations concerned. Therefore foods such as sausages, chips and sweets, which the HBS analysis shows are regularly purchased by two of the three groups, are also included in the relevant 7-day menus. The food baskets were constructed to contain items in purchasable quantities (for example one litre of milk) and based only on at-home consumption. Ideas for the menus are taken from a nationally utilised book entitled *101 square meals* (Limerick Money Advice and Budgeting Service, 1998), which includes food recipes specifically designed with healthy eating on a low budget. The food baskets do not include alcohol.

Tables 2-4 show the 7-day menus developed for low-income two parent two children, lone parent one child and single older person households. As yet the actual population groups under consideration have not tested the menus for acceptability. However, this is currently underway.

Table 2: 7-day Menus for Two Parent Two Children Household

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Breakfast	4 glasses of orange juice. 4 boiled eggs. 8 slices of white toast.	4 glasses of orange juice. 4 bowls of Special K. 8 slices of white toast. Pint of milk.	4 glasses of orange juice 4 bowls of Special K. 8 slices of white toast. Pint of milk.	4 glasses of orange juice. 4 bowls of Special K. 8 slices of white toast. Pint of milk.	4 glasses of apple juice. 4 bowls of porridge. 8 slices of white toast.	4 glasses of apple juice. 4 bowls of porridge. 4 slices of wholemeal toast.	4 glasses of apple juice. 8 sausages. 8 slices of wholemeal toast.
Mid-morning snack	4 oranges.	4 apples.	4 apples.	4 bananas.	4 bananas.	4 bananas.	
Main meal	Beef stew: stewing beef/round steak, 1 stock cube, white flour, 2 carrots, 1 onion, 8 potatoes. 4 glasses of milk 4 slices of apple tart custard & ice cream.	Bacon cabbage & 8 potatoes. 4 glasses of milk.	Pork casserole: diced pork, 4 carrots, 6 mushrooms, curry powder, 1 tin of tomatoes, mixed herbs, veg stock & 6 potatoes. 4 glasses of milk.	Chilli Con carne with minced beef, rice, 1 onion, 1 pepper, 1 tin of tomatoes, chilli powder, 1 tin of kidney beans. 4 glasses of milk.	Chicken & broccoli pie: 4 chicken fillets, 1 onion, 1 carrot, 1 tin of chicken soup, broccoli, curry powder, milk, breadcrumbs, cheese. 4 glasses of milk.	Vegetable pasta bake: 1 onion, 1 green pepper, 8 mushrooms, 1 tin of tomatoes, tomato sauce, wholemeal breadcrumbs, cheese sauce, pasta. 4 glasses of milk.	Pizza, oven chips & tinned peas. Toppings on pizza include pineapple, chicken & mushrooms 4 glasses of milk.
Mid afternoon snack		4 yoghurts.	4 slices of wholemeal bread & cheese.		4 biscuits.	4 fruit scones.	4 yoghurts.
Light meal	Cold plate: 4 slices of turkey & 4 slices of	2 tins of spaghetti & 8 slices of	2 tins of vegetable soup. 4 slices of	Cheese & bacon toasted sandwiches: 8	2 tins of spaghetti & 8 slices of white	8 slices of wholemeal bread with	French toast: 6 eggs, milk, veg oil & 8 slices of

	ham, 8 slices of wholemeal bread, lettuce & 4 tomatoes.	wholemeal toast.	wholemeal bread.	slices of white bread, 8 rashers, 4 tomatoes, 1 onion & cheese.	toast.	cheese & 4 slices of ham 4 yoghurts.	wholemeal bread. 4 yoghurts.
Evening snack	8 cream crackers with cheese.	8 biscuits & tea.	8 biscuits & tea.	4 fun sized bars.	8 biscuits & tea.	8 biscuits & tea.	4 glasses of milk & biscuits.

Table 3: 7-day Menus for Lone Parent with One Child

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Breakfast	2 glasses apple juice. 4 sausages. 2 rashers. 2 slices of white toast. Low fat spread.	2 glasses apple juice. 4 weetabix. ½ pint of milk. 2 slices of white toast. Low fat spread. 2 bananas.	2 glasses orange juice. 4 weetabix. ½ pint of milk. 2 slices of white toast. Low fat spread. 2 bananas.	2 glasses orange juice. 4 weetabix. ½ pint of milk. 4 slices of white toast. Low fat spread.	2 glasses orange juice. 4 weetabix. ½ pint of milk. 4 slices of white toast. Low fat spread.	2 glasses orange juice. 4 weetabix. ½ pint of milk. 4 slices of wholemeal toast. low fat spread.	2 glasses orange juice. 4 weetabix. ½ pint of milk. 4 slices of wholemeal toast. low fat spread.
Mid-morning snack	2 yoghurts.	2 fun size bars of chocolate.	2 slices of white toast.	2 bananas.	2 apples.	2 apples.	2 oranges.
Main meal	2 Lamb chops. Broccoli. 1 Carrot. 4 Potatoes. Gravy. Ice cream. 2 glasses of milk.	Chicken & veg casserole: 2 chicken breasts, 1 carrot, 2 potatoes, 1 celery stick, 1 tin of tomatoes, 1 onion. 2 glasses of milk.	Spaghetti Bolognese: Mince beef, 1 onion, 1 tin of tomatoes, 1 pepper, 5 mushrooms, spaghetti. 2 glasses of milk.	Beef stew: stewing beef/round steak, 1 stock cube, cornflour, 2 carrots, 1 onion, 4 potatoes 2 glasses of milk.	Chicken risotto: wholemeal rice, 2 chicken breasts, 5 mushrooms, 1 stock cube, 1 red pepper, 1 onion, 1 small tin of sweetcorn. 2 glasses of	Fish pie: 2 pieces of fish (haddock/cod), 1 onion, ½ pint of milk, 4 potatoes, 2 carrots. 2 glasses of milk.	Burgers & chips: 2 homemade burgers, oven chips, 1 tin of peas. 2 glasses of milk.

					milk.		
Mid afternoon snack	2 fruit scones.	2 fruit scones.	2 fruit scones.	2 slices of wholemeal bread & 2 bananas.	2 slices of wholemeal bread.	2 yoghurts.	2 wholemeal scones.
Light meal	Cold plate: 2 slices of wholemeal bread, 4 slices of cooked ham, lettuce & cheese, 2 tomatoes.	Bacon & mushroom omelette: 4 eggs, 2 rashers, 5 mushrooms, cheese	Tinned Farmhouse vegetable soup: & 4 slices of white bread.	Sausage sandwiches: 4 sausages, 8 slices of white toast.	Toasted sandwiches: 4 slices of white bread, 2 tomatoes, 2 slices of ham and cheese, 1 onion.	2 cans of tinned beans on 4 slices of wholemeal toast.	Wholemeal quiche: 2 rashers, 5 mushrooms, 4 eggs, wholemeal flour, margarine, 1 onion, 2 tomatoes, cheese
Evening snack	2 packets of crisps.	2 Glasses of milk.	2 Glasses of milk & 4 biscuits.	2 Glasses of milk & 2 bars.	2 Glasses of milk & 2 bars.	2 cups of tea & 4 biscuits.	2 cups of tea & 4 biscuits.

Table 4: 7-day Menus for Single Older Person

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
Breakfast	Bowl of Porridge. Milk. 1 slice of wholemeal toast. Tea.	Bowl of Porridge. Milk. 1 slice wholemeal toast. Tea.	Bowl of Porridge. Milk. 1 slice wholemeal toast. Tea.	Bowl of Porridge. Milk. 1 slice white toast. Tea.	Bowl of Porridge. Milk. 1 slice white toast. Tea.	Bowl of Porridge. Milk. 1 slice white toast. Tea.	Bowl of Porridge. Milk. 1 slice white toast. Tea.
Mid morning snack	Cocoa. Milk.	Tea. 1 orange.	Cocoa. Milk.	Tea. 1 apple.	Glass milk. 1 orange.	Tea. 1 plum.	Tea. 1 apple.

Main meal	Baked salmon: Fresh salmon 2 boiled potatoes Mixed frozen veg. Prunes & custard.	Round steak: 2 boiled potatoes onions, broccoli, cauliflower. 1/2 tinned fruit & ice-cream.	Grilled chicken: 1 chicken fillet, 2 mashed potatoes, Mixed frozen veg., 1 parsnip & 1 carrot. 1/2 tin tinned fruit & ice-cream.	Grilled lamb: 1 lamb chop, 2 boiled potatoes, turnip, cabbage. Semolina & milk.	Chicken casserole: 1 chicken fillet, 2 boiled potatoes, onions, carrots, broccoli, 1 stock cube. 1 baked apple & raisins	Baked cod: 1 fresh cod fillet, 2 boiled potatoes, cauliflower, carrots. Prunes & custard.	Bacon: Boiled bacon, 2 boiled potatoes, cabbage, turnip. 1 stewed apple with raisins.
Mid afternoon snack	Plum. Tea.	Tea. 1 apple.	Plum. Tea.	Prunes. Tea.	Banana. Tea.	1 orange. Tea.	Tea. 1 chocolate bar.
Light meal	1 boiled egg. 1 tomato grilled. 1 slice of brown bread. Tea.	3 slices cheese. 1 slice cooked ham. 2 slices of brown bread. Tea.	1 egg scrambled. 1 slice of white toast. 1 apple. Tea.	1 slice cooked ham. 1 tomato. 2 slices of brown bread. Tea.	1 small tin beans. 2 slices of white bread. 1 plum. Tea.	1 poached egg. 1 tomato grilled. 2 slices of brown bread.	2 slices cheese. 2 slices leftover bacon. 1 tomato. 2 slices brown bread.
Evening snack	Hot milk. 1 slice of white bread.	Hot milk. 1 biscuit.	Tea. 1 slice of white bread.	Hot milk. 1 biscuit.	Hot milk. 1 biscuit.	Hot milk. 1 biscuit.	Hot milk. 1 biscuit.

Note: the following items from the basket are available for use, as desired during the week: tea, coffee, soft drinks, milk, sunflower/vegetable oil, sugar, jam, biscuits, low fat spread, margarine.

5 Retail Cost of Food Baskets

National Level Pricing

The items within the food baskets recommended for purchase and consumption by the three household types were costed at national level using prices available through the Tesco Ireland online database (www.tesco.ie). Both market brand and own brand prices were recorded to illustrate differences in basket cost if low-cost, own brand items were chosen. The cost of purchasing the foodstuffs in the quantities as recommended in the overall weekly baskets, using both market brand and own brand products, for the different household types is shown in Table 5. Also presented in Table 5 is the cost of the food basket broken up into each shelf of the food pyramid.

The overall cost of each food basket of course differs across the different household types due to the variation in content and quantities of each food item. However, for each household type the overall basket is cheaper when low-cost, own brand options of the recommended food items are purchased. In fact baskets comprising own brand products are between 12 and 15 per cent cheaper than those comprising market brand goods.

The price differential by food shelf is not consistent across the different household types, suggesting that the effect of retail prices on different population groups is not homogenous but rather depends on who you are and what you buy. Detailed analysis of the data reveals that one of the penalties incurred when purchasing own brand products is that of having to buy more of any one item than may be required since own brand items are often only available in large weights. This may suit larger family units but can mean unnecessary expense and food wastage in smaller units. This may explain why for instance the fruit and vegetable shelf is more expensive or of similar cost to market brand items for lone parents and single older people. One of the main food groups in the purchasing choices of different households is that of cereals, breads and potatoes. This food group is substantially cheaper when own brand items are purchased. In fact at the national level potatoes, bread and cereals are almost half price if own brand items are chosen. Own brand products of the less healthy food items from the top shelf of the food pyramid are often much cheaper than the market brand equivalent.

The number of items constituting a household's purchase of a particular food shelf also influences the price differential. Whilst larger family units need greater financial capital to purchase the required volume of food, smaller requirements in terms of portion size and variety in diet put a person or household at a retail cost disadvantage.

Table 5: Retail Price of Food Baskets at National Level, across Household Types

Food Group	2 Parent 2 Children family			Lone Parent 1 Child			Single Older Person		
	MB (€)	OB (€)	% Diff	MB (€)	OB (€)	% Diff	MB (€)	OB (€)	% Diff
Cereals, Breads & Potatoes	28.45	24.79	13	19.47	14.55	25	12.02	7.85	35
Fruit & Vegetables	29.61	26.63	10	19.72	20.46	-4	20.99	20.74	1
Dairy products	20.16	12.84	36	10.16	5.52	46	3.04	2.81	8
Meat, Fish & Alternatives	44.91	42.49	5	34.90	33.02	5	19.22	17.55	9
Top shelf	44.38	36.36	18	38.52	30.47	21	19.38	16.88	13
Total	167.51	143.11	15	122.77	104.02	15	74.65	65.83	12

MB: Market Brand, OB: Own Brand

% Difference between MB and OB calculated with MB as reference

Retail Outlet Price Variation

Financial cost and actual availability of recommended foodstuffs vary depending on retail outlet type. In order to investigate this aspect in the Irish setting, identification of price variation of the food baskets by retail outlet was undertaken in Galway city across a representative selection of the four Irish retail outlets including Multiples (e.g. Dunnes, Tesco), Groups/Symbols (e.g. Mace, Supervalu, Centra), Foreign shops (e.g. Aldi, Lidl) and Independents or corner shops.

In the summer of 2003, two fieldworkers carried out primary data collection of food prices in thirteen of the fifteen retail outlets approached. The shops were visited and prices physically documented. This method was chosen in preference to asking for a list of prices since previous research has shown that retail outlets are not very forthcoming with prices even when assured of the non-commercial use of the information (Friel *et al.*, 2001). The fieldworkers surveyed the shelves in each store and documented the cost price, the weight and the retail price per unit weight for each of foods contained in the baskets. In order to illustrate differences in basket cost if economy-line, own brand items were chosen. Prices were recorded of the leading market brand and of the outlets' own brand where available. When own brand lines were not available the price of the market brand was used. If a retailer offered more than one brand of the same product the price of the cheaper brand was recorded.

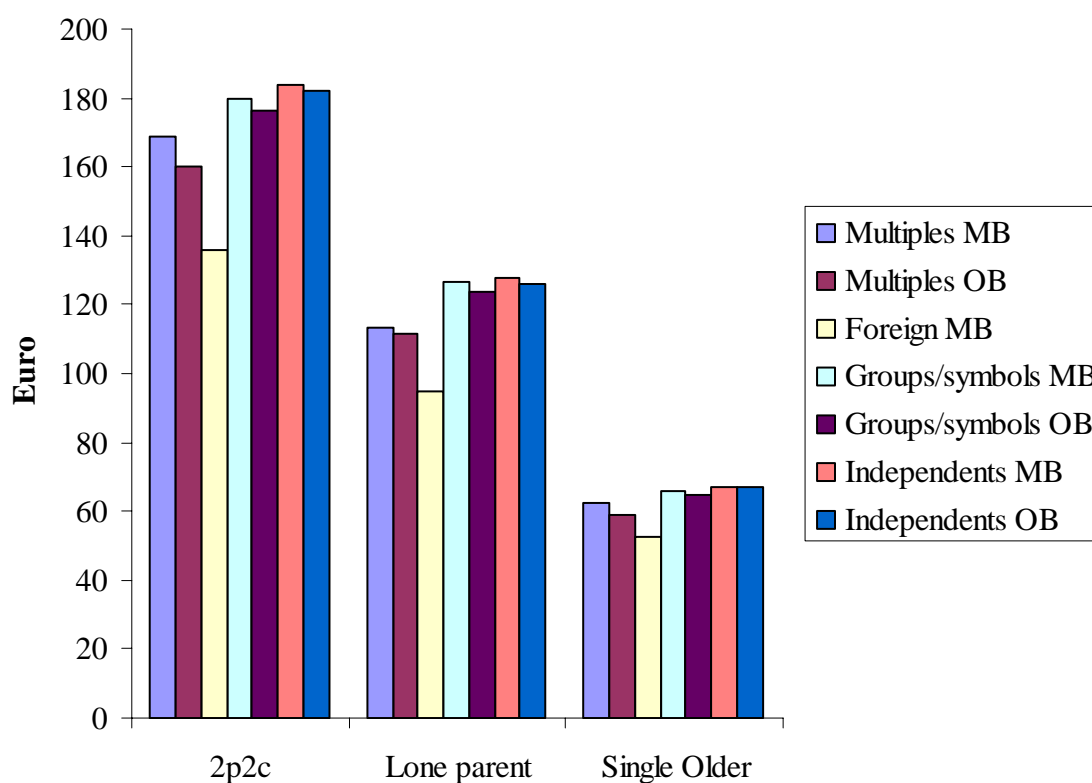
In many of the smaller retail outlets foodstuffs such as fresh meat or fish were not stocked and so when pricing the baskets in these particular shops the price of the foodstuff in one of the larger retail outlets was used. For certain foodstuffs weights were not available. For example in the case of fruit, prices per kg were listed but not the price for an individual piece of fruit as was required in the basket. Equivalent weights were estimated using a textbook of food portion sizes (MAFF, 1991).

For presentation purposes the food prices from each of the thirteen retail outlets visited are averaged under the corresponding retail category (i.e. Multiple, Foreign, Groups/Symbols & Independents). The average retail cost of each food basket, based on market brand (MB) and own brand (OB) prices in different retail outlet types is shown in Figure 5. Whilst the same pattern is observed as when using national level prices, i.e. the two adults two children basket is the most expensive and that of the single older person is the least expensive, the actual cost of each food basket varies depending on where purchased.

The average cost of the two parent two children food basket across all of the thirteen different retail outlets is €171.20 if market brand items are purchased and €167.60 when own brand products are chosen where available. The own brand basket for this population group is the least expensive in one of the Foreign shops (€129.65), and the most expensive in one of the Group/Symbol shops (€188).

The average cost of the healthy food basket for a lone mother with one child is €118.84 when purchasing market brand items and €116.94 when own brand options are included where possible. As with the two parent two children basket, the cheapest place to purchase this basket of food is in a Foreign retail store (€91.62) and the most expensive place is a Group/Symbol outlet (€132.88).

From Figure 5 it can be seen that of the three household types, the basket designed for the older person living alone is the least expensive overall. The average cost of the healthy food basket across the thirteen different retail outlets is €63.99 if market brand items are chosen and €62.65 when own brand produce is purchased where available. The least expensive retail outlet is again a Foreign outlet where the healthy food basket is priced at €50.75 and the most expensive is the Independent retail category where the basket costs €70.42.

Figure 5: Retail Cost of Food Basket in Different Retail Outlet Types, for Each Household Type

2p2c = Two parent two children household

Lone parent: Lone parent with one child

Single Older: Older person living alone

Generally, the food baskets for two parent two children households, lone mother one child households and single older person households are by far the least expensive in the Foreign retail outlet. The Multiples prove to be the second cheapest place to purchase all three baskets and the most expensive retail outlet type is either the Groups/Symbols or the Independents, depending on the basket. The Multiples visited stock the majority of foods in the baskets. This is not the case of the Independents and the Groups/Symbols, which frequently offer only a limited range of fruit and vegetables and little or no meat, fish and poultry. In contrast almost all Independents in this study stock every foodstuff from the top shelf of the food pyramid in the basket.

From Figure 5 it can be seen that the basket price for own brand products are slightly cheaper than market brand prices in the majority of the retail outlets for the three household types. There are, however, two important points to note when interpreting this finding. Firstly, not all outlets stock own brand lines and where this was found to be the case the market brand equivalent price was entered into the basket costing. A wide range of own brand foods is available in the three Multiples. The Foreign stores almost exclusively offer their own foreign brand of foods and have very few major market brand lines. A very limited range of own brand lines is available in the Groups/Symbols or the Independents.

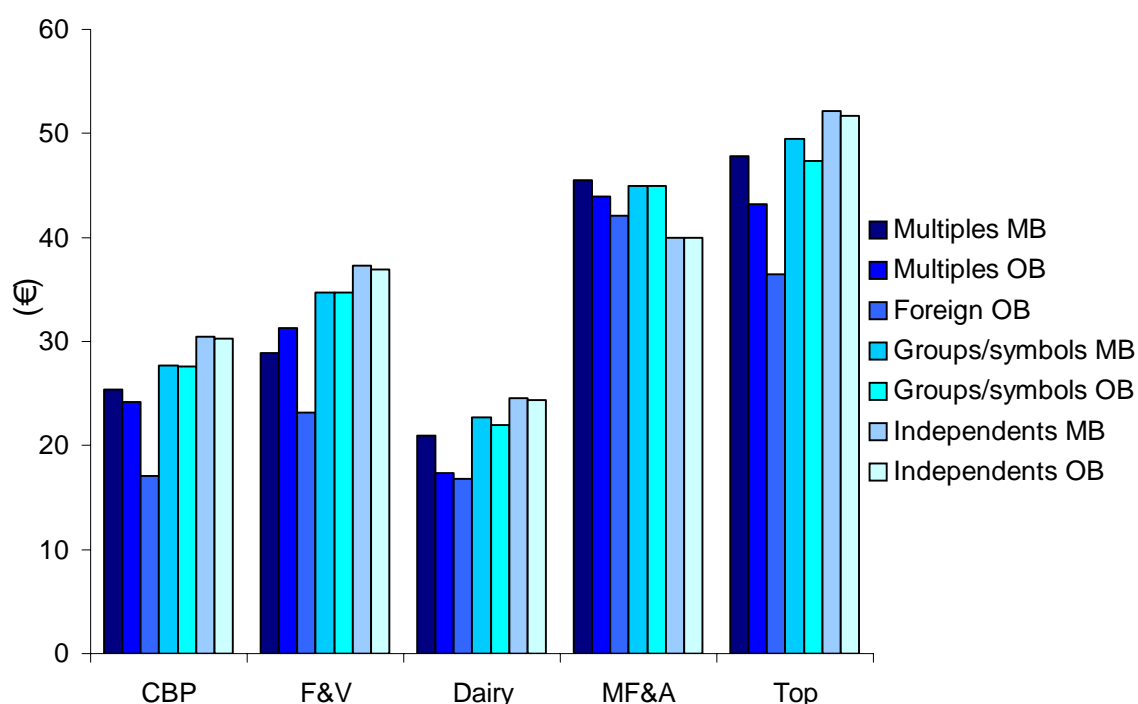
Secondly, the own brand food prices are based on quantities that accord with foods available in the shops. Retailer own brand products vary in size and are often available only in larger sizes than their market brand equivalents. The purchase therefore is of larger volume and hence inflates the basket price, helping to explain why the difference between the overall own brand and market basket prices is not as striking as might be expected. Using ice-cream as an example; a 568ml block of HB vanilla ice-cream in a Multiple is €1.46. However, the only weight available in the own brand equivalent is one litre and is priced at €1.99 (market brand price equivalent for 1 litre of ice-cream is €2.57). This is also the case for fruit and vegetables which are often only available in packs or bags in the own brand lines, unlike the market brand fruit and vegetables which is usually available loose. Therefore in some instances where a relatively small volume of fruit and vegetables is required the own brand items are more expensive than the market brand equivalent because of inappropriate larger than required availability.

Standardised prices per unit weight of all own brand and market brand were calculated in order to facilitate direct price comparisons. Although not presented here, the data highlight two main points. Firstly, weight for weight, own brand items are generally cheaper than market brand equivalents. Many of the foods from the cereal, bread and potato shelf are cheaper to purchase as own brand rather than market brand. Own brand versions of sausages, tin of beans and eggs are substantially cheaper than major market brands, all dairy items are cheaper to purchase as own brand lines and the majority of own brand lines of foods high in fat and sugar are cheaper than the market brand. As would be expected, fruit and vegetables do not tend to have market brand versus own brand options. Secondly, many retail outlets do not carry own brand equivalents of the majority of food items in the baskets recommended for healthy eating.

Dietary Recommendations and Outlet Price Variation

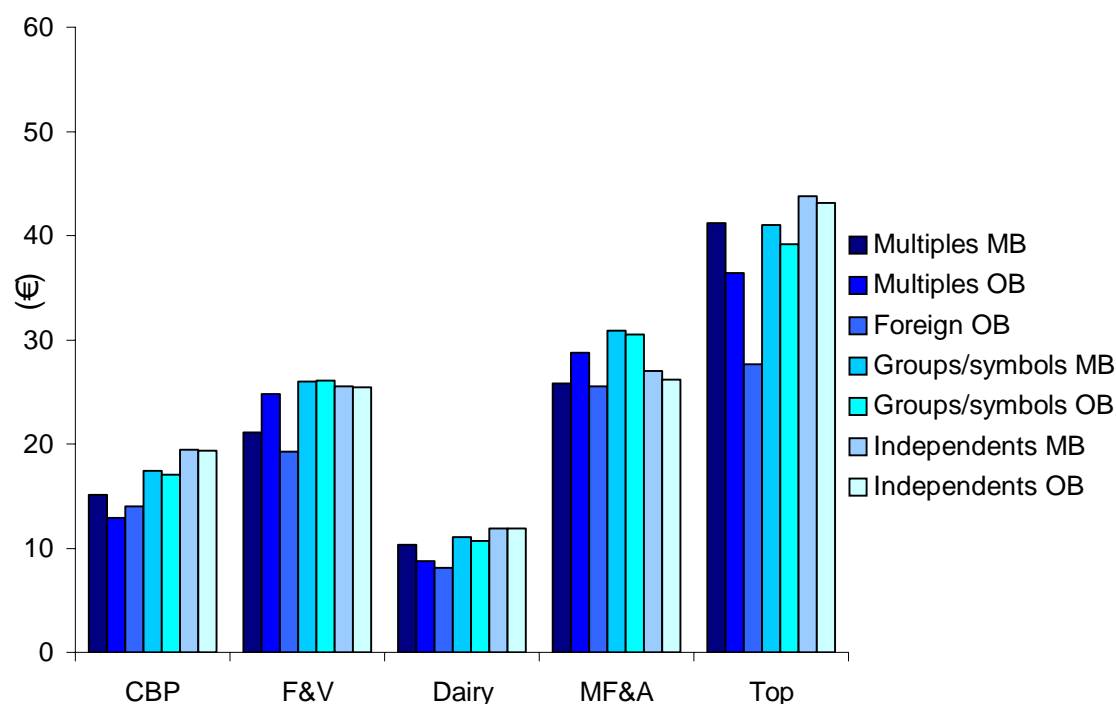
Figure 6 shows the aggregate cost of foods in each shelf of the food pyramid for two parent two children families, based on market brand and own brand prices, across the different retail outlet types. Large price differences are not obvious between market brand and own brand products across the different food groups but prices do vary by outlet type. The data highlight that the Foreign outlets prove to be the most inexpensive place to purchase foods from all categories except meat, fish and alternatives. Independents are the most expensive outlet type to purchase foods from the top shelf (€51.69), fruit and vegetables (€36.94), dairy products (€24.35) and cereals, breads and potatoes (€30.27). Meat, fish and alternatives are most expensive in the Groups/Symbols (€44.91) and cheapest in the Independents (€40).

Figure 6: Cost of Healthy Food Basket for Two Parents with Two Children



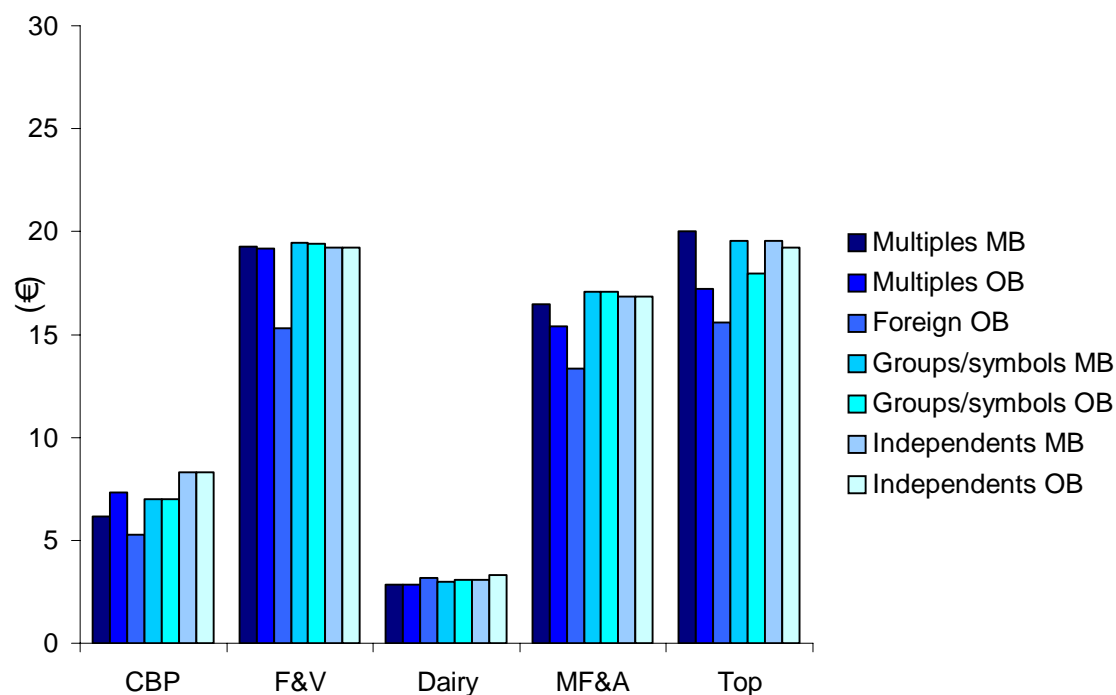
CBP = Cereals, Breads & Potatoes, F&V = Fruit & Vegetables, Dairy = Milk, Cheese & Yoghurt, MF&A = Meat, Fish & Alternatives, Top = Top shelf (foods high in fat and sugar)

Figure 7 illustrates the cost of each food shelf in the lone parent one child food basket if purchased in the different retail outlet types using market brand and own brand products. There is substantial variation in the cost of the food pyramid shelves of the food basket across the retail outlets. Multiples are the cheapest outlet for purchasing the foods from the cereal, bread and potatoes shelf (€12.95), compared to Independents which charge almost €20. The Foreign store is the cheapest place to purchase the dairy items (€8.10), meat, fish and alternatives (€25.66), fruit and vegetables (€19.30) and foods from the top shelf (€27.62). Similar to the two parent two children basket, meat, fish and alternatives and foods from the top shelf are the most expensive categories across the different retail outlets.

Figure 7: Cost of Healthy Food Basket for Lone Parent with One Child

CBP = Cereals, Breads & Potatoes, F&V = Fruit & Vegetables, Dairy = Milk, Cheese & Yoghurt, MF&A = Meat, Fish & Alternatives, Top = Top shelf (foods high in fat and sugar)

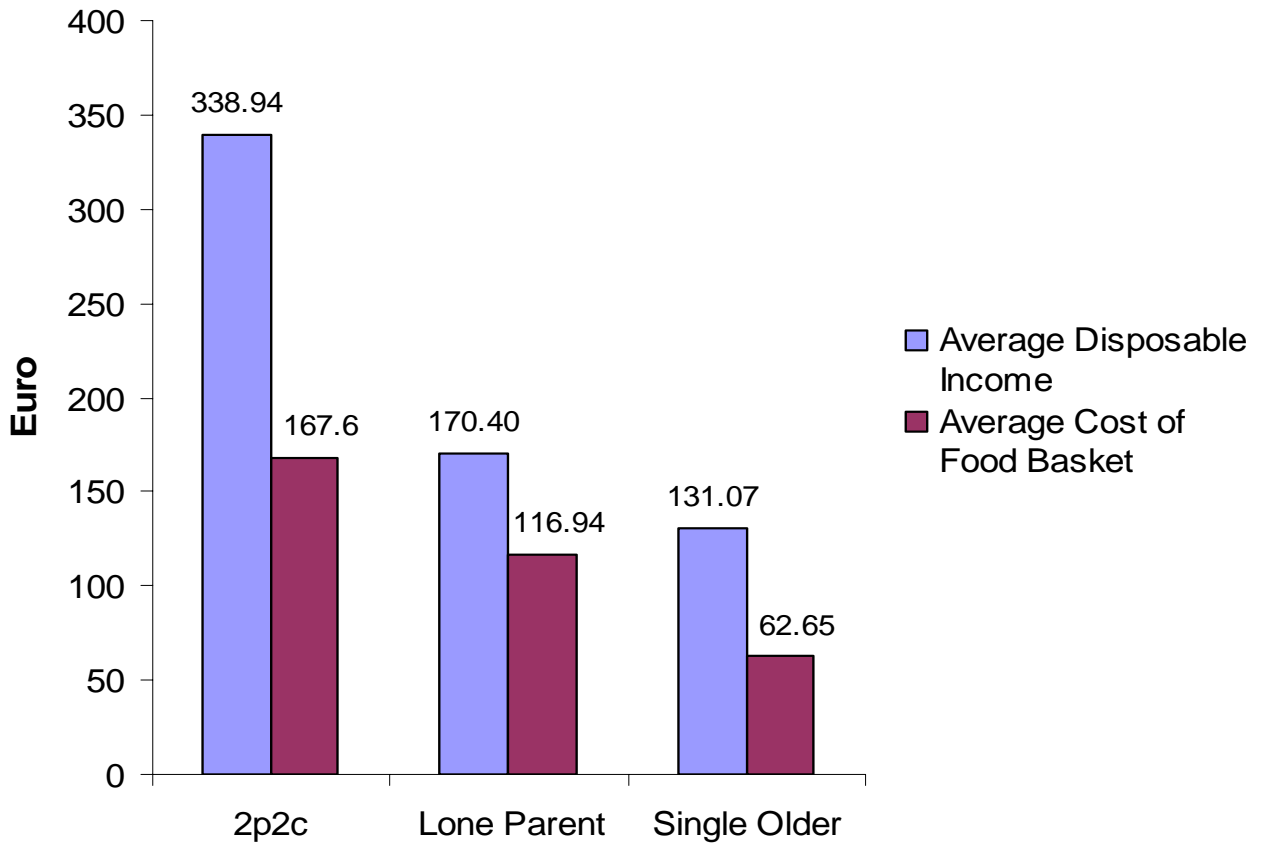
The cost of foods in each shelf of the pyramid for the older person's food baskets, across the different retail outlets, is shown in Figure 8. The least expensive retail outlet type for all food groups (except for dairy products where the Multiple is the cheapest) is the Foreign retail category. Independents are the most expensive for cereals, breads and potatoes (€8.31) and dairy products (€3.08), Groups/Symbols are the most expensive for meat, fish and alternatives (€17.09) and fruit and vegetables (€19.45) and the Multiples are the most expensive for foods from the top shelf (€20.03), although their own brand produce is almost as cheap as the Foreign outlet.

Figure 8: Cost of Healthy Food Basket for a Single Older Person

CBP = Cereals, Breads & Potatoes, F&V = Fruit & Vegetables, Dairy = Milk, Cheese & Yoghurt, MF&A = Meat, Fish & Alternatives, Top = Top shelf (foods high in fat and sugar)

6 Financial Resources Available to Low-Income Households

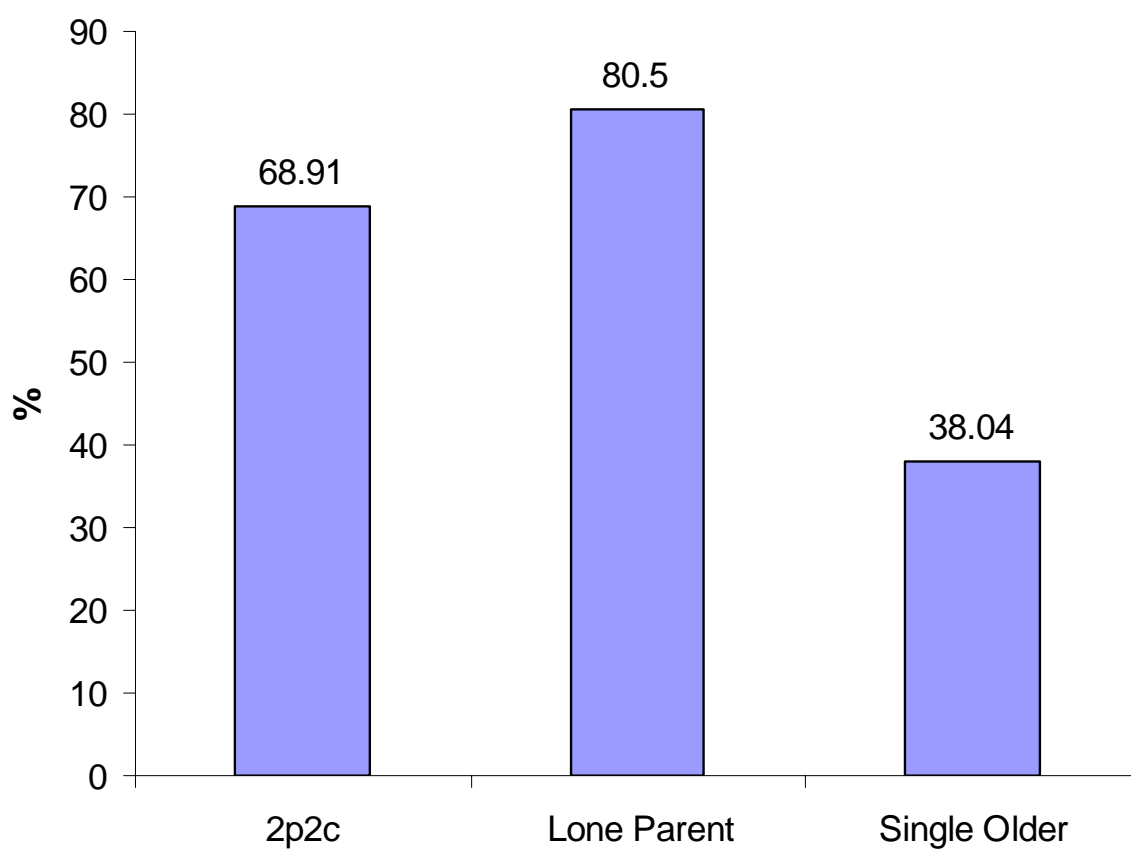
The disposable income data for each household type in the 1999-2000 HBS was adjusted to income levels of June 2003 in order to compare with the pricing data. Figure 9 compares the purchasing cost using own brand prices of the recommended healthy food basket with the average weekly disposable income within the lowest income quintile of each of the three household types. As hoped, the disposable income available in a household unit exceeds the cost of the recommended basket of foods. For two parent two children households and older people living alone, the cost of the food basket appears to be approximately half the level of disposable income. However, the marginal difference between income and food costs for single parents with one child is substantially less. If this population group wished to purchase the nutritionally balanced basket of foods, it would require spending 82 per cent of the household disposable income.

Figure 9: Average Cost of Food Basket and Average Disposable Income

Average disposable income refers to June 2003 using adjusted HBS 1999/2000 data
 2p2c = Two parent two children
 Lone parent: Lone parent with one child
 Single Older: Older person living alone

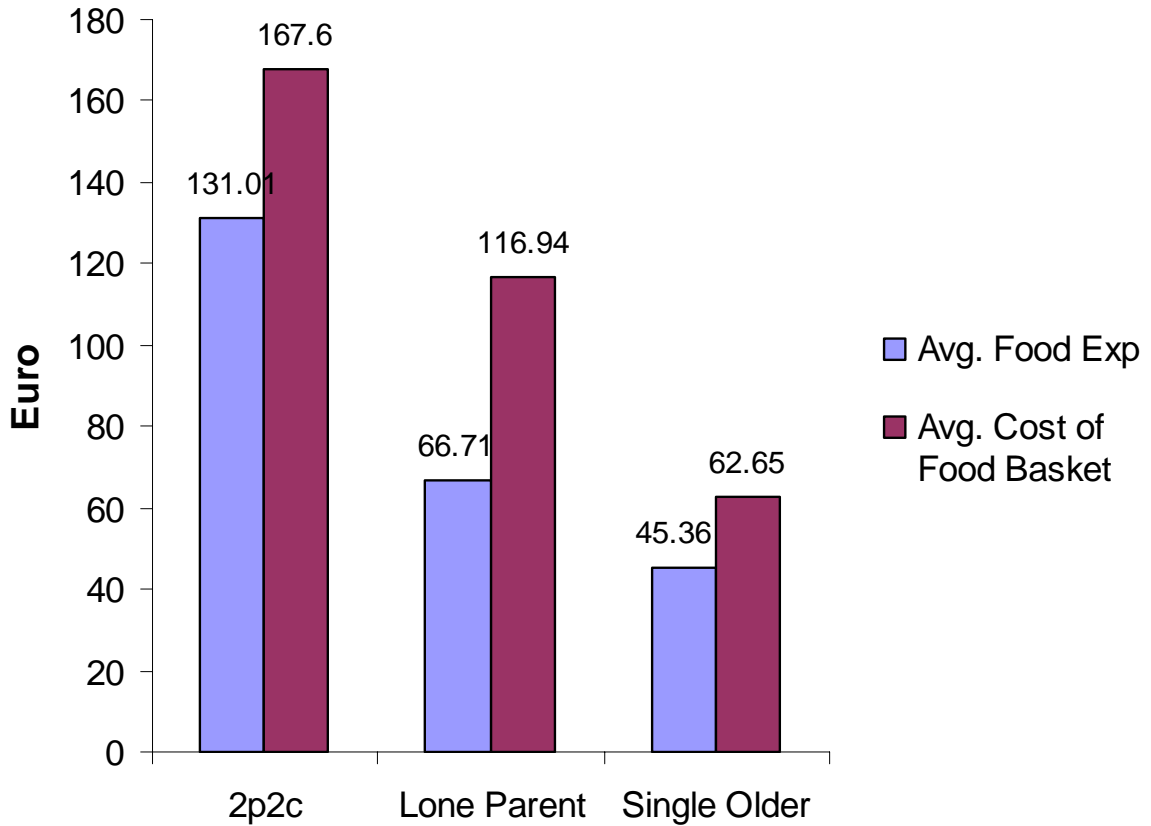
A similar picture is observed when social welfare entitlement is used as the measure of financial capacity. With the aid of information supplied by the Department of Social and Family Affairs and the Citizens Information Office the 2003 social welfare entitlements of each of the different household types was determined as follows: Two adults (both unemployed) with two dependent children, €241.20, Single mother with one dependent child, €144.10, Person aged 65 years and over living alone on old age contributory pension, €165.00.

Figure 10 demonstrates the cost of each healthy food basket as a percentage of the social welfare entitlement for each household type. Two adults with two children, a single mother with one child and an older person living alone, dependent on social welfare benefits as their only source of income, would have to spend 69 per cent, 80 per cent and 38 per cent respectively of their social welfare entitlements to eat healthily.

Figure 10: Food Basket Cost as a Proportion of Weekly Social Welfare Entitlements

2p2c = Two parent two children households
Lone parent: Lone parent with one child
Single Older: Older person living alone

Figure 11 compares the cost of the own brand food basket with the actual amount of money spent on food by each of the households according to HBS data. None of the three population groups is currently spending the amount of money on food as would be required to purchase the basket of foods based on dietary recommendations.

Figure 11: Cost of Food Basket Compared to Average Weekly Food Expenditure

Food expenditure refers to June 2003 using adjusted HBS 1999/2000 data

2p2c = Two parent two children

Lone parent: Lone parent with one child

Single Older: Older person living alone

7 Discussion

This analysis of purchasing data and costing of nutritionally balanced food baskets highlights the inequity in dietary behaviour in the Republic of Ireland and the underlying issues of affordability of, and access to, healthy food choices among three population groups vulnerable to food poverty.

Purchasing Patterns

Each household type shows patterns of food expenditure observed in other rich countries (Dowler, 1997; ONS, 2000), i.e. whilst in absolute terms low-income households spend less money on food, relative to household income this expenditure is a substantially greater proportion compared to that of higher income groups. For people on low incomes, financial constraints mean that the variety of foodstuffs purchased is often limited to avoid wastage and by purchasing the same foods an accurate estimate can be made of how much the shopping will cost (Dobson *et al.*, 1994). This observation is reflected in Irish HBS expenditure data where a narrow

range of food items is purchased by low-income two parent two children, lone parent with one child and single older person households.

The current pattern of household food purchasing by vulnerable groups does not comply with current dietary recommendations and reflects the difficulties experienced by low-income groups in accessing and availing of healthy options. Refined cheap filler foods from the cereal, bread and potato group are a dominant feature, particularly among single older people, and suggests that these population groups may not be achieving the healthy eating guidelines in terms of the requirements for fibre and B-vitamins. A major contribution to fruit and vegetable purchasing is fruit juices. Whilst very beneficial for ensuring daily vitamin intake, these items are frequently high in sugar and generally not suitable for the provision of daily fruit and vegetable benefits in children and adults. The purchase of cheaper cuts of meats, which often contain high levels of saturated fat and salt, is prevalent among low-income households, as is the purchasing of processed foods high in saturated fat, salt and sugar. Frequent, sustained consumption of such foodstuffs is detrimental to cardiovascular health (DoHC, 1999).

Retail and Food Prices

There have been major changes over the past 40 years in the type and distribution of retail outlets in Ireland, mirroring the general trend across Europe in the closure of the traditional small retailer with concentration towards bigger supermarkets and centralised distribution systems (Flavian *et al.*, 2002; RGDATA, 1998). Foreign retailers have entered the Irish market place providing discount prices, and low-cost options like own brand labels have appeared in various types of retail outlet including Multiples and Groups/Symbols. Whilst no reported analysis has been undertaken within Ireland, in the UK the nutritional quality of economy-line foods compared to the market brand equivalent has been shown to be similar if not better and these are therefore not simply cheaper but in fact provide better value for money (Cooper and Nelson, 2003).

In this study, for each household grouping, two types of weekly food basket were compiled, based on observed purchasing patterns and the healthy eating guidelines of the food pyramid; one using low-cost, own brand lines and another based on market brand items. At the national level, using a major Multiple's pricing database, the retail cost of each basket is approximately 15 per cent cheaper if economy, own brand lines are purchased compared to leading market brands. The difference in cost between the lines is not quite as marked as those found by Cooper and Nelson (2003) in the UK, where baskets of foods compiled using market brand lines were more than twice the cost of those compiled using economy-line items. The UK data are however based on a complete complement of food items available at economy-line prices.

As evidenced in the Irish data, at the national level and more locally in Galway city, there is very limited availability of own brand choices for many of the food items in the baskets. In those cases market brand prices were used in calculating the total basket cost, hence inflating the price of the 'own brand' food basket closer to that based on market brand prices. As found in a number of similar studies in the UK (Sooman *et al.*, 1993; Barratt, 1997; Cooper and Nelson, 2003), the foods recommended in the Irish healthy eating dietary guidelines are often more expensive than the less healthy options and in four of the five shelves of the food pyramid the own brand lines of the less healthy choice are even cheaper again.

A different issue relating to the benefits or otherwise of own brand versus market brand choices on cost is that of available purchasable quantities. Many of the own brand lines of the various food items are available in quantities greater than that required for the weekly healthy food basket. This results in a greater outlay of money for the desired food item and again inflates the total cost of the food basket based on own brand items. It is sufficient to say that purchasing own brand products, whilst generally cheaper weight for weight than market brand equivalents, may actually require low-income groups to purchase larger volumes than required and possibly incur extra cost. Whilst larger family units need greater financial capital to purchase the required volume of food, smaller requirements in terms of portion size and variety in diet put a person or household at a retail cost disadvantage.

By far the cheapest place to purchase the healthy food basket of each population group is in the Foreign outlet but the range of items available there is not exhaustive. Interestingly, the second least expensive place to purchase the basket of foods is in the Multiples and is where the best range of food items is available with both market brand and own label pricing options. Whilst these types of retail outlets have low-cost, healthy food choices available for purchase, low-income groups do not regularly shop there. In Ireland, as in the UK, the most common type of retail outlet used by low-income groups is that of Groups/Symbols, followed by the more local Independent traders (Friel and Conlon, 2004; Robinson *et al.*, 2000; Dowler, 1997). These retail outlets represent local supermarkets and corner shops and, as indicated in the data, have a limited selection of fruit, vegetables and wholemeal alternatives, not many low-fat products and little or no fresh meat, fish and poultry.

In contrast almost all Groups/Symbols and Independents stocked every item from the top shelf of the food pyramid in the food baskets. These types of outlet carry a very limited number of own brand lines. It must be noted that when calculating the overall cost of each food basket, where items were not available in a particular retail outlet, prices from the nearest Multiple outlet were substituted. Utilising these prices most likely underestimated the total cost of each food basket purchased in the Groups/Symbols and Independent outlets. It is certainly true that in Ireland, as in the UK (Food Commission, 2001), the kind of outlets in which socially disadvantaged people shop are less likely to carry a good range of healthy foods and when they do these are more expensive.

Why low-income people in Ireland shop in such outlets has not been explored empirically but, given the strong concordance with other related observations in the UK, it is possibly because of the proliferation of these outlets, their proximity to most housing areas and their easy accessibility. Unfortunately Foreign retail outlets and Multiples are not easily accessible since they are frequently located on the outskirts of towns, with inadequate public transport (Checkout Ireland, 2002; Watson, 2001; Ellaway and Macintyre, 2000; Reisig and Hobbiss, 2000). Furthermore, groceries can be heavy to carry and thus people without adequate transport cannot buy in bulk, which is often necessary if purchasing the cheaper, own brand items. Even though the Multiples offer cheaper prices, this may be offset by transport costs (Ellaway and Macintyre, 2000) and it makes sense therefore that those without transport or who cannot afford the transport costs choose to shop in easily accessible outlets.

It should be borne in mind that these costs of healthy eating relate to home consumption and do not recognise the social practice of eating out. In 1999 out-of-home food consumption accounted for almost 20 per cent of total food expenditure among high-income households, compared to only 8 per cent among those from the lowest income decile (CSO, 2001). These data and others, e.g. McCashin's (1996), highlight that dining out is not a regular event enjoyed by low-income two parent two

children households, lone parent one child households, and single older people operating on a tight food budget, invoking another aspect of food poverty.

Financial Capacity

Comparing the cost of own brand food baskets with HBS income data, food purchasing data and social welfare entitlement information, there are worryingly large discrepancies in the amount of money low-income population groups would need to spend in order to purchase a healthy diet, the amount of money they have available to spend and the amount of money they are currently spending on food. An extremely large proportion of household income would be required to purchase baskets of foods that comply with current dietary guidelines priced using low-cost lines, notably 69 per cent in the case of two adults with two children, but it is the staggering 80 per cent of lone parents' household income that would have to be spent on food to purchase a healthy basket of goods which highlights the overwhelming food poverty experienced by this population group.

These Irish findings reflect the UK experience. The low cost but acceptable budget standards developed in the UK identified major shortfalls in financial capacity of vulnerable populations, where the cost of a basket of goods required to live in a healthful manner exceeded the levels of social welfare benefit (Parker, 1998). Dobson and colleagues (1994) have highlighted how financially constrained households see food as a flexible item within the controllable household budget. When other necessary household expenditure is taken into consideration within such households, the food budget is reduced. It is unlikely therefore that at current levels of financial resource, low-income households in Ireland are in a position to allocate the necessary high expenditure on healthy eating.

8 Conclusions

Identification of the cost of a basket of foods that represents the habitual purchasing patterns of low-income households but which are also in line with current dietary guidelines provides information on which healthy public policy and action should be based.

It is well documented that financial resources, accessibility and availability strongly affect the dietary choices people make and it appears from these data that inadequate availability of low-cost, healthy options and readily available higher-cost, unhealthy options are very strongly driving inequality in purchasing choices of people living in Ireland. Financially limited population groups are disadvantaged in their purchasing options due to lack of access to shops providing good quality, affordable items. A greater selection of appropriately sized purchasable quantities of economy-line foods is needed, as is inexpensive, adequate transport and/or free delivery of purchases. This will require commitment on behalf of suppliers, underpinned by national policy.

The findings of this study demonstrate an alarming inequity in financial ability to purchase healthy food, particularly among socially vulnerable lone parent households. If purchasing a varied nutritionally balanced diet, based on food baskets such as those recommended here, is to take place the required proportional allocation of household income to food is substantial. Given the flexible priority that food occupies within financially constrained households, this is unlikely to be obtainable unless more realistic financial provision is made. In Ireland the Combat Poverty Agency (2001) recommends that the government should agree on an MIS that would correspond with adequate standards of living and be aimed at reducing

poverty. Improvements in social welfare benefits and national wage agreements are needed, recognising the heterogeneity of needs within socially disadvantaged groups. The data set out in this document clearly highlight this requirement and provide a benchmark against which social welfare benefits and wages should be related, reflecting actual living costs associated with current healthy eating guidelines.

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