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**The Impact of Promotions on  
Consumer Purchasing Behaviour in  
the Red Meat Sector**

**Melanie Kate Felgate**

PhD Marketing



## **Abstract**

The original contribution of this thesis to research is the in-depth analysis of promotions using a database which is unique both in terms of its scale and application. The overall aim of the research was to investigate the impact of promotions within the red meat sector in order to generate a better understanding of which promotions work most effectively. It is hoped that as a result of this research, the industry will be in a better position to influence retailers to implement promotions which will be most beneficial for the retailers, producers and consumers. Currently British livestock farmers are finding it increasingly difficult to make a sustainable living from farming as a result of increased pressure from imports, often resulting in the excessive use of price promotions in an increasingly desperate effort to defend British meat against cheaper imports.

Quantitative research was undertaken, through regression analysis, to identify the effects of promotions on sales value, within the beef sector primarily. The analysis used loyalty card purchasing data from dunnhumby, which comprises of purchasing information from a panel of 14 million supermarket shoppers in the UK. The analysis drills down into the beef category to look specifically at the effects of promotions at the product sub-group level, as well as identifying cross-species and cross-tier substitution effects.

The findings revealed significant differences in the ways shoppers respond to different promotions, depending upon characteristics specific to the product, for example based upon the meal occasion it is used for, and the tier of the product, for example whether it is a standard or premium product. One of the key recommendations is that promotions need to be focused more on premium, differentiated products rather than standard lines, since these add more value to the red meat category. This will benefit the British meat industry in the long term, since it entices shoppers away from cheaper, often imported, products, and it encourages British producers to become more competitive by adding value through differentiating their products.

## **Acknowledgments**

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Melanie Felgate

March 2010

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## 1. Introduction

When a shopper makes the decision to purchase food there are many factors which can influence their choice. Before the shopper makes any purchases, they must first decide which product categories to buy into, where to buy from, how much to buy and in many cases which brand to choose. There are many factors along the way which may influence the final purchase decision such as prices, advertising, press, social and cultural influences, and, not least, the presence of price promotions.

The fresh red meat category is particularly volatile to the impact of external factors upon purchasing behaviour. The British red meat industry has suffered at the fate of a string of food and health scares in recent years and, coupled with this, the industry is facing increasingly stiff challenges from global competition. British livestock farmers are finding it increasingly difficult to make a sustainable living from farming as a result of increased pressure from imports, often resulting in the excessive use of price promotions in an increasingly desperate effort to defend British meat against cheaper imports. Promotions are one way of influencing the purchasing decision and helping to boost demand for British meat in the short term. However, these are not necessarily profitable for meat processors or livestock producers in the longer term.

In the short-term, price promotions entice shoppers to increase the quantity they purchase or to switch from one product to another, but it is not evident that, in all cases, the increase in consumption offsets the reduction in price and there is very little published evidence of the impact that promotions have on the profitability of the fresh meat category as a whole. A more sophisticated approach to promotions is required which will deliver benefits to all links involved in the meat supply chain; farmers as well as the retailers, meat processors and consumers. In order for this to be achieved it is important to understand how shoppers react to different kinds of promotions for fresh meat, so that retailers and meat processors can target specific shoppers with specific promotions to ensure that meat promotions work for the benefit of all and not just retailers seeking to use meat promotions to generate footfall. If the aim is to encourage more people to eat British meat, then the appropriate promotional vehicle is likely to differ from that which is designed to encourage people to try a new fresh meat product or trade up from value to a premium range.

The overall topic of research for this thesis is to investigate the impact of promotions on shopper behaviour in the fresh meat sector. This research topic will be narrowed down into a series of testable hypotheses following a detailed review of the literature available in this research area so far discussed within chapters two and three.

The purpose of chapter two is to provide the reader with an over view of the red meat market, including long term and more recent trends in production and consumption, as well as identifying the factors which can influence meat purchasing behaviour. Chapter three shifts the focus specifically to the literature surrounding the impacts of promotions on purchasing behaviour, and will provide the reader with an understanding of the main themes and theories arising from existing studies. The research hypotheses for this study are developed at the end of chapter three, based on the findings of the literature review.

Chapter four looks at the methodology chosen for this research project. The chapter explores the alternative methods which have been used in other studies looking at the impact of promotions and explains why multiple regression analysis was chosen as the methodology for this research. The methodology chapter also explains the source of data used for the analysis, loyalty card purchasing data from Tesco Clubcard, and explains how the analysis was carried out. Chapter five presents the results from the empirical analysis, along with a discussion of the key findings and some additional analysis. The final chapter, chapter six, discusses the conclusions, recommendations and limitations arising from this research.

## **2. Meat Purchasing Behaviour**

### **2.1 Introduction**

The British red meat and livestock sector has faced many challenges over the past few decades; not least from meat scares such as the Bovine Spongiform Encephalopathy (BSE) crisis of the early 1990s and the increasing pressure from the threat of global competitors. Purchasing behaviour for meat can be affected by many factors; economic, physiological, social and cultural amongst others. The purpose of this chapter is to set the scene for the reader and provide necessary background detail about the red meat industry. Following an overview of the recent trends in the British red meat market, the main focus will move to a review of the literature of the factors which have been found to influence purchasing behaviour for red meat, specifically beef, pork and lamb.

### **2.2 British Red Meat Market Overview**

This section allows the reader to familiarise themselves with recent trends and issues in the British meat market. Specifically this section details trends in production, consumption, market distribution channels and considers future prospects.

#### **2.2.1 Production and Consumption**

This section looks at production and consumption trends for the red meat sector as a whole, and will then look at trends for beef, lamb and pork specifically.

#### **Red Meat**

Total red meat production in terms of volume was 1.9 million tonnes in the 2008 (AHDB Meat Services, 2009). Beef holds the largest share of the UK red meat market accounting for 45% of total red meat production, followed by pork with 38% share and lamb with 17% share. In terms of value, the red meat market in the UK was worth £2.9 billion in 2006, having gained 5.3% in value since 2004 (Mintel, 2006). The increase in market value is at least partially in response to consumers increasingly trading-up to higher-value, premium



lines of meat. However, it is not yet clear how the current economic climate of recession may be affecting the growth in the value of the red meat market.

Table 2.1 shows production, trade and consumption figures for red meat for each year from 1997 to 2008. There has been fluctuation in the volume of red meat produced in the UK over the last eleven years, although it has been increasing steadily since 2003. The volume of imported red meat into the UK has generally been rising over the last decade, although figures were not available for 2007 or 2008. Mintel (2006) reports that red meat imports are likely to play an increasing role in the future of the UK meat market, especially in terms of standard ‘everyday’ quality meat. This growth in imports would be in response to increasing difficulties that UK producers face in meeting demand; particularly as government (EU) price support is reduced.

The volume of exports dropped suddenly in 2001, but has been slowly rising again since. This sudden drop in exports in 2001 is most likely due to the imposition of export bans on British livestock following the outbreaks of Foot and Mouth disease in the UK at the time. Total consumption of red meat in the UK has increased since 1997, although not by a huge margin. Total red meat consumption in the UK was 1.97 million tonnes in 1997, compared to a volume of 2.3 million tonnes in 2006.

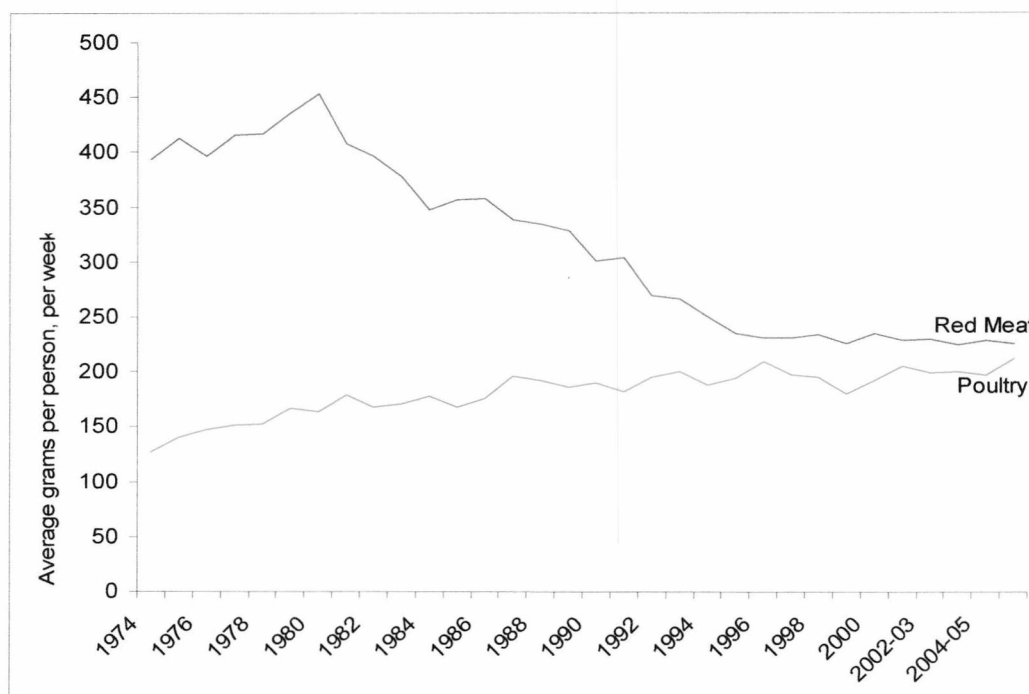
Table 2.1: Production and Consumption of Red Meat in the UK 1997-2008

| Red Meat          | 1997       | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|-------------------|------------|------|------|------|------|------|------|------|------|------|------|------|
|                   | 000 tonnes |      |      |      |      |      |      |      |      |      |      |      |
| Production        | 1889       | 1968 | 1864 | 1796 | 1507 | 1613 | 1582 | 1616 | 1679 | 1763 | 1946 | 1930 |
| Imports           | 463        | 415  | 487  | 524  | 613  | 723  | 761  | 777  | 768  | 794  | n/a  | n/a  |
| Exports           | 307        | 343  | 346  | 307  | 70   | 157  | 158  | 173  | 195  | 238  | n/a  | n/a  |
| Total Consumption | 1971       | 2055 | 2057 | 2070 | 2038 | 2160 | 2186 | 2218 | 2257 | 2317 | n/a  | n/a  |

Source: AHDB Meat Services, 2009

Figure 2.1 shows the long term trends in red meat consumption since 1970, compared with poultry meat. Consumption of red meat has been in steady decline since 1980, while poultry meat consumption has been steadily on the rise. This may reflect concerns over healthy eating and food safety, as consumers perceive red meat as higher in cholesterol and saturated fats, compared to white meat which is seen as a leaner and safer alternative to red meat (Rimal, 2005).

Figure 2.1: Long Term Trends in Red Meat Consumption in the UK



Source: National Statistics, Expenditure and Food Survey

Since the late 1990s the decline in red meat consumption appears to have levelled out, and the red meat market is becoming slightly more buoyant again.

### Beef

The UK is the fourth largest beef producer in the European Union; the largest producer being France (MLC, 2006). Table 2.2 shows the aggregate volume of beef produced and consumed in the UK from 1997 to 2008.

Table 2.2: Production and Consumption of Beef in the UK 1997-2008

| Beef              | 1997       | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|-------------------|------------|------|------|------|------|------|------|------|------|------|------|------|
|                   | 000 tonnes |      |      |      |      |      |      |      |      |      |      |      |
| Production        | 696        | 697  | 678  | 707  | 652  | 692  | 700  | 719  | 762  | 847  | 882  | 863  |
| Imports           | 226        | 174  | 193  | 188  | 314  | 382  | 330  | 346  | 299  | 291  | n/a  | n/a  |
| Exports           | 0          | 0    | 0    | 0    | 0    | 0    | 7    | 8    | 51   | 60   | n/a  | n/a  |
| Total Consumption | 852        | 888  | 917  | 940  | 976  | 1054 | 1022 | 1051 | 1057 | 1086 | n/a  | n/a  |

Source: AHDB Meat Services, 2009

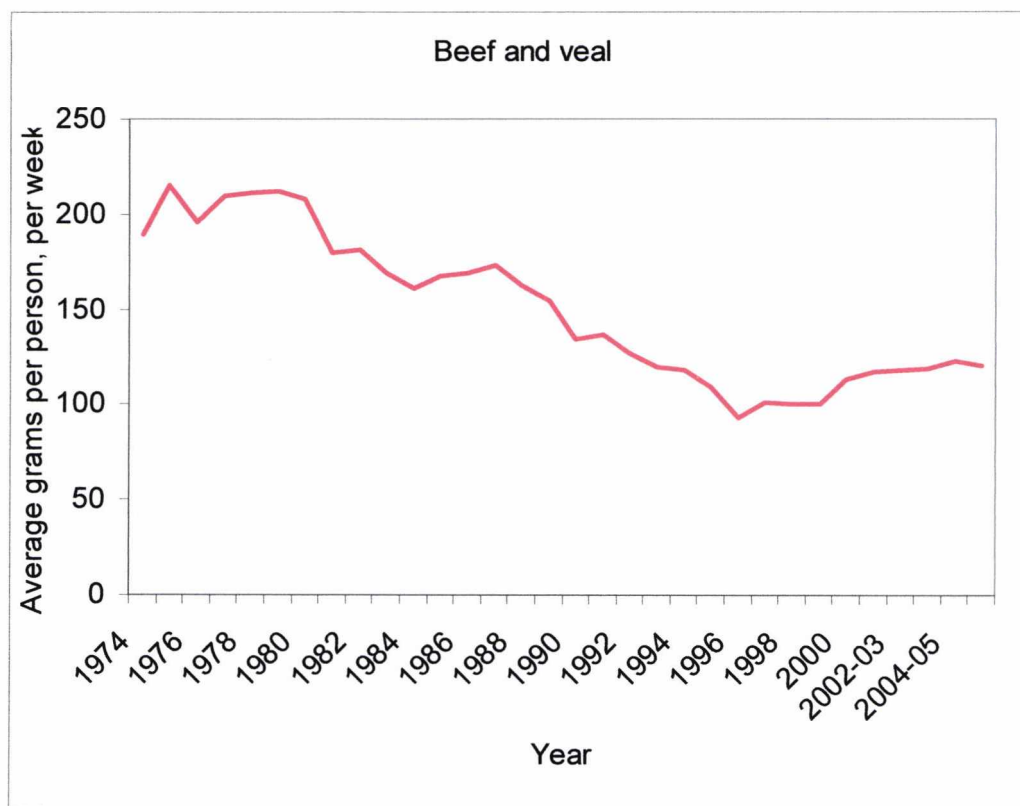
Beef production in the UK has risen over the eleven year period since 1997 although the rate of increase appears to be slowing. Exports of beef from the UK are very low in comparison to imports; however they have been rising gradually since 2003. The BSE crisis of the mid-1990s resulted in bans on British beef imports worldwide. The majority of countries lifted the ban in 1999, with the remaining countries following suit by 2002. This helps to explain why beef exports are so low, and why they have gradually risen as bans were lifted.

Imports of beef into Britain have fluctuated over the last ten years. Levels of imported beef were particularly high during 2001 to 2004, but have been slowly declining since. In 2006, Brazil, the largest beef exporter of the South American countries, supplied almost 107,000 tonnes of beef to the UK. As a result of full decoupling under the CAP (Common Agricultural Policy) reforms, it is expected that the cattle numbers in the UK will decline 11% by 2015 (Dempsey, 2007). Decoupling will ensure that subsidies paid to producers for their products are un-related to production, and as a result there is no incentive for farmers to increase production.

The long-term trend towards declining growth rates in beef production, combined with more favourable consumption trends, is predicted to create a deficit between consumption and production in the UK of more than one million tonnes by 2015 (Dempsey, 2007). Hence, exports of beef out of the UK and EU will likely fall into severe decline and imports will rise substantially. Without differentiation it will become increasingly difficult for Britain, and other EU countries for that matter, to compete with the large volumes of high value imported cuts of beef. Thus, moving towards product differentiation, for example by region (e.g. Aberdeen Angus, Herefordshire beef) or production technique (e.g. Organic, Traditionally Reared) is an approach which British livestock farmers must seriously consider in order to earn a sustainable income and compete with the increasing volumes of imports.

In the long term, beef consumption has declined markedly, as illustrated by the graph in Figure 2.2.

Figure 2.2: Long Term Trends in Beef and Veal Consumption in the UK



Source: National Statistics, Expenditure and Food Survey

At peak levels, in the late 1970s and early 1980s, beef consumption was more than 200 grams per person per week. The BSE crisis appears to have affected consumption considerably during the 1990s, and in 1997 consumption levels were at their lowest. In the short term, since 2001, consumption of beef in the UK has seen favourable growth, with the exception of 2003 when there was a slump in consumption. In 2007, beef consumption continued to rise to 1.08 million tonnes, compared with 0.97 million tonnes in 2001. Per capita consumption of beef in the UK in 2005 was 17.3kg, compared with 16.8kg per capita in the EU as a whole (MLC, 2006).

Table 2.3 shows beef consumption in Great Britain disaggregated to the cut level. The data shows consumption measured by the number of meal occasions using each cut of beef.

Table 2.3: Total Consumption of Beef by Cut in Great Britain

|                                    | 12 months to end of Aug 2004 | 12 months to end of Aug 2005 | 12 months to end of Aug 2006 | 12 months to end of Aug 2007 |
|------------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
|                                    | Millions of Meal Occasions   |                              |                              |                              |
| <b>Beef Mince</b>                  | 662                          | 651                          | 659                          | 695                          |
| <b>Beef Joints</b>                 | 486                          | 493                          | 483                          | 468                          |
| <b>Beef Stewing/Braising Steak</b> | 133                          | 131                          | 120                          | 116                          |
| <b>Total Steak</b>                 | 551.2                        | 543.3                        | 520.1                        | 518.9                        |
| > Beef Fillet Steak                | 22                           | 27                           | 23                           | 27                           |
| > Beef Sirloin Steak               | 86                           | 82                           | 84                           | 76                           |
| > Beef Rump Steak                  | 83                           | 82                           | 84                           | 85                           |
| <b>Organic Beef</b>                | 21                           | 23                           | 33                           | 40                           |

Source: TNS Usage Panel Data

Consumption for mince is greatest; being used in 695 million meal occasions in Great Britain in the twelve months to August 2007. Reasons for this include the versatility and convenience of the product, and that it is a key ingredient in many typical British evening meals such as Spaghetti Bolognese, shepherds pie and lasagne. Steak is the second most consumed cut, with rump and sirloin steaks being the most popular choice. Beef joints made up 468 million meal occasions in the twelve months to August 2007; a figure which is declining. As formal eating occasions decline, there is less space for roasting joints as they are not particularly versatile (Mintel, 2006). The popularity of organic cuts of meat has grown considerably over just a few years. In the twelve months to the end of August 2004, organic beef was used in 21 million meal occasions. This has almost doubled to 40 million meal occasions in the twelve months to August 2007.

## Lamb

The UK is the largest producer of sheep meat in the European Union with around 327,000 tonnes produced in 2008 (ADHB Meat Services, 2009). The largest producer in the world is China with around 2.4 million tonnes produced in 2006. Table 2.4 shows the annual UK production and consumption figures for lamb during 1997 to 2008.

Table 2.4: Production and Consumption of Lamb in the UK 1997-2008

| Lamb              | 1997       | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|-------------------|------------|------|------|------|------|------|------|------|------|------|------|------|
|                   | 000 tonnes |      |      |      |      |      |      |      |      |      |      |      |
| Production        | 321        | 351  | 361  | 361  | 259  | 300  | 303  | 312  | 331  | 330  | 325  | 327  |
| Imports           | 140        | 129  | 127  | 123  | 106  | 115  | 127  | 132  | 124  | 129  | n/a  | n/a  |
| Exports           | 108        | 98   | 110  | 99   | 31   | 62   | 77   | 74   | 86   | 87   | n/a  | n/a  |
| Total Consumption | 351        | 382  | 380  | 390  | 335  | 353  | 353  | 373  | 368  | 372  | n/a  | n/a  |

Source: AHDB Meat Services, 2009

Mutton and lamb production fell markedly in 2001, following the foot and mouth epidemic in that year, since when production has recovered and remained fairly consistent. Production levels in 2007 and 2008 were lower than 2005 and 2006.

Overall both imports and exports of lamb have fallen since 1997. Of all three species of red meat, lamb shows the smallest gap between the volumes of imports against exports. In fact, in 2006 27% of UK lamb and mutton production was exported, making it the largest exporter of sheep meat within the EU. This compares with just 5% of UK produced beef, and 18% of UK produced pork, being exported. Despite a predicted fall in the volume of lamb produced in the UK, exports are not expected to mirror this downward trend. This may be a result of a decline in consumption; even though production has fallen in the UK, exports are not falling, and imports are not substantially rising.

Lamb consumption in the UK has fluctuated since 1997, with the most recently available figures showing that in 2006 consumption was 372,000 tonnes, which is lower than 1998. Looking at the long-term consumption trends (figure 2.3); it is visible that lamb consumption has been in gradual decline since the 1970s, although this decline appears to be slowing down. Per capita consumption of sheep meat in the UK in 2005 was 6kg, compared with 2.9kg per capita for the EU as a whole (MLC, 2006).

Figure 2.3: Long Term Trends in Lamb and Mutton Consumption in the UK



Source: National Statistics, Expenditure and Food Survey

Matt Dempsey, in his insightful, but perhaps disheartening speech at the MLC Outlook Conference 2007, described the sheep sector as being in crisis across most of Europe. Production levels in European countries are falling, resulting in a decline in self-sufficiency with imports filling the production deficit. Dempsey believes that the key factor contributing to the crisis is declining consumption as a result of poor marketing and little product differentiation within the market place. Table 2.5 shows total consumption of lamb in Great Britain disaggregated to the cut level.

Table 2.5: Total Consumption of Lamb by Cut in Great Britain

|                            | 12 months to end of Aug 2004 | 12 months to end of Aug 2005 | 12 months to end of Aug 2006 | 12 months to end of Aug 2007 |
|----------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
|                            | Millions of Meal Occasions   |                              |                              |                              |
| <b>Lamb Joints</b>         | 249.8                        | 267.5                        | 253.5                        | 255.8                        |
| <b>Lamb Stewing/Breast</b> | 7.9                          | 6.7                          | 8.9                          | 5.2                          |
| <b>Lamb Chops</b>          | 173.7                        | 178                          | 167.9                        | 178.1                        |
| <b>Lamb Mince</b>          | 53.4                         | 45.6                         | 50.1                         | 51.9                         |
| <b>Organic Lamb</b>        | 11.7                         | 12.7                         | 13.2                         | 13.4                         |

Source: TNS Usage Panel Data

Within the lamb sector, roasting joints have performed more favourably in comparison to the decline seen for beef and pork joints. Lamb roasting joints are the most popular cut of lamb and consumption has risen since 2004. This indicates that when families are having meals together, lamb is becoming an increasingly popular choice for a family roast dinner meal occasion. Chops also perform relatively well within the lamb sector, but cheaper cuts such as lamb mince are not especially popular with consumers. Consumption of organic lamb has grown since 2004, but not at the same rapid rate as for organic beef. Organic lamb was used in 13.4 million meal occasions in the twelve months to August 2007, compared with 11.7 million meal occasions in the twelve months to August 2004.

## Pork

UK production of pork has been particularly volatile over the last decade, as can be seen in Table 2.6, which shows production and consumption in the UK between 1997 and 2008. Production fell considerably between 1997 and 2006 to just 586,000 tonnes, but has risen to 740,000 tonnes in 2008.

Table 2.6: Production and Consumption of Pork in the UK 1997-2008

| Pork              | 1997       | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 |
|-------------------|------------|------|------|------|------|------|------|------|------|------|------|------|
|                   | 000 tonnes |      |      |      |      |      |      |      |      |      |      |      |
| Production        | 872        | 920  | 825  | 728  | 596  | 621  | 579  | 585  | 586  | 586  | 739  | 740  |
| Imports           | 97         | 112  | 167  | 213  | 193  | 226  | 304  | 299  | 345  | 374  | n/a  | n/a  |
| Exports           | 199        | 245  | 236  | 208  | 39   | 95   | 74   | 91   | 98   | 100  | n/a  | n/a  |
| Total Consumption | 768        | 785  | 760  | 740  | 727  | 753  | 811  | 794  | 832  | 859  | n/a  | n/a  |

Source: AHDB Meat Services, 2009

The volume of pork imported into the UK is much larger than that of exports. The level of exports from the UK, while fairly low, has gradually increased over the six years since 2001. It can be seen that during 2002, when UK production levels had rapidly increased from 2001, the level of exports and imports reflected this increase in UK production: the rate of growth of imports slowed, while the level of exports was substantially higher.

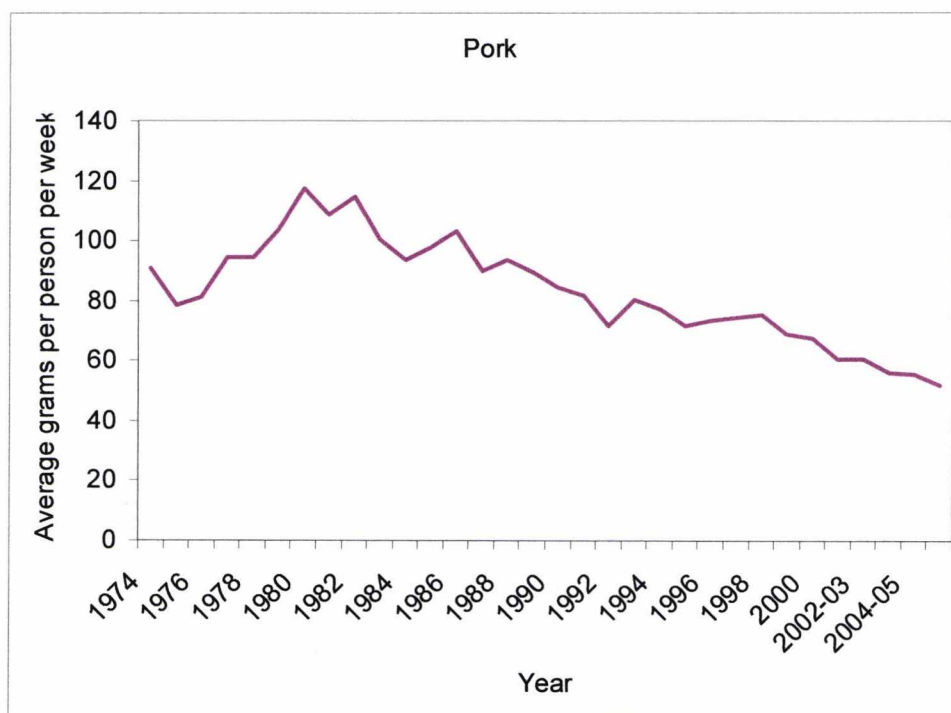
During 2003, growth of imported pork was at a particularly high level, compared with 2002. The main reasons for the growth during this time are thought to be lower-priced pigs in supplying countries (such as Netherlands and Denmark) and reduction in the amount of UK produced pork, which was especially evident in 2003 (BPEX, 2004). There are concerns over the quality and animal welfare of imported pig meat. BPEX (2004) estimated that during



2003, as much as 70% of the imported pig meat (including both pork and processed pork products such as bacon) did not meet the minimum UK legal standards.

In the short term, pork consumption in the UK has increased since 2001, as illustrated by the graph in figure 2.4.

Figure 2.4: Long Term Trends in Pork Consumption in the UK



Source: National Statistics, Expenditure and Food Survey

Consumption has been rising steadily over the six years, with the exception of 2003, when consumption was especially high at 812,000 tonnes (table 2.4). Looking at the long term trends in consumption, pork consumption in 2005/06 is at its lowest; however there has not been a steep fall in consumption, rather a gradual decline. Per capita consumption of pork is considerably lower in the UK, 13.4kg in 2005, compared with the EU as a whole where 44.3kg was consumed per person in 2005 (MLC, 2006).

Table 2.7 shows consumption of pork at the cut level in Great Britain, measured by the number of meal occasions.

Table 2.7: Total Consumption of Pork by Cut in Great Britain

|                     | 12 months to end of Aug 2004 | 12 months to end of Aug 2005 | 12 months to end of Aug 2006 | 12 months to end of Aug 2007 |
|---------------------|------------------------------|------------------------------|------------------------------|------------------------------|
|                     | Millions of Meal Occasions   |                              |                              |                              |
| <b>Pork Joints</b>  | 335.4                        | 324.6                        | 303.4                        | 301.1                        |
| <b>Pork Chops</b>   | 369.2                        | 372.1                        | 364.7                        | 378.6                        |
| <b>Pork Mince</b>   | 24.5                         | 29.6                         | 21.8                         | 30.3                         |
| <b>Organic Pork</b> | 5.5                          | 8.4                          | 12.9                         | 10.8                         |

Source: TNS Usage Panel Data

Chops are the most popular cut within the pork sector. Chops offer a low-cost, relatively easy to cook, quick meal, which perhaps leads to their popularity within the pork sector over other cuts. Traditional roasting joints are becoming increasingly less popular, most likely related to a decline in formal family meal occasions. Pork joints were consumed in 335 million meal occasions in the twelve months to August 2004, compared with just 301 million meal occasions during the twelve months to August 2007.

## Summary

The most important points to take away from this section, with regards to the production and consumption trends for red meat, are that the long term trends show a decline in red meat consumption in the United Kingdom. It is thought that British producers ideally need to differentiate their products in order to compete with imports and earn themselves a sustainable living.

### 2.2.2 Marketing

In this section, marketing aspects of the meat industry will be considered. In particular, changes in the marketing distribution channels and future prospects for the red meat sector.

#### Market Distribution Channels

Traditionally consumers would purchase fresh bread from a bakery, fresh fruit and vegetables from a greengrocer, and fresh meat from a butcher. Today this is clearly not so much the case, in particular with the rapid rise of the supermarkets over the past few decades

and the convenience this brings to the consumer to be able to buy everything under one roof. Multiple retailers now dominate red meat distribution, to the detriment of traditional butchers.

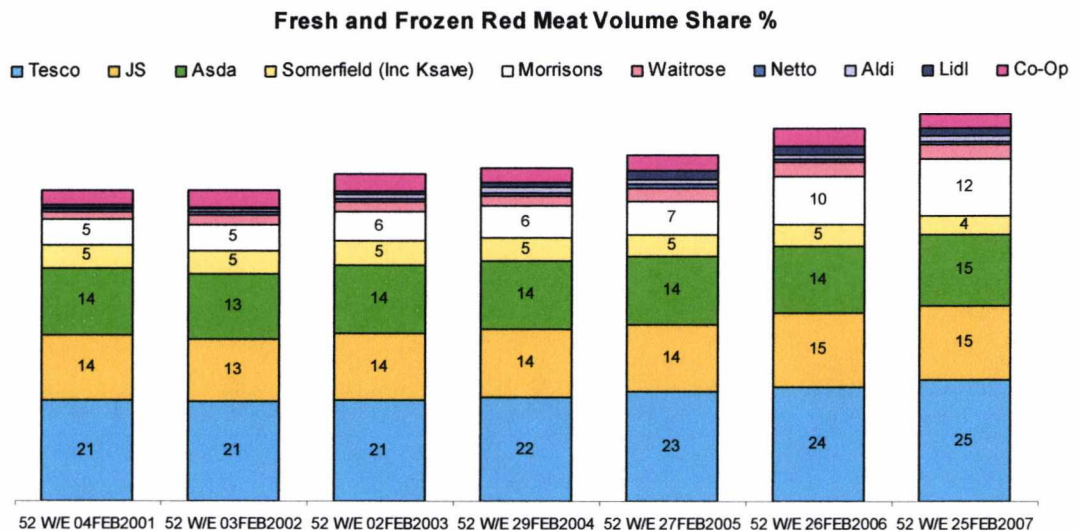
There has been a decline in the volume of fresh and frozen red meat sold through the traditional butcher over the last decade. In 2002, 19% of red meat sold in the UK was through butchers, compared to just 12% in 2007. This trend away from the traditional butchers has put strain on many independent butchery businesses. In fact, between 1994 and 2004, the total number of butchers in operation in the UK declined 38% (TNS, 2007).

Multiple retailers (supermarkets) have seen continuous growth over the past six years in terms of retail share of the red meat market. In February 2001, 60% of red meat sold in terms of volume, was through the major multiple retailers. In February 2007, this share has increased to an enormous 74% (TNS, 2007). This means that almost three quarters of meat in the UK is retailed through supermarkets.

Of the multiple retailers, Tesco holds the largest volume share of red meat sales, at 25%, followed by Sainsbury's and Asda, who both hold 12% share (TNS, 2007). Waitrose, a supermarket operating at the premium end of the market, has seen their volume share of red meat sales double over the six years to 2007. This increase in sales was partly due to the acquisition of new stores, but also indicates an increase in consumer demand for premium quality produce. This rise in demand for premium quality may have been thought to have slowed down due to the current recession; however Waitrose are continuing to grow with the help of the successful launch of their Essentials range of standard quality produce launched in March 2009, which includes fresh meat (Fresh Info, 2009).

Figure 2.5 shows the volume share of sales of red meat by supermarket retailer by year from 2001 to 2007. It can be seen that the share of sales in Tesco has increased from 21 percent in February 2001 to 25% in 2007. The evident growth in sales in Tesco appears to be at the expense of Somerfield, the Co-Op and discount retailers such as Aldi and Lidl.

Figure 2.5: Market share of Red Meat volume sales by Supermarket, 2001-2007



Source: MLC/TNS Worldpanel

Mintel (2006) observes that growth is appearing in direct sales of meat and produce, from farmer to consumer. This is by way of farmer's markets and farm shops. This is still a very small proportion of the market distribution, however, but is an area where there might be growth in the future. In particular this is being driven by increasing consumer interest in where their food comes from; concern over food miles, and perceptions that food will be fresher if it comes straight from the farm (Mintel, 2006).

### 2.2.3 Future Prospects

The focus of this section is to provide a brief overview of the current and future trends within the market for red meat, in terms of the types of products for which demand is growing and the drivers for future growth.

According to Mintel (2006) growth in red meat consumption will overtake that of poultry meat in the future. Mintel forecasts that the value of the UK red meat market will grow 16% to a value of £3.3 billion (at current prices) during 2006-11. This is due to the poultry market becoming increasingly commodity and price-driven, while within the red meat market premium, higher-value meats are becoming increasingly in demand. Premium, organic and provenance based meats have become and will continue to be substantial drivers of growth within the red meat market.

Premium meat is a category which includes meats of speciality breeds, extra-matured (aged) meat, and meats sold fresh, but in a ready-to-cook prepared state. Mintel (2006), reports that the premium meat market is growing strongly in the UK. Data provided by TNS and the Meat and Livestock Commission highlights the growth in sales of premium red meat. Year on year growth for premium red meat from 2006 to 2007 was 46%. Despite this large growth, premium red meat holds a relatively small 2.2% volume share of the total red meat market. This indicates that there is room for more premium products to enter the market.

Sales of organic red meat, which is also perceived by many to be a premium product, have grown 15% year on year to 2007 (TNS/MLC, 2007). The volume share of organic meat is 1% of the total red meat market, but if growth continues as predicted this share will increase over the next few years. Organic meat supplies may have to increasingly be sourced from abroad in order to meet growing demand, as there are not enough home producers engaging in organic meat production (Mintel, 2006).

Consumer interest in locally sourced and provenance guaranteed meats is increasing. Regional brands include Scotch beef, Herefordshire beef, and Welsh lamb. Consumers are willing to pay a premium for meats produced in specific regions known for producing high-quality meat from their production systems, and meats which are produced locally to the consumer.

Multiple retailers are responding to consumer demands for these types of products, by increasing their ranges to offer premium quality red meats. For example, Tesco stock a range of premium meats under their 'Finest' brand name, and Sainsbury's have introduced premium meats as part of their 'Taste the Difference' premium brand range. Retailers are also working with producer groups to develop and introduce ranges of locally produced meats, to meet increasing consumer demand for locally produced foods.

The large rate of growth for premium, organic and provenance based meats is an indicator that these meats are becoming more and more in demand, and this differentiation is something British meat and livestock producers should consider, especially as the threat of imported standard quality meats is becoming increasingly problematic. Mintel (2006) suggests that the main driver behind volume growth in the red meat market is the increased consumer interest in 'good' food and a new found willingness to devote more time to meal preparation.

### **2.3 Factors which influence meat purchasing behaviour**

To have a better understanding of meat demand, it is important to consider those factors which can influence it. This includes not only the use of promotions, but also those other economic and non-economic influences which will impact on purchasing behaviour. A number of researchers have looked into those specific factors which impact upon the demand for meat, including social factors, food scares, advertising and promotions. According to Bansback (1995, p291), many of the empirical studies carried out have been formed from the stance that the demand for meat is influenced by five factors:

- i. Consumers' incomes
- ii. The price of the particular meat in question
- iii. The price of other substitute meat and non-meat products
- iv. Changes in the size and structure of the population
- v. The tastes and preferences of consumers

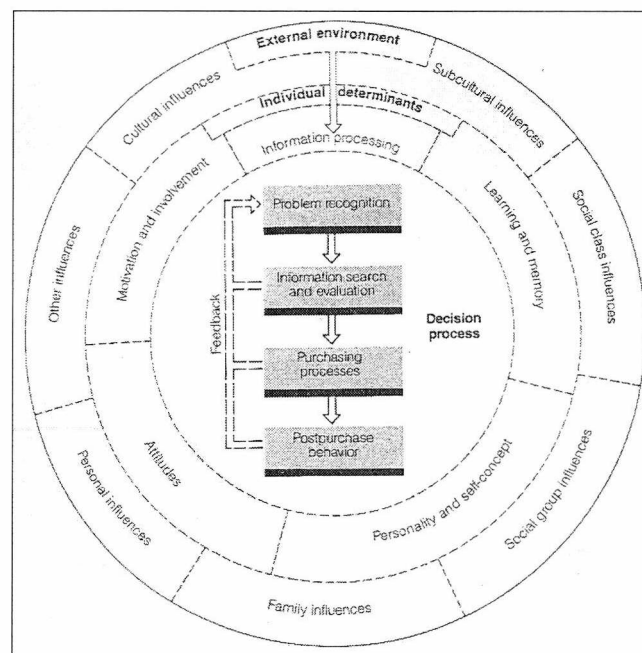
The first three factors stem from economic theory, whereby a combination of income and prices will influence demand. The other suggested factors relate more to structural change within society and physiological influences. All of these, and others, will be considered in this section.

#### **2.3.1 Non-Economic Influences on Meat Demand**

It can be difficult to quantify how factors other than those which are covered by basic economic theory of prices and income can affect operations within the macroeconomic environment. However it is apparent that these non-economic factors do play a serious role in influencing consumer demand for meat and meat products, and, according to Bansback (1995), non-price and income factors are becoming increasingly important in the analysis of meat demand. Eales and Unnevehr (1988, pp1) noted that there have been several studies that have indicated that changes in meat demand are not caused entirely by changes in relative prices or income. The view of Bansback (1995), as touched upon in the introduction, is that aside from economic factors, empirical studies have considered changes in the size and structure of the population, and the tastes and preferences of consumers to be other influences on meat demand.

Figure 2.6 shows Loudon and Della Bitta's framework for a simplified consumer decision-making process. This framework will be discussed in more detail in Chapter 3 when exploring consumer behavioural theories, but it is also included here as it illustrates that there are several external influences which can impact upon the consumer's decision making process, and ultimately their purchasing behaviour. These are seen to be cultural, social, personal, family and other influences (which includes those economic factors already discussed). Such factors, and their influence on purchasing behaviour, will be explored in this section.

Figure 2.6: The Consumer Decision Making Process



(Loudon and Della Bitta, 1988)

### 2.3.1.1 Demographic Influences

Demographic and social aspects of the population such as age, gender, household size, education level and occupation may all influence people's attitudes towards meat and ultimately contribute to their purchasing behaviour. Jones and Yen (2000) express the importance of household age composition and socio-demographic in determining variation in meat consumption amongst households, aside from prices and income. If such factors do



influence purchasing behaviour, then as the structure of the population changes, it is likely the structure of demand will also change. An array of studies have considered, or attempted to assess, the impact of such factors on meat purchasing behaviour (E.g. Burton, Tomlinson and Young, 1993; Burton, Dorsett and Young, 1996; Jones and Yen, 2000; Verbeke, 2000). In particular, two related studies by Burton et al (1993 and 1996) of the social and demographic factors influencing the purchasing decision for meat, as an aggregated category, in the UK, found age, household size and structure, and gender amongst others, to have a bearing on meat purchasing behaviour.

### **Age**

A positive relationship between the decision to purchase meat and age was found by Burton et al (1993, 1996). Older people are more likely to engage in the purchasing of meat and their actual level of expenditure on meat is also greater. Following the initial study by Burton et al (1993) based on just twelve months of cross-sectional data it was unclear whether this meant people purchase more meat as they get older, or whether the particular generation of older people at the time of the survey were more inclined to buy meat. There was thought to be either a 'lifecycle' effect, whereby all individuals would be expected to increase participation with age, or a 'cohort' effect, whereby the purchasing preferences would be specific to each generation which are kept throughout life. In other words, the analysis used data from one time period covering several individuals; is it the case that generally as people get older they are more likely to buy meat? Or is it the case that people generally keep their meat eating habits throughout their life and that younger generations are now less likely to buy meat than the older generations were? If the latter was the case than this is likely to result in a long term downward trend in the demand for meat as the older generations are replaced.

Burton et al (1996), in their study which used data extending over five years and three decades, confirmed that it was more likely a 'lifecycle' effect was taking place, rather than a 'cohort' effect. This is a favourable result for the meat industry in light of the fact that the UK population is ageing. It is estimated that by 2025, a third of the UK population will be over 55 years old (BBC News, 2004). The percentage of the population over 65 years old increased from 13% to 16% between 1971 and 2005 (National Statistics, 2006). Had a cohort effect been taking place then the British meat sector may well have been heading for a long-term decline in consumption; as those from the younger age groups move through to maturity and continue to consume less meat than those from the previous older generations. However, as it appears a lifecycle effect has been taking place there is the possibility that, as people are living longer and the ageing population grows, meat demand could also increase.



Contrary to the findings of Burton et al, Verbeke (2000), through investigation of the influences on the consumer decision process for fresh meat in Belgium, found that ageing limited favourable decision making towards fresh meat. This implies that the probability of purchasing meat declines with age. However, this may simply reflect the differences between the attitudes and behaviour of consumers between different countries.

### **Household Structure**

The structure of households may affect meat purchasing behaviour, such as the number and age of those within the household. Jones and Yen (2000) found that, while all beef demand elasticities were both significant and positive, the value of the elasticity varies depending on the age composition of the household. Households made up mostly of members aged 20-44 years old, and 45-64 years old, were found to be much more responsive to changes in price than households with a larger proportion of much younger or much older people. Households with a larger proportion of especially older or younger members were also found to consume more beef.

Burton et al (1993) found that the presence of children and infants within a household to have an effect on meat purchasing behaviour. The probability of participating in the purchasing of meat was found to be positively related to the presence of infants (under four years old) within households, although this influence was found to be of declining significance by the end of follow up study by Burton et al (1996). Where the household has children older than 4 years of age, participation is not significantly affected. What this means is that a household with infants (under four years old) is more likely to purchase meat, although this relationship between the presence of children and likelihood of purchasing meat pales to insignificance as the children get older.

The findings of Verbeke (2000) once again do not support those of Burton et al. When studying the factors which influence consumer purchasing behaviour for meat in Belgium, Verbeke found the presence of children to be a limiting factor in favourable decision-making towards meat.

In terms of expenditure levels; the level of expenditure on meat per household member is likely to decrease, the more children or infants there are present in a household (Burton, 1996). This is in contrast to Jones and Yen's findings that an increase in household size leads to an increase in the probability of consuming beef. Perhaps the most likely reasoning for this effect is simply the effect of bulk buying. As more people are being catered for it is often the

case that savings can be made through buying larger 'value' packs or quantities of the particular product. Perhaps also a larger household is more likely to buy into promotions, for example buy-one-get-one-free on meat products, because they know the extra produce will be consumed without having to worry about storage problems and expiration dates. This will also lead to reduced per capita costs within households.

There is little research on the influence of age and household structure at the cut level. However, it may be the case that the type of meat products being purchased varies considerably by household. For example, Mince is a product which can easily be turned into a cheap, quick family meal. Households with several children may be consuming more cheap processed meat like mince and sausages, but are probably not purchasing as much of the more expensive meat cuts such as steaks and chops.

## **Gender**

The sex of the consumer has also been found to have some influence on meat purchasing habits. It has been reported that females demonstrate a lower probability of purchasing meat, and hence males were found to be more likely to participate in the purchasing of meat (Burton et al, 1993). On the other hand, Burton et al did not find there to be any significant relationship between gender and the amount spent on meat. The later study by Burton et al (1996) suggested that the probability of a female purchasing meat has increased over time and is now more consistent with the probability of a male purchasing meat. While a female is still slightly less likely to buy meat than a male, this is no longer significantly different. Interestingly, it was observed by Burton et al (1996) that during the first year of the study period, 1973, females were in a position where they were more likely to buy meat than males, which then declined in subsequent years until 1983, where the probability of females purchasing meat began to increase again.

Females are traditionally known to be the main food shopper in households so it is difficult to comprehend how reliable this research is on the influence of gender. The research by Burton et al (1993, 1996) was carried out on single adult households; therefore can it realistically be applied to society which still largely consists of two-adult households where spouses will have an influence over what food is purchased? It may be true that males are more likely to consume meat, but in terms of food shopping, it is likely that far more females are actually involved in the purchasing of meat than males because they are buying the meat on behalf of their household.

### **Employment Status and Education Level**

Employment status can impact upon the meat purchasing decision. Manual workers, unoccupied citizens and those who are retired have been found to be more likely to participate in the purchasing of meat, than those in professional and managerial roles (Burton et al, 1993; 1996). Furthermore, Burton et al observed a constant upward trend in the level of actual expenditure on meat for retired and unoccupied households. The result here is interesting as it might be expected that a high proportion of those who are unemployed or living on a pension would spend less on meat due to the expense involved. However, what the study does not tell us is the type of meat that is being purchased. It is possible that people belonging to those lower occupation classes are purchasing high quantities of lower quality/cheaper cuts of meat.

It is worth noting here that the survey data used in the studies by Burton et al (1993 and 1996) only covers data for in-home meat consumption. Any purchases of meat for consumption outside the home are not included. It is quite probable that a large proportion of employed people purchase products, including meat products, during the day away from home. While retired or unemployed citizens have a greater consumption of fresh meats in-home, those who are employed may well have a much higher consumption rate for out-of-home prepared or processed meat products. These may be purchased from work canteens, or any number of convenience stores, supermarkets or fast food restaurants during the working day. Therefore it is not conclusive or justifiable to state that those who are unemployed or retired consume more meat than those who are employed, although they may consume more meat which is fresh and unprocessed, simply because they have more time and inclination to cook meals from scratch.

Employment rates combined with an ageing population may have an effect on meat demand in the long run. As the population ages, there will be more retired people and this may in turn lead to greater consumption of fresh meat. This is strongly linked to the findings that older people are also more likely to eat meat. Most recent figures suggest that the unemployment rate in the UK is 5.5% (National Statistics, 2007). This rate is at a seven year high, although it is now levelling out. If the unemployment rate continues to fall this could potentially lead to a decrease in in-home fresh meat consumption, although the effects will probably be minimal, and would likely be offset partly by an increase in out-of-home consumption of meat.

The education level of the consumer may also influence the meat purchasing decision. Verbeke (2000) did not find education level to be a decisive factor in determining meat purchasing behaviour, but Burton et al (1993; 1996) found education level to have a negative effect on participation and level of expenditure for meat. If the consumer remained in full time

education until 18 years old, they were found to be less likely to purchase meat. This parallels with the result that those in more professional and managerial roles, for which generally a higher level of education is required, spend less on meat. Possible explanations for education level resulting in lower participation and expenditure on meat may include a wider knowledge and standpoint on issues such as animal welfare, health and food safety.

### **2.3.1.2 Lifestyle Influences**

Consumer lifestyles have changed considerably over time, and this is likely to have contributed to changes in meat consumption over the last few decades. Such factors are numerous, but a few will be considered here, such as time, vegetarianism, religion and technological advancements.

Consumers are becoming busier as indicated by the increasing demand for processed and convenience foods. This is a result of a combination of factors such as more women taking full-time employment and people working longer hours. A decline in cooking skills and family meal occasions have also contributed to growth away from fresh meat towards processed meats and prepared ready meals.

Mealtimes are losing their structure in today's society compared with a few decades ago. In 1961 meals were eaten at clearly defined times of the day: breakfast, lunch, dinner and supper (Flatters, 2007). Today meal times are much less defined, with grazing and snacking throughout the day, often replacing formal meal occasions. Family meal occasions are also becoming less common in households, with family members eating when they get a chance rather than at a set time. This again is likely to influence the type of meat demanded.

In 1986 approximately 5% of UK consumers were considered to be vegetarian, and this figure is now closer to 7% (Flatters, 2007). Vegetarianism is the practice of not consuming flesh from animals, sometimes going as far as to include derivatives from animals such as eggs and dairy products. Vegetarians may be motivated by a number of reasons such as ethical or moral beliefs, or by religious, cultural or health concerns. If the numbers of consumers engaging in the practice of deliberate meat avoidance starts to grow at an accelerated rate than there may be repercussions for the meat and livestock industry. However it is it does not appear that there has been any drastic growth in vegetarianism over the last two decades, and a study by Beardsworth and Bryman (1999) could not find any significant evidence to suggest vegetarianism in the UK is increasing.

The meat purchasing decision is also influenced by dietary practices imposed by certain religions. Some religions abstain, or are prohibited, from consuming certain foods, including meats. Most Buddhists do not consume meat, especially beef products. In Hinduism the consumption of meat is not prohibited, although pork is avoided and the consumption of beef is strictly prohibited. In Islam, Pork is prohibited from consumption. Other meats are consumed such as beef, lamb and poultry, but these will normally be Halal meat, which comes from animals which have been slaughtered in a specific way. As the population structure changes in Britain and becomes more culturally diverse, this could affect the demand for meat.

Technological advancements within society are considered to be a factor which could potentially have affected meat demand. Freezer ownership has been found to increase the likelihood of participating in the purchasing of meat (Burton et al, 1996). This is a relatively straightforward conclusion: freezers offer a method of storing meat in a way which will preserve and prolong the shelf life of the product. The study by Burton et al (1996) also found freezer ownership to have a significant affect on expenditure levels. The possession of a freezer both made it more likely that the consumer would participate in the purchasing of meat and also that the consumer would spend more on meat.

Other technological advancements will also likely have had an impact. For example, the microwave: first introduced into the domestic market in the UK in 1974; now more than 87% of households in the UK own one (Microwave Technologies Association, 2007). In terms of meat consumption, microwaves can be used in the defrosting of frozen meat, as well as the cooking or re-heating of many meat cuts and processed meat products. It is unlikely that microwaves have had such a significant impact on fresh meat consumption as the freezer, mainly because people are able to defrost and cook meat via other methods. The growth of processed meat products, particularly convenience foods such as ready meals, is likely to be more strongly linked to microwave technology.

Away from in-home technology, there has also been much technological progress further down the meat supply chain. Improvements in packaging technology have made enabled the freshness of meat products to be preserved for long, and hence extending the shelf-life of products. These advancements include Modified Atmosphere Packaging (MAP), which has been in use since the 1950s and alters the composition of the air inside the packaging to inhibit microbial spoilage and enzyme and chemical activity. To achieve this, a carefully composed combination of gases including oxygen, carbon dioxide, and nitrogen are used. It is likely that such advancements in packaging technology have positively affected

fresh meat consumption, although no specific evidence has been found in the literature to support this theory.

### **2.3.1.3 Meat Scares and Adverse Publicity**

The British meat market has been particularly susceptible to food safety scares over the past few decades. These include Bovine Spongiform Encephalopathy (BSE) in the early 1990s, Foot and Mouth Disease in 2001, and more recently Avian Influenza affecting the poultry market in 2006/2007. According to Verbeke (2000) meat is the food item in which consumer confidence has declined the most during the last decade. The implications for demand for affected food products following a scare are not necessarily due to the degree of risk to humans, but a result of the amount of media exposure and negative press generated. This can create major repercussions for the affected industries.

The most notable food safety scare in recent times was the outbreak of Bovine Spongiform Encephalopathy (BSE), or Mad Cow Disease, as it is informally known, which became a serious food safety issue in 1989/1990. BSE is a fatal neurodegenerative disease which affects adult cattle; notable symptoms include changes in animal's mental state and abnormalities in the animal's posture and movement. At its peak, in 1992, there had been approximately 37,000 confirmed cases of the disease in Great Britain (Defra, 2006).

The reason why BSE attracted such wide attention was not so much due to the numbers of cattle being infected, as this was actually not as high as some other livestock diseases such as Foot and Mouth. Rather, it was more due to the discovery that it was possible that the disease could be transmitted to humans via the consumption of infected beef. BSE was thought to be the cause of new variant Creutzfeldt-Jakob disease (nvCJD), which is an incurable neurological disorder which causes the deterioration of the human brain.

The media plays an important role in impacting upon consumer demand, both positively and negatively. Media publicity, in the form of newspaper and magazine articles, and television coverage, has a huge impact on consumer perceptions as they are seen or read by such a large audience.

At the height of the BSE scare there was widespread publicity and media attention. Burton and Young (1996) studied the impact of the BSE crisis on the demand for beef and other meats in Britain during and following the scare. It is only to be expected that consumption would fall following a food scare such as this, but what is less known, is by how much demand falls, and for how long. The research conducted by Burton and Young provides

some empirical evidence as to how much demand for beef and other meats fell as a result of the BSE scare. The study focused on lamb, pork and poultry, as well as beef, because, although beef was the only meat directly affected by BSE, all meats are considered to be substitutes.

The press attention surrounding BSE was found to have a significant effect on the allocation of consumer expenditure across the meat species, both in the short and (moderately) long term (Burton and Young, 1996). In the short term, the immediate consequence of the BSE scare was shown by a sudden drop in consumption of beef, whereby its share of the meat market fell 6%. There were compensatory increases in consumption of the other meats, particularly poultry and pork. This reallocation of expenditure was also noted by Fousekis and Revell (2004), who report that during the 1990s meat scares resulted in a reallocation of consumer spending from beef to pork, poultry and bacon. This highlights the knock on effects that a food scare for one product can have on the demand for similar, closely substitutable products.

Despite the increases in demand for other meats as a result of BSE; in general aggregate meat demand was reduced immediately following the scare. This indicates that people may have shown more caution towards the purchase of any type of meat; probably a result of diminished consumer faith in food safety as a result of the scare.

At the disaggregated level, meat scares had an affect upon how consumers allocated expenditure amongst the cuts within the species, indicating that consumers associated differing levels of risk to different cuts (Fousekis and Revell, 2004). In terms of consumer allocation amongst beef cuts, meat scares were found to increase demand for roasting cuts, but decrease demand for mince. This suggests that consumers perceived cheaper cuts like mince to be more risky in terms of safety. Meat scares during the 1990's also influenced the allocation of expenditure amongst lamb and bacon cuts, despite the majority of the scares during the 1990s relating to beef. Expenditure on lamb shoulder roasts increased, while demand for leg roasts and stewing meat fell. Within the bacon category there was an increase in expenditure on rashers and steaks, and a decrease in expenditure on bacon joints.

The results revealed that the publicity BSE received in the UK had a significant impact on the allocation of consumer expenditure among beef and other meats. In the short-run, the impact was to dramatically reduce the market share of beef (Burton and Young, 1996). In the longer-term, by the end of 1993, beef market share had reduced by 4.5%. These observed changes in beef market share during the early 90's were not found to be attributable to underlying long-term changes in consumer tastes, and so are almost certainly attributable to the publicity surrounding BSE. This evidence shows that food scares can have a significant



impact on meat demand both in the immediate short term and the longer-term. It highlights the devastating contribution negative press can make upon consumer purchasing behaviour. In the absence of communication to consumers through press and media sources, the impact of a food safety scare on purchasing behaviour is likely to be much less, as the consumer would not be as informed or aware about the issue. Hence, the media and food scares go hand in hand as a factor influencing meat demand.

### **2.3.2 Economic Factors**

The interaction of consumer purchasing behaviour (demand) and producer behaviour (supply) will determine the quantity of a product that is produced and the price at which it is sold on the market. Begg et al (1997) provides a good definition of what the market actually is:

“...a set of arrangements by which buyers and sellers are in contact to exchange goods or services.”

In theory, markets determine prices so that the quantity consumers want to buy is equal to the quantity producers wish to sell. Demand is the quantity of a product consumers are willing to buy at a given price, all other things being constant. While supply is the quantity which producers are willing to supply at a given price, all other things held constant. The equilibrium price within a market will be that price where the quantity produced is equal to the quantity demanded. In general the lower a commodity is priced, the more the consumer will demand, although there will normally be a limit to how much the consumer actually wants however low the price goes. In terms of meat, there is only so much a consumer will want or be able to consume, and perish-ability and storage issues may restrict the amount a consumer will be able to purchase.

Demand curves show the relationship between price and quantity where all ‘other things’ remain constant. These ‘other things’ can affect demand, and include prices of related goods, consumer incomes, and consumer tastes and preferences (Begg et al 1997). If income rises, generally we will expect demand to rise also, for ‘normal’ goods. Burton et al (1996) supports this notion, finding that for those consumers who engage in the purchasing of meat, expenditure is greater, the greater the income. However according to Engels’ Law, for a given



set of tastes and preferences, as income rises, the proportion of income spent on food will fall, even if actual expenditure on food rises (Cranfield et al 1998). Another exception to the rule on income is in the case of inferior goods. As income rises, demand for inferior goods such as economy or 'value' products, will fall (Begg et al 1997).

Supply side factors can also contribute to changes in demand. These include technological improvements, cost of raw materials and inputs, and government regulations. If supply of lamb increases as a result of improvements in production efficiency at the farm level, the minimum price the producer is willing to accept for lamb may fall as a result of cost savings, potentially resulting in an increase in demand. In the livestock industry changes in price support and subsidy payments may affect levels of production, and hence the prices that will be charged to consumers will change together with demand.

So far we have shown that demand is affected in the main by prices and income, as well as some other factors. However, in demand analysis it is necessary to be able to measure the impact of changes in these factors on demand. It is necessary to help with forecasting and predicting to be able to quantify by how much demand is likely to fall or increase as a result of changes in prices, income or other factors. The responsiveness of demand to a change in the price of a particular good can be estimated through calculating the own-price elasticity of demand.

The own-price elasticity of demand is calculated as the percentage change in the quantity demanded of a good with respect to the corresponding percentage change in price. It tells us by how much demand will fall or rise as a result of a one per cent change in price. Other demand elasticities can also be calculated; specifically cross-price and expenditure (income) elasticities. The cross-price elasticity of demand estimates the change in quantity demanded with respect to the change in the price of some other good, such as a substitute or complementary product. The income elasticity of demand estimates the change in demand in response to a change in income, at a given price level. Demand for a product is considered to be perfectly elastic when the elasticity of demand is equal to one and inelastic when the elasticity is equal to zero. Referring back to Engel's law, which states that as incomes rise the proportion of expenditure allocated to food decreases, it is implied that the income elasticity of demand for food is less than one, and therefore inelastic.

According to Begg et al (1997), the factors behind the extent of the elasticity lie essentially in consumer tastes. However there are economic considerations which may also affect the consumer response to changes in price and income. In particular, an extremely important factor in determining the consumer's response to a price change will be the ease

with which the consumer can substitute the product with another good that fulfils the same purpose.

Elasticities of demand for meat products have been estimated in much of the meat purchasing behaviour analysis literature, to find out how changes in price and incomes influence meat purchasing behaviour. Tiffin and Tiffin (1999) found that aggregate food demand in Britain is both price and income elastic, while for most individual food categories, demand is mostly price and income inelastic. However, meat products were found to be an exception to this general rule.

### Own-Price Elasticities for Meat

Given the increasing reliance on promotions within the British meat category, it is extremely important to understand the impact of price changes on the demand for meat. If promotions are found to ultimately have a detrimental impact on demand, other options need to be considered in an attempt to boost meat consumption in the long term. Table 2.8 shows the own-price elasticities for meat, as estimated by four different UK based meat demand studies.

Table 2.8: A Comparison of own-price Elasticity Estimates for Meat in the UK

|         | Own-Price Elasticity    |                          |                            |               |
|---------|-------------------------|--------------------------|----------------------------|---------------|
|         | Burton and Young (1996) | Tiffin and Tiffin (1999) | Fousekis and Revell (2000) | Fowler (2007) |
| Beef    | -1.522                  | -1.642                   | -0.844                     | -1.52         |
| Pork    | -0.999                  | -1.870                   | -1.002                     | -1.36         |
| Lamb    | -1.584                  | -0.525                   | -1.196                     | -1.58         |
| Chicken | -0.731                  | -1.374                   | -0.983                     | -1.05         |

Source: Tiffin and Tiffin (1999, Table 2); Fousekis and Revell (2000, Table 3);  
Burton and Young (1996, Table 3)

As would be expected all the own-price elasticities are negative, although there are some considerable differences between the estimates. The elasticities reported by Fousekis and Revell (2000) were all found to be close to unit elasticity, whereas Tiffin and Tiffin found pork, beef and chicken demand to be elastic, but lamb demand was more inelastic. The findings by Burton and Young (1996) support Fousekis and Revell, whereby the demand for lamb was found to be elastic, although demand for pork and poultry were found to be less elastic. Recent research commissioned by the MLC found own price elasticities were to range from -1.58 for total lamb and -1.52 for beef, down to -1.36 for pork, and -1.5 for poultry (Fowler, 2007).

Studies have also calculated elasticities at the disaggregated level. Eales and Unnevehr (1988) found that the own-price elasticities for meat at the aggregated (species) level were smaller than elasticities of their constituent products at the disaggregated (cut) level.

Table 2.9 shows elasticities, estimated by Fowler (2007), for beef and lamb at the disaggregated level. The table shows two sets of elasticities for beef and lamb: those which include cuts from all sources and those which are specifically calculated for home-produced (i.e. reared in Britain) cuts.

Table 2.9: Own-price elasticities for beef and lamb cuts in the UK

|   | Elasticity |
|---|------------|
| <b>Beef:</b>                              |            |
| 1st quality Roasting (all sources)        | -2.67      |
| 2nd quality Roasting (all sources)        | -1.26      |
| 1st quality Stewing (all sources)         | -0.4       |
| 2nd quality Stewing (all sources)         | -0.03      |
| Frying/Grilling Steak (all sources)       | -0.71      |
| Mince (all sources)                       | -0.29      |
|   |            |
| Roasting (Home produced)                  | -3.63      |
| Stewing (Home Produced)                   | -0.06      |
| Fry/Grilling Steaks (Home produced)       | -0.82      |
| Mince (Home produced)                     | -0.26      |
|   |            |
| <b>Lamb:</b>                              |            |
| Chops (all sources)                       | -0.42      |
| Steaks (all sources)                      | -1.27      |
| Leg Roasting (all sources)                | -1.9       |
| Shoulder Roasting (all sources)           | -0.84      |
| Stewing (all sources)                     | -0.26      |
| Mince (all sources)                       | -0.43      |
|   |            |
| Roasting Leg+Shoulder (Home produced)     | -0.89      |
| Stewing (Home produced)                   | -0.33      |
| Fry/Grilling Steaks+chops (Home produced) | -0.53      |
| Mince (Home produced)                     | -0.94      |

Source: Fowler (2007)

This study found for beef that more expensive cuts and those which are home produced have higher price elasticity; in particular home-produced roasting joints have the highest elasticity (-3.63), followed by home-produced fry/grilling cuts such as steak (-0.82). The elasticity for stewing steak is especially low indicating that purchases will not really be influenced by price changes. It is more likely that seasonal factors such as the weather will influence the purchasing of stewing beef than prices, as it is typically used in winter months for stews and casseroles. For lamb, roasting joints and steaks were also found to have the highest price elasticities, with leg roasts found to be twice as price elastic as shoulder roasts. Fousekis and Revell (2003) report own price elasticities for pork in the UK at the cut level. Roasting cuts were found to be price elastic, while loins, chops and bellies were found to be relatively inelastic. Loins were the most expensive cut of pork, but accounted for the smallest budget share of the consumer and so are most likely to be purchased for infrequent use, perhaps on special occasions. This explains why the demand is very inelastic and the lowest out of all the cuts.

This evidence of the differences between elasticities reported at the aggregate and disaggregated levels highlights the importance of drilling down to the specific cut when analysing meat purchasing behaviour. This is a deficiency prevalent in much of the previous research on meat purchasing behaviour.

### **Cross-Price Elasticities for Meat**

Cross-price elasticities can help to show the effect of changes in price of different meats (species and cuts) on the demand for other specific meats. Cross-price elasticities can be used to help identify whether certain promotions are likely to be very detrimental to sales of alternative meat species or cuts. It would normally be expected to find cross-price elasticities to be positive. For competing products if the price of one product increases, you would expect to see consumption for said product to fall, in favour of the competing product.

It is apparent that British consumers, on the whole, treat the different meat sub-categories as substitutes to varying degrees. Tiffin and Tiffin (1999) found a 10% rise in the price of beef, results in an increase in the quantity demanded of pork by 6.6%, chicken by 10.9% and lamb by just 0.4%. There are a few cases where the cross-price elasticities indicate the sub-groups may be complements, rather than substitutes. A 10% rise in the price of pork caused chicken consumption to fall 2.4%, and similarly a 10% rise in the price of chicken resulted in a 2% fall in demand for pork (Tiffin and Tiffin, 1999). This indicates that pork and chicken may in fact be complementary goods, rather than substitutes. There was also evidence of complementarities between lamb and pork, which was backed up by Burton and Young (1992). On the other hand, Fousekis and Revell (2000) found all meats to be substitutes using Hicksian estimates, but these elasticities were all very inelastic indicating very limited substitution taking place between meats.

Fowler (2007) found many cross price elasticities to be very low or negative, rather than positive as would be expected if meat species and cuts were closely substitutable. Suggested reasons for this include the fact that cross price elasticities measure only the interaction of two commodities at a time, but in reality consumption of a product may be influenced by prices of several other cuts. Fowler (2007) did find evidence of some significantly positive relationships between meat cuts. Purchases of stewing beef were found to be significantly correlated with the price of beef mince and slightly correlated to stewing lamb. This indicates that stewing and mince cuts are substitute products. It was also found that the prices of fresh chicken breasts had a very minor influence on purchases of British beef steaks. The impact of beef price changes on lamb consumption was found to be very

high indicating that there is substitution between beef and lamb cuts, which contradicts the estimates by Tiffin and Tiffin (1999) that show beef and lamb not to be closely substitutes. Again this highlights the importance of carrying out analysis at the disaggregated level, because while at an aggregate level two species may not be closely substitutable, at the disaggregated level this may not be the case for all cuts within the species.

### **Income Elasticities for Meat**

It is also insightful to look at income elasticities, as, for example, there may be differences in the way consumers respond to promotions depending upon the affluence of the region or the type of shoppers. Understanding how changes in income can affect the response to price changes may indicate a need to tailor promotions to specific stores or regions.

It is reported by Burton et al (1996) that household income has a negative impact upon a household's decision to purchase meat. Households with higher income were found to generally be less likely to engage in the purchasing of meat. This could be tied into the findings that education level, as previously discussed, also has a negative impact on the decision to purchase meat because it would normally be assumed that a more highly educated consumer would be likely to have a higher income.

However, perhaps less surprisingly, of those who do purchase meat, expenditure is greater, the higher the income. This does not necessarily mean that those with higher incomes are purchasing larger quantities of meat, but that they are purchasing more expensive, higher quality cuts of meat. It can be observed that in recent years there has been steady growth in the premium products sector, as highlighted by the growth in supermarket premium product ranges, such as Tesco 'Finest' (dunnhumby Ltd, 2007). This is likely to be at least partly due to rising disposable incomes in the UK (Flatters, 2007).

While there has been clear growth in disposable income in the UK and other European countries, actual expenditure on food as a proportion of household income is declining (Flatters, 2007). This is consistent with Engel's law whereby as incomes rise, the proportion of income spent on food will decline. Fousekis and Revell (2004) found price elasticities for pork cuts decreased as the level of expenditure increased, indicating that price is of diminishing importance to the consumer in their purchase decision as level of income increases.

Income elasticities are generally measured using expenditure data to represent changes in income. If consumer's expenditure on food increases by one unit, by how much will

demand for meat increase? Tiffin and Tiffin (1999) estimated expenditure elasticities for pork, beef, lamb and chicken demand. Expenditure elasticities ranged from as high as 1.95 for beef, to as low as 0.33 for lamb. It is therefore fair to say that as income increases, expenditure allocated across different meats, particularly beef, will increase. Demand did not fall for any of the aggregate meat sub-groups as a result of increased income; therefore we can assume that none of the meat species at the aggregate level are considered inferior products. These results are consistent with those of Fousekis and Revell (2000), but differ from those of Burton and Young (1996), who found expenditure elasticities for lamb to be elastic, while expenditure for pork and poultry were inelastic.

Although taken at the aggregate level, meat is considered a product to purchase more of as income rises; this is not necessarily the case at the disaggregated level. Eales and Unnevehr (1988) found that, while aggregate demand for beef and chicken in the US increased as a result of increased income; this was not the case at the disaggregate level. Demand for whole chickens and beef burgers fell as a result of increased income, in favour of table cuts of beef and parts and processed chicken. Whole chickens and processed beef burgers could therefore be considered inferior goods.

Fousekis and Revell (2003) report expenditure elasticities for pork in the UK at the disaggregated level. Roasting joints were found to be expenditure elastic, while loins, chops and bellies were expenditure inelastic. This goes further to highlight the usefulness of using disaggregated data, as it shows that there are differences between the ways the consumer shops at the cut level as well as the species level.

According to Jones and Yen (2000), the findings within the literature are generally less conclusive as to the effect on income on meat consumption in the US; in particular beef. Jones and Yen (2000) estimated the income elasticity of demand for beef to be -0.031, unconditional on consumption. This indicates that the income elasticity of demand for beef is very inelastic, and that the income effect is insignificant. Other studies have found the income elasticity for beef to be in the region of 0.5 to 1.27 (Heien, 1982; Chavas, 1982; Moschini and Meilke 1984).

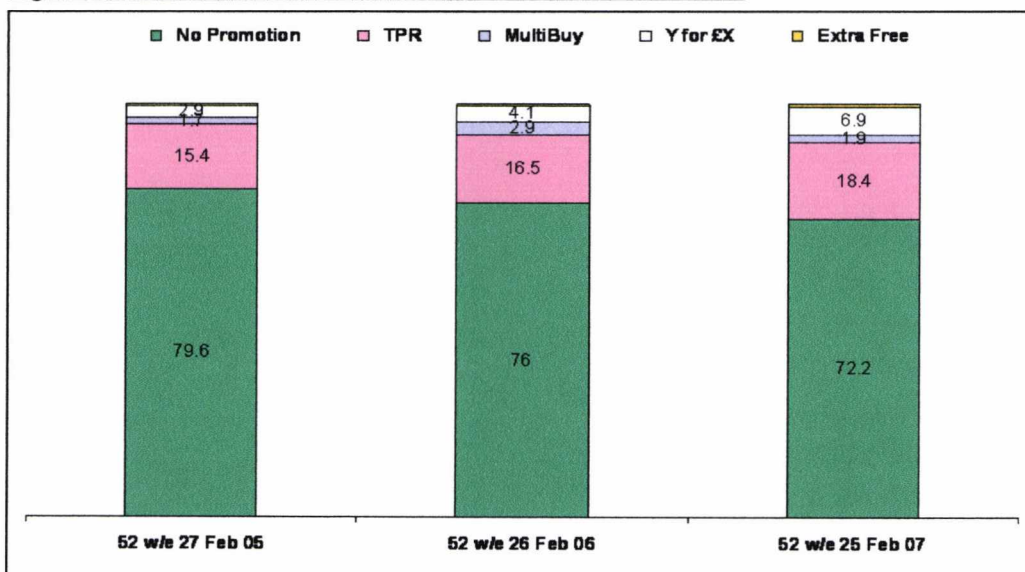
It is apparent that while there are similarities, there is also some considerable variation between the elasticities reported within the literature. The reasons for this may include the use of different estimation models, differing time periods and differing sources of data. It is clear that estimating elasticities at the disaggregated level produces a much more in-depth picture of demand variation between species and cuts, than studies which have just carried out analysis at the aggregated species level.



### 2.3.3 Influence of Promotions

The volume of fresh and frozen red meat sold on promotion increased substantially over the three years from 2005 up to and including 2007. Figure 2.7 shows the volume share of red meat sold in the UK by promotion type over the last three years. The volume of red meat sold on promotion currently accounts for over a quarter of all red meat purchased through retailers. This can be compared with the 52 weeks ending February 2005, where the share of red meat sold on promotion accounted for just over one fifth of meat purchases. During 2006 to 2007, the volume of meat purchased without promotion decreased 5%. This highlights the growing emphasis on promotions within the meat category.

Figure 2.7: Fresh and Frozen Red Meat % Volume Share in UK Retailers



Source: MLC/ TNS Worldpanel

Temporary price reductions are the most widely used form of promotion, accounting for over 18% of red meat sales during the 52 week period to the end of February 2007. The volume of red meat purchased with temporary price reductions has grown 11% over the last year. The volume of red meat purchased through 'Y for £X' promotions has grown 68% during the last year, while the volume purchased on multi-buy offers has decreased by 35%. Extra product free promotions are not widely used in the red meat category. However when drilling down specifically to the species level; the volume of lamb sold on 'extra free' promotions has increased 46% over the last year (MLC/TNS World panel, 2007).

Figure 2.8 shows the percentage of sales purchased on each promotion type for each retailer during the year ending 10<sup>th</sup> September 2006.



Figure 2.8: Percentage of sales by promotion type, by retailer, for beef, pork and lamb for the year ending 10<sup>th</sup> September 2006



Source: TNS

Of the big four supermarkets in the UK (Tesco, Asda, Sainsbury's and Morrison's), Sainsbury's is the retailer which sells the most red meat on promotion. In fact around 50% of beef purchases made within Sainsbury's were on promotion. This can be compared to Tesco, where purchases of beef made on promotion make up only 18% of total sales. One of the main reasons for Sainsbury's high use of promotions compared to the other major supermarkets could be because they are trying to improve their market position and are using promotions as part of their competitive strategy. Another interesting observation is that Sainsbury's implement multi-buy and 'y for £x' promotions much more heavily than most of their main competitors, particularly Tesco and Morrison's who mostly implement temporary price cuts. Retailers will have different promotional strategies depending upon the long term objectives of the individual retailer.

Overall advertising and promotional expenditure is low within the meat category, but it has increased over the past five years. In 2002, total media spend on meat was £3.78m, compared with £5.77m in 2006 (Mintel, 2006). However, the lack of branding within the British meat sector results in relatively low advertising expenditure on the whole, as the red meat industry is dominated by private-label products. However trade bodies, under the authority of the Meat and Livestock Commission, actively spend time and money on generic

promotion of British meat. These trade bodies include the English Beef and Lamb Executive (EBLEX) and the British Pig Executive (BPEX). Aside from promotional spending by supermarkets, such trade bodies are the only other main source of promotional spending within the red meat category.

Table 2.10 shows the main media spend on red meat during 2002 to 2006 by trade bodies.

Table 2.10: Media Spend on Red Meat by meat bodies, 2002-2006

|                         | 2002       | 2003     | 2004       | 2005       | 2006*      |
|-------------------------|------------|----------|------------|------------|------------|
| <b>MLC (Total)</b>      | £1,897,078 | £940,783 | £1,738,578 | £8,065,366 | £3,848,141 |
| - British Meat          | £770,650   | £118,862 | £86,776    | £266,028   | £141,457   |
| - Beef and Lamb         | £1,014,907 | £94,667  | £86        | £4,078,769 | £2,166,249 |
| - Pork                  | £70,553    | £9,339   | £16,291    | £142,599   | £214,361   |
| - Quality Standard      | -          | -        | £155,097   | £2,028,257 | £713,749   |
| - Quality Meat Scotland | £40,968    | £717,915 | £969,416   | £839,999   | £376,774   |
| - HCC (Welsh Meat)      | -          | -        | £510,912   | £709,714   | £235,551   |

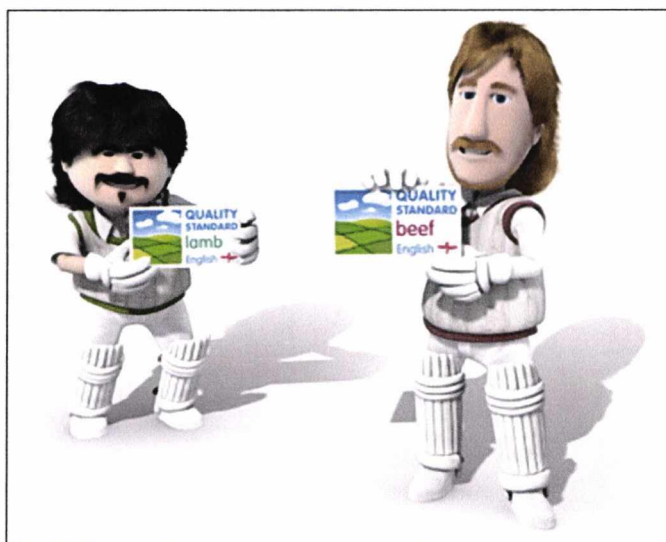
\* Includes data for January-July 2006

Source: Mintel (2006)/ Nielsen Media Research

It can be identified that the largest areas of spending are generally in the promotion of beef and lamb, Scottish meat and the Quality Standard mark. EBLEX is concerned with the promotion of English beef and lamb. The body is working towards establishing English beef and lamb as produce which is of comparable quality to Scottish beef and Welsh lamb, which are renowned for their high quality and are perceived as better than English. Promotional expenditure was especially high during 2005, which was the year where EBLEX launched the Quality Standard Mark for English beef and lamb with the aim of improving consumers' perceptions of the quality of English-origin meat. The campaign included on pack labelling to indicate to the consumer the produce was of assured standard of quality. Beef and lamb carrying this mark had to meet certain requirements in terms of eating quality to be awarded the Quality Standard mark. During 2006, a TV and press advertising campaign using the cartoon cricketers of Ian 'Beefy' Botham and Alan 'Lamby' Lamb to improve awareness of

the Quality Standard mark was launched. Figure 2.9 shows the cartoons used and the Quality Standard Marks which appears on packs of eligible English beef and lamb.

Figure 2.9: The Quality Standard Mark and cartoon characters 'Beefy' and 'Lamby' used in EBLEX's recent promotional campaign for English Beef and Lamb



Source: © English Beef and Lamb Executive 2007

BPEX promote British pork and amongst their promotional activity is a Quality Standard Mark for pork, which appears on labelling of products which meet the quality criteria. BPEX have increased investment in pork advertising following a successful campaign in 2005 which highlighted pork as '96% fat free'. This campaign met with growing consumer demand for healthier foods, and the aim was to correct some common misperceptions that pork is unhealthy and fatty. BPEX recently launched a campaign (September 2006) with the slogan 'Love Pork' which promoted pork as a healthy, convenient and tasty product. This promotion was implemented via point-of-sale displays and press advertising.

There is very limited research into the effects of promotions on meat purchasing behaviour. The most comprehensive study on the area was commissioned by the Meat and Livestock Commission in 2002. The results of this research, which was conducted via in-store observation and interviews at five major British supermarkets, will be explored in this section. What is clear from the findings is that the most effective forms of promotion vary depending upon product type.

For mince products (beef, lamb and pork), the most influential form of promotion is a '2 for 1' multi-buy, with 68% of shoppers claiming to be influenced by this type of offer. Price reductions (money-off now) were found to be the second most influential promotion type for mince (64% of shoppers influenced), followed by '3 for 2' multi-buy (42%), and 'Extra % Free' offers (24%).

For steaks and chops (beef, lamb and pork), the most influential type of promotion was found to be money-off now price discounts, with 69% of category shoppers claiming that their purchase decision is influenced by these discounts. Multi-buy offers are also found to be fairly influential upon the purchase decision, particularly '2 for 1', while 'Extra % Free' promotions for steaks and chops are not that influential.

For meat joints (beef, lamb and pork), 75% of shoppers claimed that price cuts influenced their purchase decision. '2 for 1' multi-buy offers were also fairly influential, but '3 for 2' multi-buys did not have such an impact on the purchase decision. Around 23% of shoppers claimed to be influenced by 'Extra % Free' promotions on joints, and 13% claimed to be influenced by promotions which gave them money-off their next purchase.

Joints, steaks and chops are all considered to be 'key occasion' proteins, bought with a specific meal occasion in mind. The occasion for their use will be highly planned by the shopper, but the specific cut or species is not necessarily planned, and the shopper will find it easy to substitute between the species and cuts depending on what is available. This might explain why multi-buy offers and extra product free offers are not be as influential on the purchase decision, because shoppers only want enough of the product for how many need to be catered for at the meal occasion. Hence, the reason why price discounts on standard sized packs is perhaps the most influential in the purchase decision. On the other hand, mince is considered an everyday, core protein. Shoppers will have planned to purchase the product, but the meal occasion for which it will be used is not necessarily planned. Shoppers often claim they buy it habitually and like to have some available at home ready for when it is needed. This might explain why multi-buy offers are more influential than for joints, and chops and steaks. Shoppers will take advantage of multi-buys and stock up as they know the extra volume will be used.

The current knowledge on the promotional response by shoppers in the fresh meat category is disappointingly sparse. Of specific note, there is no published information on how different shopper characteristics influence the response to promotions. There is a definite need for such information as it will enable retailers to design and target promotions for specific meat products at specific shoppers to improve the effectiveness of the promotions.

## 2.4 Concluding Remarks

This chapter has exposed the current situation of the red meat market in the UK and attempted to explain the factors which can influence consumption and demand for red meat. A long term downward trend in consumption of red meat in the UK has been identified. Although it appears that the decline in consumption is levelling off, overall red meat consumption in the UK is well below the EU. However, the market appears to be growing, and this is expected to continue into the future, especially in terms of value. There are opportunities as more consumers trade-up to premium lines, and the value of the red meat market will continue to be driven up. However the market is still far from buoyant, as red meat consumption is well below what it was some decades ago.

Evidence has been provided to support the reasoning behind the research topic of this thesis into the impact of price promotions in the red meat industry. First of all it has been identified that the majority of red meat sold in the UK is sold through supermarkets, with Tesco retailing the largest share of volume red meat sales. This supports validity of using supermarket loyalty card data from Tesco within this research, as their sales represent a large proportion of total red meat sales in the UK. Secondly, this chapter has provided evidence to show that there has been substantial growth in the use of price promotions to drive sales within the red meat category. A better understanding of the effects of promotions across red meat cuts and species will enable better use of promotions in the future to increase consumption and continue to drive value growth of British meat, which will ultimately benefit British livestock farmers.

A key question emerging here is to determine whether the heavy reliance on promotions in recent years within the meat sector has been a major factor in arresting the decline of meat consumption in the UK, or whether it has been a major contributor to the commoditisation of the red meat category. There has been very little prior research on the impact of promotions specifically in the meat category. Analysis of the consumer response to meat promotions is therefore justified as it fundamental to know if promotions are actually working efficiently and if so which ones work best. If promotions are not found to improve value within the meat sector then it may be necessary to explore other avenues to improve the outlook of the sector.

This chapter has also identified other key factors which influence consumer purchasing behaviour for meat. Although some evidence within the literature is conflicting, it is fair to say that while economic factors of prices and income are important in affecting consumers purchasing behaviour, these are not the only factors at play. Demographic factors, cultural influences, food scares and negative publicity all appear to contribute to influencing consumption to some affect. Consumers individual purchasing behaviour will be shaped by



their own attitudes, tastes and preferences, which are likely to be influenced by social, cultural and media influences. The majority of meat demand studies focus upon consumption at the aggregate level, rather than at the individual level.

Importantly this chapter has revealed the importance of analysing meat purchasing behaviour not only at the aggregated level, but also at the cut level. This provides a much clearer picture of how shoppers purchase meat. When a shopper goes to buy meat they generally have the occasion in mind rather than the meat itself. Substitutional affects have been identified between meat species and between certain cuts. The second research question will address the issue of how meat promotions influence purchasing behaviour for other cuts and species because it is not justifiable to just concentrate only on the red meat species as a whole.

The impact of promotions upon purchasing behaviour forms the major part of this thesis, and therefore a detailed review of promotional literature is necessary to draw evidence upon how consumers respond to promotions. Chapter three focuses on the theories of consumer purchasing behaviour and specifically the role promotions play in influencing purchasing behaviour.

### **3. The Impact of Promotions on Consumer Purchasing Behaviour: A Review of the Literature**

#### **3.1. Introduction**

Chapter two provided an overview of the red meat market and identified that the volume of meat purchased on promotion has increased substantially over the last three years. The key underlying influences affecting demand for meat were also explored, including economic, socio-demographic and physiological factors. The focus here in chapter three will turn specifically to purchasing behaviour and how it is affected by promotions. First the main theories of purchasing behaviour will be identified, followed by a review of the literature concerned with the impact of promotions on consumer purchasing behaviour.

#### **3.2. Theories of Consumer Purchasing Behaviour**

There are many theories as to why consumers behave the way they do when making decisions about what to buy. The purpose of the research in this thesis is to investigate how promotions influence these purchasing choices in the fresh meat category. Before focusing specifically on the literature relating to the factors affecting the consumer's response to sales promotions, it is necessary to have a basic understanding of what the study of consumer behaviour is and introduce some of the theory behind consumer purchasing behaviour.

Consumer Behaviour is defined by Loudon and Della Bitta (1988) as:

“...the decision process and physical activity individuals engage in when evaluating, acquiring, using, or disposing of goods and services.”

The study of consumer behaviour involves an understanding of the processes behind the decisions consumers make and their reasons for behaving the way they do before, during and post purchase. A clear understanding of consumer behaviour is essential to the marketing decisions which form part of an organisations' strategy.

This section will first identify the different types of purchasing behaviour that shoppers may display. Following this will be an overview of the basic models of consumer behaviour and the different perspectives of consumer behavioural theory. This chapter will conclude

with an explanation of how these theories can be applied specifically to purchasing behaviour in response to promotions.

Before proceeding with the discussion, the distinction between purchasing behaviour and consumption behaviour should be made. The purchaser and consumer differ in that the purchaser may not be the ultimate consumer of the product he or she is buying. For example, an adult may purchase items on behalf of their family, rather than consuming these themselves. Promotions influence the purchaser, or shopper, rather than the ultimate consumer. Much of the behavioural theory literature and empirical research fails to make the distinction between purchasing behaviour and consumption behaviour, but it is important to emphasise that the research to be carried out in this thesis will be focusing exclusively on meat purchasing behaviour. However, the discussion in this chapter and subsequent chapters is drawn from both the literature on *consumer* behaviour and *purchasing* behaviour as the terms are invariably used interchangeably.

### **3.2.1. Types of Purchasing Behaviour**

Robert East (1997) describes four different types of purchasing behaviour; (i) Important Purchases, (ii) Repetitive Consumption, (iii) Involuntary Consumption, and (iv) Group Consumption.

*Important purchases* are those purchases which are generally made infrequently, for which much time and effort is usually required by the decision-making consumer. Such purchases are known as 'high-involvement'; an example from the red meat category being a roasting joint purchased for a special family meal occasion or dinner party.

*Repetitive consumption* covers those purchases which are made on a frequent basis, and generally require little conscious attention from the consumer. Such purchases are known as 'low-involvement', and it is quite probable that many meat products will generally fall into this category; particularly core proteins such as bacon, mince and sausages. Choosing which mince to buy for that mid-week spaghetti Bolognese would typically be a much lower involvement purchase decision than choosing which fillet steak to buy for a dinner party.

*Involuntary consumption* includes those purchases which consumers have no choice but to make. For example, if a consumer owns a car they must purchase petrol to fuel the car. There are very few, if any, such examples of involuntary consumption in relation to the purchase of red meat.



*Group consumption* includes purchases that are based on a group decision making process. Family purchases will often be influenced by the preferences of different family members, for example. Where fresh meat is being purchased, the decision may be influenced by what family members are willing to eat.

### **3.2.2. Different Perspectives on Consumer Behavioural Theory**

Consumer behavioural theory has been studied from different disciplinary perspectives. Until the mid-twentieth century economics was the main contributor in helping to explain consumer purchasing behaviour, with theories relating to how utility functions could be used to describe a consumer's allocation of resources amongst bundles of products so as to maximise utility. The effects of changes in prices and income on a consumers' allocation of resources were studied using these utility functions. Since then, knowledge from areas such as sociology and psychology has come to the forefront in enhancing our understanding of consumer behaviour. Consumer behavioural theory will now be explored, firstly from an economic perspective, and secondly, from other perspectives.

#### **Economic Perspective**

In economic terms, the theory of consumer choice explains how consumers reconcile their purchasing behaviour, as described by tastes and preferences, and, what the market will allow the consumer to do, as described by their incomes and the prices of different goods. Begg *et al.* (1997) claim that there are four elements of consumer choice which can be used to describe the consumer and the market environment; (i) consumer income, (ii) the prices of goods, (iii) consumer tastes, and (iv) the behavioural assumption that consumers will try to maximise their utility. Consumers will rank different bundles of goods depending on their individual preferences, and of those bundles of goods that the consumer can afford, he or she will endeavour to choose the bundle which maximises his or her satisfaction (or utility). The consumer's decision will be limited by their budget, which will be dependent upon their income and the prices of the bundles of goods they wish to buy; known as the budget constraint.

It is believed that a consumer's utility is unobservable, and as a result economists have concentrated on the relationship between easily measured variables, such as income and prices, on the quantity purchased, rather than looking at the decision making processes consumers may also go through when making choices.

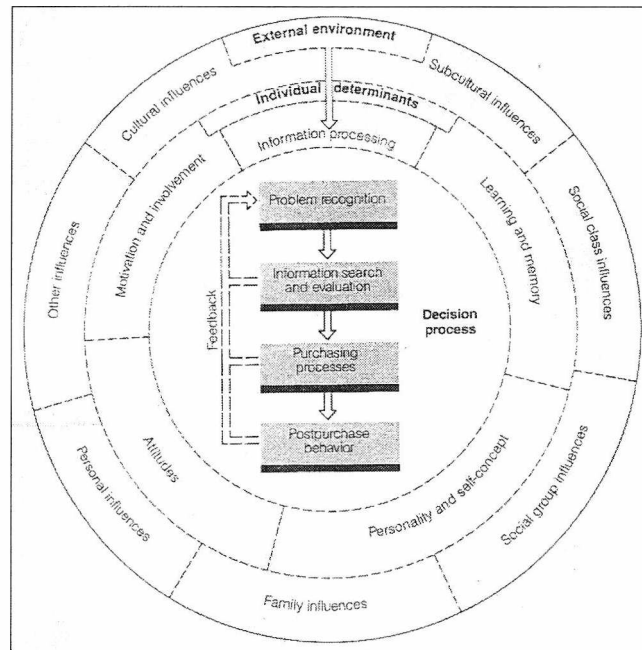
The economic model of consumer behaviour provides a useful tool in predicting and forecasting sales in response to price and income changes. However, it can be considered to be an oversimplified model, as it overlooks other determinants on the quantity sold aside from prices and income. Psychological, social and cultural factors can, and do, influence purchasing decisions but are not accounted for in the model. The economic model also fails to take into account how advertising, promotional activity, distribution, individual product characteristics and consumer preferences influence purchasing decisions, and ignores the psychological decision making process involved in making purchases.

### **Psychological Perspective**

The economic perspective of consumer behaviour is useful to explain how prices and income can influence sales, but it is lacking in its ability to assist in marketing decisions as it does not allow for predicting how any other, non-price, factors might influence sales. There are psychological factors which influence the way we behave and the choices we make. When looking at consumer behaviour from a psychological perspective it is useful to look at three behavioural paradigms within which the numerous theories of consumer behaviour fit. These are the Cognitive paradigm, the Reinforcement paradigm and the Habit paradigm (East 1997).

Under the cognitive paradigm, consumer behaviour is seen as a decision making process, through which the consumer seeks information on products and evaluates various options before making a choice. Purchases are ultimately the outcome of problem solving or decision processes made by the consumer. The cognitive approach to purchasing is particularly observed where important, high-involvement purchases are being made. Figure 3.1 shows Loudon and Della Bitta's (1988) interpretation of the consumer decision-making process and the internal and external influences upon it.

Figure 3.1: The consumer decision making process



(Loudon and Della Bitta, 1988)

The consumer will recognise the need for a product or service. Following this they will search for, and evaluate, information to help them make an informed choice. This information search will include an internal search based on previous information the consumer has about specific brands and products, aside from such activity as perhaps reading product reviews. The consumer then takes action and makes a purchase; a process that includes choosing which retail outlet to buy the product from. The purchase will lead to one of a variety of outcomes depending on how the consumer evaluates the outcome. The consumer may be satisfied with the purchase, or perhaps disappointed with the choice made. These post-purchase feelings will influence future purchases and decision-making by the consumer.

Although the cognitive paradigm is very popular amongst psychologists in explaining consumer behaviour, there are those who criticise it. For example, Olshavsky and Granbois (1979) make the comment that often a conscious decision by the consumer never occurs during the purchase of products, even with first-time purchases. They argue that consumers will often put very little effort into purchase decisions, perhaps evaluating only very limited alternatives, if any. As consumer behaviour can be the result of past experience, it is thought by some that this can have more influence on consumer behaviour than any other factor in the decision-making process.

The Reinforcement paradigm infers that consumers learn from past behaviour and make future decisions based on these past experiences (East 1997). Such aspects as packaging, brand names, smells and colours can stimulate a purchase decision by the consumer, based on past experience by the consumer. If a consumer is familiar with a particular brand in a product category, this may influence their decision when purchasing different brands within a product category as they trust that particular brand.

The cognitive and reinforcement paradigms emphasise the modification of consumer behaviour, and can therefore be used to explain changes in purchasing behaviour (East 1997). However, in many established markets consumer behaviour does not necessarily change that much. Consumers may have a certain brand they like and stick to it. This is the idea behind the Habit paradigm. When purchases are made out of habit, the decision making process is not used, and hence aspects of problem solving or planning are excluded from the purchase. Of course, even with habitual purchases consumers will still change their behaviour if they find a particular product or brand consistently disappoints them. It is less likely, where purchases are made out of habit, that the consumer will be influenced to alter their behaviour as a result of such things as improved packaging, in-store displays, promotions and advertising.

In reality the level of involvement the consumer gives for the particular product is likely to make a difference as to how the consumer behaviour decision-making process works. If the product being purchased is a high-involvement good, the consumer is likely to put much more effort into the decision-making process, especially the information search and processing, than for a low-involvement product. The role of involvement in the purchasing of food products is widely debated (Verbeke and Vackier 2004). Some believe that consumers' attitudes towards food products are almost always previously formed, and hence the decision process will be habitual and based on past experiences. Seeing as many food products are low-priced, frequently purchased goods they are usually considered to be low-involvement products (Beharrell and Dennison 1995). However, this notion that food products are low-involvement does not necessarily apply where there is a perceived risk involved with the purchase. Food safety or health risks brought to the attention of the consumer are likely to make them more involved in the purchasing decision for these food products (Verbeke and Vackier 2004).

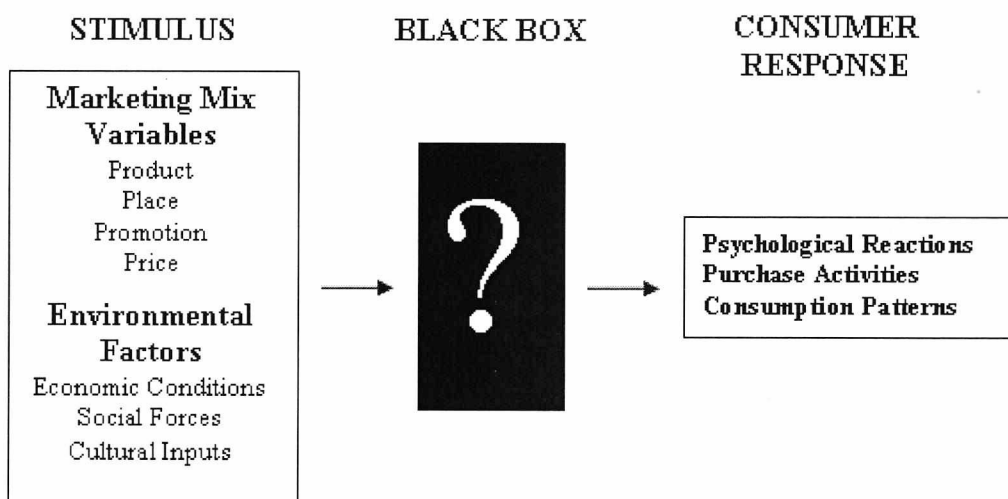
### **3.2.3. Stimulus-Response Model**

Businesses can manipulate the marketing mix - promotions, pricing, merchandising and advertising to influence purchasing decisions. Changes to the marketing mix induce

consumption directly or indirectly, by raising awareness of the product, increasing interest in a product, and create desire to have the product.

In the Stimulus-Response Model, shown below in Figure 3.2, certain stimuli, including not only marketing mix variables, but also environmental factors, are assumed to affect purchasing behaviour.

Figure 3.2: The Stimulus-Response Model



(Bagozzi 1986)

Stimuli that increase the probability of a particular behaviour (e.g. purchasing) occurring in the future are termed 'positive reinforcers', while stimuli in the environment that decrease the frequency of a future response are known as 'punishers' (Bagozzi 1980). Conversely, those stimuli which decrease the probability of a future response occurring are known as 'negative reinforcers', while the elimination of stimulus which decrease the frequency of a future response are known as a 'response cost'.

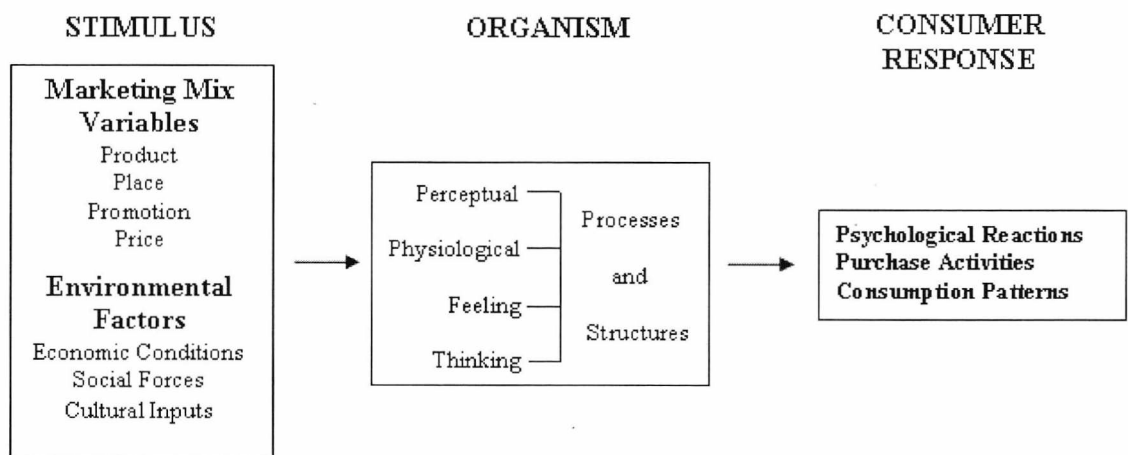
Marketing mix variables include what are known in marketing as the four Ps; product, place, promotion and price. Environmental factors include economic conditions such as inflation and interest rates, social forces and cultural influences. Marketing managers can control the stimuli in the marketing mix, but cannot control the environmental factors. The

consumer processes these stimuli through unknown processes inside the ‘black box’ to generate an observable response.

The model can be used by marketing managers to analyse the reactions of shoppers to different stimuli such as advertising campaigns, prices and product positioning in-store. However, the main limitation to managers is that the processes through which the stimuli are transformed into a response are unknown. Marketing managers need to understand how their actions create responses so they can continue to design and target their stimuli more effectively. The model does not allow for purchasing behaviour to be self-influenced, such as from past experience, preferences and habits. .

The unknown processes within the ‘black box’ are likely to be the psychological processes which affect the consumer’s response to stimuli. The original stimulus-response model has developed from work by Watson (1930) and Skinner (1953). Since then it has been extended to incorporate the internal processes made by the individual (organism) when transforming stimuli into actual behaviour. This model is known as the stimulus-organism-response model, as shown in Figure 3.3.

Figure 3.3: The Stimulus-Organism-Response Model



(Bagozzi, 1986)

These processes take into account feelings and thinking by the individual shopper and those psychological processes which play a part in the purchasing decision. This takes us back to the consumer-decision making process (Loudon and Della Bitta 1988), as seen in Figure

3.1, which explains all the factors which have an influence over the consumer decision making process, including individual determinants as well as environmental influences.

#### **3.2.4. Consumer Behavioural Theories Applied to Promotions**

The overall purpose of this research is to study the impact of price promotions upon meat purchasing behaviour. With this in mind it is therefore useful to consider how the theories of consumer behaviour discussed in this section can be applied to sales promotions specifically.

From an economic viewpoint, it is quite straightforward to acknowledge that price promotions will usually exert a positive response from consumers, as the budget constraint is relaxed and utility increases due to purchases being made at a lower price. The consumer is able to purchase a larger quantity of that good, or allocate more resources to other goods as a result of the savings made. It can also be said that households with low storage and transaction costs will be more inclined to purchase on promotion as they can easily store and transport the extra volume of product. The economic perspective on consumer behavioural theory does however ignore other influences on the shoppers' decision making process, such as the psychological thought process. Therefore we can gain insight into how shoppers respond to changes in price and income, but do not learn anything about how other factors influence consumer decisions and, indeed, how other types of sales promotions aside from those related directly to price affect behaviour.

Psychological theories of consumer behaviour can also be applied to sales promotions. The stimulus-response model showed us how different stimuli can influence internal processes within individuals to reach an outcome. The three behavioural paradigms come into play in influencing the consumers' response to stimuli, including sales promotions. From the cognitive viewpoint, promotions may drive more discerning consumers away, for example those looking for a solution to a special meal occasion. Some shoppers may feel the promotion diminishes the perceived value of the product or brand. The potential importance of promotions when looking from the reinforcement perspective is that consumers will likely take past experience into account when choosing what to buy, and so consumers who are familiar with a brand may be more likely to take advantage of promotions on offer. From the habitual viewpoint, promotions may drive sales amongst loyal customers, but will not necessarily attract shoppers who are loyal to other brands. Where purchases are made out of habit, promotions are may be less likely to influence consumers to alter their behaviour.

### 3.3. The Impact of Promotions on Purchasing Behaviour

In this section the focus will be specifically on how the marketing stimuli of sales promotions can affect purchasing behaviour. Sales promotions are heavily used in today's retailing economy. Nowadays it would be unusual and very rare to enter any retail establishment without being overwhelmed by displays of several different offers and promotions. The use of sales promotions has increased over the last few years, particularly in grocery retailing where competition between retailers has intensified. In the UK from 2001 to 2003, sales promotion expenditure grew 10.6 per cent (Barwise and Styler 2002), and it is continuing to grow.

Blattberg and Neslin (1990), when trying to define the term 'sales promotion', made the point that despite sales promotions being very direct in terms of their use, it is much less straightforward to actually define. This is reflected in the fact that sales promotions are "...a rather rich and complex marketing instrument...that is in the midst of conceptual change" (Blattberg R. C. and Neslin 1990). The definition put forward by Blattberg and Neslin (1990) is that a sales promotion is "an action-focused marketing event whose purpose is to have a direct impact on the behaviour of the firm's customers." Many other authors have proposed their own definitions: Kotler (1988), for example, conveys that "Sales promotion consists of a diverse collection of incentive tools, mostly short-term, designed to stimulate quicker and/or greater purchase of a particular product by consumers or the trade." While Webster (1971) suggested that sales promotions, deals and display can be defined under the general term of "short-term inducements to customer buying action." What all these definitions convey is that the ultimate purpose of a sales promotion is to induce a direct impact on buying behaviour.

Drawing upon the definitions put forward from previous scholars, it can be articulated that sales promotions are marketing events limited in duration, implemented to directly influence the purchasing actions of customers, with the underlying intention of achieving the objectives set out in the marketing strategy for the retailer and/or manufacturer, such as improving competitive position, brand expansion or increasing profitability.

The literature related to promotions takes two directions: looking at the impact of prices on demand through the calculation of demand elasticities (as explored in chapter 2) and looking at promotions from a marketing approach. This section will focus on the marketing side of promotions, first identifying the various methods of promotion, before moving on to focus on the empirical evidence into to how promotions influence purchasing decisions from a marketing perspective.



### 3.3.1. Methods of Promotion

For many product categories a large proportion of total sales volume will come from purchases made on promotion. In the red meat category in Britain, 28 per cent of sales during between February 2006 and February 2007 were made on promotion (MLC, 2007) Therefore it is of paramount importance that retailers, producers and manufacturers have knowledge and understanding of how promotions affect sales and which methods are most effective. There are several different methods that can be used to promote goods and services. Sales promotions can be grouped into three different categories: consumer, trade, and retailer promotions; all of which are ultimately targeting the consumer.

Consumer promotions are offered from the manufacturer directly to the consumer. Promotional tools which are used by the manufacturer may include coupons, value packs, free gifts and competitions. These types of promotion are all designed to pull the consumer towards the particular brand in question.

Trade promotions are offered by manufacturers directly to retailers. Such promotions include steep discounts, financing incentives and allowances, which are designed to entice retailers to offer price discounts to consumers, to advertise and display products prominently within store, and to improve product distribution amongst other things. Trade promotions might also be used to offload excess inventories through offering discounts which may or may not be then passed on to the consumer.

Retailer promotions are offered directly by the retailer to the consumer. These include price discounting and displays. Retail promotions are used to entice consumers into stores and to encourage them to purchase more when in store. Retailers are particularly keen to maximise the rate of sales per store and promotions are considered a key tool to increase a) the number of shoppers passing through the store (footfall) and b) the value of sales per visit.

The research to be carried out in this thesis will be focusing on how retail price promotions affect purchasing behaviour. The reasons for this are that products in the fresh meat category consist mostly of supermarket private label brands. Hence consumer promotions offered by manufacturers do not really play a part in this category as there are very few branded products available. Trade promotions are not directly aimed at the consumer; it is retailers who may pass these onto the consumer in the form of retail promotions. Therefore, the remainder of this chapter will focus on those specific promotional tools which are aimed directly from the retailer to the consumer.

## Price Discounting

The key promotional tool for retailers is price discounting. Price discounting is a term which covers straight forward single unit price reductions, as well as multiple unit price promotions. Retailers will offer a brand at a reduced price or as part of a multi-buy offer whereby the consumer will save money off the retail price by purchasing more than one unit of the given brand.

Where multi-buy offers are concerned, the price reduction is presented as a reduced price for multiple units of the same item and the shopper must purchase the specified amount of units to take advantage of the price reduction (Manning and Sprott 2007). Examples of price discounting through multi-buy offers include 'y for £x', 'x for the price of y' or 'buy one get one free' (BOGOF). Research by Wansink et al (1998) found that on average the sales volume increased by 125% with single-unit promotions, compared to 165% with multiple unit promotions. Research by Manning and Sprott (2007) studied specifically the effects of multiple unit price promotions on purchasing behaviour. The uplift in quantity purchased as a result of multiple unit price promotions was found to be dependent upon the magnitude of the quantity specified in the offer and the rate of product consumption for the specific product category.

There is widespread evidence within the promotional literature that temporary price cuts will substantially increase sales, at least in the immediate short-term while the promotion is in effect (e.g. Bell *et al.* 1999, Blattberg R. C. *et al.* 1995, Martínez-Ruiz *et al.* 2006a). It is considered that the way in which the promotional discount is offered to the customer, will influence the way in which they respond to it; whether it be a single unit price cut or a multi-buy offer (Woodside and Waddle 1975). This is where displays and feature advertising can play a part in enhancing the consumers' response to a price discount.

## In-Store Displays

According to Blattberg and Neslin (1990) in-store displays are one of the most important promotional tools used in retail. This is because displays greatly increase sales volume through bringing products or brands, whether discounted or not, to the forefront of the consumers' attention. The value of displays to manufacturers and suppliers is highlighted by the expense they are prepared to pay to secure their brands or products some of the limited space available on display.

Within a supermarket, displays can take several forms. Displays at the store entrance can be very effective as they make the products visible to the consumer as soon as they arrive at the store, and footfall is maximised as all shoppers are likely to pass by the display. End-of-aisle displays (also known as ‘gondola ends’) feature products on shelf space located at the end of aisles, where footfall is greatest and shoppers will often pass several times during a shopping trip. Alternatively products may be displayed within the aisles. An ‘in-aisle’ display is located within the aisle where the item would normally be located. Posters or special tags will be used to highlight the particular brand on offer to the consumer, and it will draw attention to that particular brand making it stand out amongst all the others available on display.

Displays may just be used to advertise and bring attention to products, but they are regularly used in conjunction with price promotions. Price promotions have been found to work best in conjunction with featured displays in-store. Price discounts are most likely to have the desired effect on sales if they are brought to the attention of consumers through some kind of display. A study by Woodside and Waddle (1975) supports the theory that sales will increase as a result of price cuts, but found that this increase in sales was as much as result of point-of-sale advertising and displays as it was of the actual value of the price cut. Woodside and Waddle found sales will increase irrespective of the size of the price cut provided the deal is brought to the attention of the shopper at the point of display, through perhaps a sign or poster. Interestingly the findings suggest that if a display is used to highlight a product or brand not on promotion, sales will increase, often by more than if a price discount was in place but not advertised. If a price reduction was not advertised at the point of display, sales did not significantly increase. This evidence further supports the use of displays in store, whether in conjunction with a price discount or not.

### **Feature Advertising**

Feature advertising is a promotional tool which retailers can use to communicate information on special offers and price discounts in-store, or to advertise that certain brands are stocked in store. These advertisements will normally appear in regional or local newspapers, or may be in the form of a leaflet or booklet that will be used as a mail drop directly to potential customer’s homes. These advertisements may also feature coupons which customers can use in-store against particular brands.

### **Other Promotional Tools**

There are also other promotional tools which can help promote products. For example information and recipe cards in-store can be used to give the consumer ideas and suggestions as to how to use the particular product. Many supermarkets now produce a monthly magazine which can be used as a way to communicate to customers about products available in store and usually provide recipe ideas and suggestions which encourage consumers to use certain products as ingredients. Such magazines include Sainsbury's Magazine, Waitrose Food Illustrated, Asda Magazine and Tesco Magazine. These magazines are usually free; at least for those customers with loyalty cards.

#### **3.3.2. Sales Promotion Reaction Mechanisms**

It is fair to assume that the consumers' response to a price promotion will be favourable towards the particular product or brand on promotion, and the evidence suggests that this is largely true (e.g. Ailawadi *et al.* 2007, Bemmaor and Mouchoux 1991, Manning and Sprott 2007, Martínez-Ruiz *et al.* 2006a).

There are four main ways in which promotions can influence purchasing behaviour and, hence, sales. Blattberg and Neslin (1990) have coined these 'promotion reaction mechanisms', which include brand switching, purchase acceleration, product category expansion and repeat purchasing.

#### **Brand Switching**

Where a consumer is enticed into purchasing a different brand from that which they would normally choose, it is known as the brand switching effect. Blattberg and Neslin (1990) distinguish between two different types of brand switching effects: 'aggressive' and 'defensive'. Aggressive switching occurs where a promotion encourages a consumer to purchase a different brand to that which they normally buy or have bought previously. These customers may have been fairly loyal to the other brand, but were enticed as a result of the promotional techniques used by the other brand. On the other hand, defensive switching is where a promotion acts as an incentive to choose that brand over others, perhaps in circumstances where consumers are not especially loyal to any particular brand within the category. Generally, however, these distinctions are not made within the majority of the empirical research; instead the aggregate brand switching effect is looked at. Kumar and

Leone (1988) found that price discounts were the form of retail promotion which is most likely to produce brand switching effects, followed by feature advertising and displays. It has also been found that multiple unit price promotions are most effective at inducing brand switching behaviour, rather than boosting category sales (Foubert and Gijsbrechts 2007).

Krishnamurthi and Raj (1991) examined the link between customer brand loyalty and price elasticities. The authors argue that loyal customers will be less sensitive to changes in price than those who are not loyal to a specific brand, and hence will be less tempted to switch brands when there is a promotion. However, the research found that loyal customers will be more likely to stockpile while their preferred brand is on promotion. Non loyal shoppers will buy into promotions, but may not stockpile as much, perhaps due to the risk involved with not enjoying the brand.

Brand switching is thought to occur because the promoted brand becomes more appealing to the consumer as a result of the discount and they may develop a more favourable attitude towards the brand (Blattberg R. C. and Neslin 1990). For some consumers, a promotion may in fact lower their opinion of the brand and make them less likely to purchase it in future. The promotion may cheapen the product in the eyes of the consumer and they will only purchase it because it is on promotion, not at any other time.

From an economic viewpoint the reasoning behind switching brands when a promotion is running is to enable the consumer to purchase more within their budget constraint. Either they will purchase more of the particular product on promotion, or they will take advantage of the lower price but spend the money they save elsewhere. Ultimately different consumers will respond in different ways, and some consumers will remain loyal to their preferred brand irrespective of any offers.

From the retailer's perspective, brand switching has a lesser impact upon them than for a manufacturer. In terms of profitability the retailer will not benefit where a promotion simply transfers sales from one brand to another, as they do not gain anything in terms of value. A manufacturer will benefit if a promotion on their brand increases their sales at the expense of other brands, but retailers will not necessarily benefit if the brand switching is the only effect taking place. Retailers' profits are dependent upon sales of both promoted and non-promoted brands so will reap the most benefit where a promotion attracts new customers. Indeed, up until fairly recently promotions were considered simply a 'zero-sum' game, just shifting consumption from one brand to another, or one time period to another, therefore not benefiting retailers other than in generating footfall for their stores (Putsis and Dhar 2001).

Promotional interactions are generally substitutional in nature; a promotion on one brand will typically lead to a decrease in the sales of another brand in the same product category, or upon brands within other product categories which could be substituted with the promoted product. Theoretically it is possible that a promotion on lamb mince might negatively affect sales of beef mince, as these could be considered substitutable products. However, if two products are complementary to each other, a promotion in one product category might have positive effects on sales in another product category. For example a promotion on mint sauce might lead to an increase in sales of lamb products, as these are typically thought of as complementary products.

A clear picture emerging from the literature in relation to the brand switching effects of promotions is that a retail promotion on a certain brand will draw upon customers from other brands within its own price tier or from brands in lower-tiers. Within many product categories different price tiers of products will be observed. For example, within a supermarket there could be as many as three different own-brand tiers: a value or economy tier, a standard quality tier and a high quality tier. Consumers who normally buy value or standard lines will trade up to the premium tier products when on promotion. However, shoppers who normally purchase premium lines irrespective of a promotion will not trade down to lower-tier products when these are on promotion. Consumers of highest-tier premium brands will only switch within the tier level to other premium brands when on promotion. Therefore retailers will profit most from concentrating promotional efforts on the more premium-level brands, as these types of promotions are most likely to encourage shoppers to trade-up.

The research of Kumar and Leone (1988), Krishnamurthi and Raj (1991), Mulhern and Leone (1991) and Martínez-Ruiz *et al.* (2006a) all provide evidence to support this notion of asymmetric brand switching across price tiers. All found evidence that if a lower tier brand is promoted it does not attract customers from high-tier brands, but the promotion of higher quality, premium priced brands impacts significantly upon weaker brands.

Within the fresh meat sector the majority of produce is sold under generic private-label branding. Therefore the mechanism of 'brand' switching as such is not going to be evident. However the effect can still be considered relevant to the fresh meat sector when applying it to species and cuts. As different meat cuts and species can be considered substitutable and can serve similar purposes, a promotion may push shoppers towards purchasing a certain meat species or cut, rather than another product they might have purchased in the absence of the promotion. The first research question is particularly concerned with this promotional response mechanism, asking whether promotions increase overall category demand for red meat or result in cross-species or cross-cut switching.

### **Purchase Acceleration**

Purchase acceleration is where consumers purchase a brand in larger quantities and/or at earlier times than they normally would in order to take advantage of a promotion. Promotions may have the effect of pushing consumers into stockpiling brands or buying the brand again earlier than needed in order to take advantage of price savings. Pre- and post-promotional dips in sales are potential indicators of stock-piling and subsequent deceleration of purchases (Macé and Neslin 2004). Deceleration is the willingness of consumers to deplete their inventories below normal levels by waiting for an anticipated promotion. Purchase acceleration and deceleration behaviours reflect planning by consumers and can influence profitability because they affect the amount of stock purchased off-promotion.

It is generally speculated amongst researchers that purchase acceleration shifts purchases forward which would have most probably have occurred anyway. This indicates that shoppers buy earlier at a lower price, and store the product for use later. As a result the consumer saves money, but retailers potentially lose out on revenue because shoppers are buying less when the brand returns to the normal retail price. However, it is also thought that promotions can result in consumers increasing their usage rate within some product categories, so they buy more while the promotion is running, but do not stop purchasing the product for a period once the promotion ends (Ailawadi and Neslin 1998). According to Assunção and Meyer (1993) overall consumption rates will increase if consumers increase their inventories through stockpiling. The reasons for this increased usage are said to be that holding increased stock puts pressure on the consumer in terms of space and storage costs, and that extra stocks give consumers more flexibility in consuming the product without worrying about running out and having to replace at high prices. Wansink and Deshpandé (1994) also believe that increased stocks result in increased usage, but only for categories where the products are perishable, require refrigeration, or are versatile in terms of the occasion when they can be used, such as snack products.

The main reasons for purchase acceleration from the consumer's point of view are that, through buying on promotion at lower prices households can minimise purchase costs and save money, providing they have storage facilities for the extra volume of product.

There is much empirical evidence to suggest that promotions do lead to increased purchase quantities and reduced inter-purchase times. Neslin *et al.* (1985) found that the purchase quantity is accelerated by both price and non-price promotional tools, but inter-purchase times are not affected by promotions to such a great extent. Price cuts which were combined with feature displays were found to accelerate purchase timing, but other types of promotion did not have a significant effect. Neslin *et al.* (1985) findings support the theory



that consumers will wait longer to make another purchase following stockpiling, and/or will buy less when they make their next purchase. This is to say, accelerated purchasing has the impact of taking the consumer out of the market for an extended period of time.

Blattberg and Neslin (1990) found that occasionally the reverse may happen, whereby purchases are moved backwards and smaller quantities may be bought during a promotion. For example, in a situation where the consumer is switching brands to take advantage of a promotion, they may purchase less than they normally would to limit the risk involved with trying a new brand which they may not like. This might particularly be the case where a promotion is being run on a new brand in the market.

Some consumers will not respond to promotions which encourage stockpiling, typically multiple unit offers, because they may have no use for the extra product, may not have storage facilities or perhaps cannot transport the extra load. In many cases it will depend upon the particular product on offer; if there are issues surrounding perish-ability or bulkiness then this may put some consumer groups off the promotion. Alternatively, the consumer may come to expect or anticipate a promotion and will hold off buying the brand until they can take advantage of the promotion, therefore increase the inter-purchase time.

From the retailer's perspective, promotions may purposely be used to actively encourage stockpiling. Retailers or manufacturers may want to offload excess inventories of stock, and transfer the storage costs to the consumer. This might particularly be the case for perishable and seasonal fresh produce which will go rotten if not offloaded to consumers. Stockpiling may affect profitability where sales are borrowed from later time periods, which will not be profitable for retailers. According to Ailawadi *et al.* (2007) the resultant increase in consumer inventory occurring through purchase acceleration has substantial advantages to retailers and manufacturers which offset the negative aspects of stockpiling. These advantages are increased category consumption and pre-emptive brand switches, whereby the additional inventory of the promoted brand pre-empts the consumer's purchase of a competing brand in the future. What this means is that the consumer has stocked up on the product because of the promotion and this takes them out of the market for competing brands for a period of time (Ailawadi *et al.* 2007). The extra inventory may affect future brand choice after the promotion, which could either be beneficial or harmful to a manufacturer.



### **Category Expansion**

Category expansion occurs where the value of a product category as a whole is increased as a result of a promotion on a brand, or brands, within the category. For category expansion to take place, a promotion will need to stimulate increased consumption of the product. Unlike brand switching, where consumers switch brands but overall category value does not increase, category expansion involves an increase in demand and the primary level and an increase in overall value of the category. If promotions can increase total category consumption then they can be profitable without stealing share from competitors (Putsis and Dhar 2001).

Promotions can expand the category through stimulating increased consumption rates and through creating new purchase occasions through attracting new shoppers to use the product. Because category expansion increases the overall spend within a product category, it is considered especially beneficial to the retailer. Retailers therefore are likely to seek to use promotions which will result in category expansion. Retailers aiming to follow a strategy to increase category sales will find multiple unit promotions or promotional bundle offers to be ineffective (Foubert and Gijsbrechts 2007). These types of promotion are better for encouraging brand switching behaviour. Single unit promotions are much more likely to substantially increase sales at the category level, and therefore retailers are more likely to benefit from pursuing such single unit promotional strategies if they want to attract new shoppers to a category (Foubert and Gijsbrechts 2007).

Feature advertising and displays can be a good way of promoting a product such that it results in expanding the category, because they can act as a reminder to consumers that the product exists or they can be used to give consumers ideas of when or how to use the particular product. These techniques help to attract new customers and bring back customers who have forgotten about the product. Such promotion techniques as free recipe cards in-store can help to encourage category expansion as they give consumers new ideas as to how to use grocery products.

### **Repeat Purchasing**

Repeat Purchasing can occur because a consumer purchases a product or brand out of habit, and so will naturally purchase it again when needed or motivated to do so. Promotions can also have an effect on the repeat purchasing behaviour of the consumer. Ideally a manufacturer or retailer would like to see the level of repeat purchasing increase following a

promotion to indicate that consumers bought the brand, liked it and have decided to continue purchasing it.

It is important to understand how the probability of purchasing a product on promotion in a subsequent period will change depending on whether the consumer has taken advantage of the current promotion. Promotions can alter the probability of a consumer purchasing a brand simply because it is being promoted. Promotions can first bring the brand to the attention of the consumer and as a result new habits form as the consumer continues to purchase the brand. Consumers will therefore become repeat purchasers towards the brand in question.

On the other hand, promotions can have a negative impact upon some consumers, in terms of their attitude to the promoted brand. When a consumer sees or purchases a brand on promotion it can have the negative impact of weakening their attitude towards that particular brand and decrease the probability of them purchasing the brand again subsequently. If a consumer is choosing to buy a brand specifically because it is on promotion, they may be less likely to buy it subsequently at the normal price. It is known as the 'promotion usage effect' whereby consumers purchase a brand because it is on promotion, but otherwise would not purchase it (Blattberg R. C. and Neslin 1990). Some consumers may have a lower perception of a brand if they see it on promotion, believing there must be something wrong with it or that the quality is lower and that is why the price is reduced. Hence, the presence of promotion may diminish the consumers' view of the brand.

Research by Dodson *et al.* (1978) showed that when a promotion takes place the consumers who took advantage of the offer had a lower than average probability of repeat purchasing that brand than those who bought the product outside of a promotion. This was thought to be because the consumers' reference price for a product will differ depending upon the instance when they first purchased the product. Shoemaker and Shoof (1977) observed a similar effect, which they believe to be because promotions attract those consumers who have lower utility for the brand. The promotional price is below the consumers' reference price, but the regular price is above their reference price. Therefore these consumers are unlikely to repeat purchase the brand once the offer ends.

### **3.3.3. Combined Effects**

In reality promotions are likely to result in a combination of all the four main sales promotion mechanisms. Different product types and different promotional techniques are likely to result in different effects. Indeed, many empirical studies have attempted to

decompose the impact of promotions into those attributable to the different mechanisms (e.g. Gupta 1988, Neslin and Shoemaker 1983, Chiang 1991, Chintagunta 1993).

Neslin and Shoemaker (1983) developed a model to analyse the impact of brand switching, repeat purchasing, and acceleration effects on sales. There was found to be an immediate increase in sales during the promotion, followed by a post-promotion trough in sales. There was then found to be a slight increase in sales above the original pre-promotion basic sales level. It was deduced that the initial increase in sales was due to brand switching and purchase acceleration. The resulting sales trough was a result of stockpiling and forward buying taking sales away from the immediate period following the promotion. The concluding increase in sales came from repeat purchasers who had trialled the brand during the promotion, decided they liked it and chose to buy it again when they needed more. However, there is much debate over the long-term effect of sales promotions, and how severe the trough in sales, and following increase in sales are; or, indeed, whether they really exist at all. Blattberg and Neslin (1990) make the point that empirical evidence of purchase acceleration and repeat purchase effects has mainly come from panel data. Similar effects, particularly post-promotion effects, have not been observed to such an extent when sales data has been used.

Gupta (1988) developed a model to capture the brand switching and purchase acceleration effects of promotions. The model assumes that consumers make choices in a particular order: first they decide when to buy, and then they decide what to buy and what quantity. Gupta decomposed the promotional sales elasticity of nine coffee brands, into the effects attributable to brand switching, forward buying and stockpiling. What Gupta found was that the increase in sales during promotions was mostly attributable to brand switching, while stockpiling had very little impact. Bell *et al.* (1999) supports the findings of Gupta; finding that on average that 75 per cent of the promotional elasticity is due to brand-switching effects, while 25 per cent is due to stockpiling.

Other studies have found evidence that a larger proportion of promotional volume comes from category expansion, such as Chintagunta (1993). This is more consistent with observations that cross-price elasticities are generally smaller than own-price elasticities (Blattberg R. C. *et al.* 1995). This implies that much of the increased promotional volume is in fact, not at the expense of other brands. However, it is apparent that the source of the extra promotional volume is most likely to be dependent on the specific product category (Blattberg R. C. and Wisniewski 1987).

### 3.3.4. Product Category Characteristics Related to Promotional Response

There are many factors related specifically to individual product categories which may affect the response to promotions by shoppers within these categories. Bolton (1989) explained that differences in marketing mix variables such as brand market share, display activity and feature advertising explain a substantial amount of the variation in price elasticities between regions, brands and product categories. The magnitudes of elasticities were found to be systematically related to the nature and intensity of marketing activities in different markets, hence certain promotional pricing strategies may be more useful in some markets than others. Some of these factors will be explored below.

#### **Brand Share**

Bemmaor and Mouchoux (1991) found evidence that elasticities vary depending upon brand market share. Smaller market share brands were found to experience larger promotional elasticities than larger brands. As a result of price cuts, smaller brands experience a larger relative increase in sales, compared with larger more established brands. If a brand which has a high market share is promoted, the proportionate effect on the quantity purchased will not be as great as for low market share brands. These findings are also supported by those of Vilcassim and Jain (1991).

#### **Perish-ability and Bulkiness**

Bell *et al.* (1999) found category specific factors such as perish-ability, bulkiness and weight, which are specific to individual product categories, will influence how shoppers respond to a promotion. In particular, Bell *et al.* (1999) found bacon, yoghurt and crisp categories (all perishable and versatile goods) showed evidence of stockpiling effects during a promotion, but no decline in inter-purchase times. This suggests that for these categories, consumers respond to promotions by consuming more. This is in line with research by Wansink and Deshpandé (1994), who found that consumers will increase their usage for products which are perishable and versatile in terms of their use. In categories of more staple items such as toilet paper and detergent, stockpiling takes place, but the inter-purchase time then increases, meaning that the consumers moved the purchasing forward, but did not increase their overall consumption.

Nijs *et al.* (2001) found the short-run category expansion effect of price promotions was larger in perishable goods categories. This suggests that within the perishable goods categories, consumers are perhaps more likely to experiment with the purchasing new products when they are on promotion, and that existing consumers will simply increase their usage rate of perishable goods while the price is cheaper and they can afford more. Where consumer durables and staple household are concerned, in contrast, consumers may be unlikely to find any extra use for these over and above their normal usage, so will not increase their overall consumption rate. Consumers might stockpile on these types of products, but their purchase is likely to have been borrowed from later time periods.

Product perish-ability has been found to influence the effectiveness of multiple-unit promotions. Manning and Sprott (2007) point out that very perishable products are not likely to be as popular for multiple unit price promotions as the consumer may not be able to consume the excess product in time before it expires.

### **Promotional Frequency and Length**

Both the length and the frequency of promotions can affect how responsive the consumer will be. The longer a promotion lasts, the less effective it will be, because over time the effect of the promotion upon sales will be reduced (e.g. Rao and Thomas 1973, Blattberg R. C. and Wisniewski 1987). The explanation for this may be that after a promotion has run for a certain length of time, consumers will come to expect that they can buy the product at the offer price and so will stockpile less and increase their inter-purchase time. The effects will be similar to those observed for a permanent price change if the promotion lasts for too long. Baohong *et al.* (2003) found consumers to have an accurate perception of promotional frequency, in that their promotion expectations corresponded well to actual promotional frequency. According to research by Martínez-Ruiz *et al.* (2006a) promotions for non-perishable storable products should not exceed ten days, otherwise profitability will be reduced.

Martínez-Ruiz *et al.* (2006a) found promotions to have the greatest impact in the first few days of the promotional period in cases where the goods are storable, as opposed to perishable. In particular, they observed this pattern for high-priced brands, whereas no such pattern was detected for low-priced brands. This also provides greater weight to the evidence that promotional brand switching behaviour is asymmetrical in favour of higher-priced, premium brands. A similar pattern of the promotional impact being greatest in the first few

days was not observed in the perishable category; most likely because shoppers cannot store these items for very long and therefore will not buy more than they can consume.

The frequency of promotions will affect the consumer's reference price (Kalwani and Yim 1992, Mayhew and Winer 1992) and hence can lower the height of the promotional spike in sales (Raju J. S. 1992). If a brand is discounted often, consumers will come to anticipate the promotion and will expect to always pay a lower price for the product. When the consumers' reference price for a brand is lowered because of frequent promotions they will become unwilling to purchase the brand when it is sold at normal price, so will only purchase the brand when it is on promotion. Hence, if the consumers' reference price (the price they are willing to pay for a product) lowers, then the price that can be charged for the product in the marketplace will be reduced.

According to Lattin and Bucklin (1989), consumers who are exposed to pricing and promotional activity can develop expectations which they use as reference points in evaluating future activity. Too much promotional activity and price discounting can adversely affect consumer behaviour towards a particular brand or product. Consumers become accustomed to finding the brand available on promotion, which shifts their reference price. If the consumer expects a promotion but there is not one this can also significantly impact upon their brand choice behaviour (Kalwani and Yim 1992). This important finding helps to explain why some brands experience loss of market share when they are heavily promoted (Blattberg R. C. *et al.* 1995). Kalwani *et al.* (1990) believe that factors other than consumers past experiences of promotional activity and prices may also affect the price they expect to pay for a product. Factors such as store type, economic conditions and consumer characteristics can affect the price consumers expect to pay.

### **Price Framing**

The way in which a promotional discount is framed to the shopper may impact upon the effectiveness of the promotion. It is often observed that retailers will price products with the last digit of the price ending in a '9'. For example a product might be priced at £1.99 rather than £2.00 because psychologically consumers perceive the price to be much more attractive. In reality there is only a difference of one penny in price, but retailer may see much greater sales of a product offered in this way. Blattberg and Wisniewski (1987) found evidence to support this line of thought as they found there to be a greater uplift in sales for promotions where the price ended in '9', than for those promotions priced otherwise.

Based on this theory, a retailer should see very little difference in sales if a product is priced at 98 pence rather than 99 pence, therefore they may as well benefit from the extra penny per sale, rather than offer at the lower price. On the other hand, reducing the price of a product from £3.00 to £2.99 could considerably increase sales, and is likely to make the product much more profitable to the retailer. Having said this, every-day low-price supermarkets today will often have price ending in digits other than '9', as they try to undercut their rivals. Supermarkets will operate this strategy to advertise to shoppers that their prices are lower than other stores, to help build up loyalty.

More recently, research by Martínez-Ruiz et al (2006b) has contradicted this theory with evidence suggesting '9-ending' promotional prices are not effective in influencing shoppers to alter their purchasing behaviour. There were also similar findings in the research of Bray and Harris (2006) who, following on from a large-scale store based trial, found that rounding up the price to a 'round-pound' value was more effective in increasing sales than the traditional 9-ending pricing strategy.

Research has also looked at whether it is better to frame a price promotion in percentage-off terms rather than pence-off terms, for example, expressing a promotion as 25% off a £10 product compared with £2.50 off. DeVecchio *et al.* (2007) found that promotions framed as a percentage off lead to higher post promotion price expectations from shoppers. Framing a promotion in percentage terms may protect brands more in the long-run as they do not reduce the value of the brand by as much because the consumer is seeing the discount as a percentage not as a value. Shoppers are therefore more likely to be willing to purchase the promoted product when it returns to normal price if the discount has been framed as a percentage off. However, if the percentage off is above a certain level, shoppers may become cautious of the promoted brand or product (DeVecchio *et al.* 2007).

### **3.3.5. Shopper Characteristics Related to Promotional Response**

All consumers are different in terms of tastes, preferences and circumstances, and these are likely to shape their shopping behaviour. Over the years a handful of studies have tried to identify the characteristics specific to those households that are most responsive to sales promotions (e.g. Ainslie and Rossi 1998, Bell *et al.* 1999, Blattberg Robert C. and Sen 1974, Blattberg R. C. *et al.* 1978, Cotton and Babb 1978).

Understanding how the short-term response to price reductions and promotions varies across segments is important in the designing and targeting of effective promotions (Lim *et al.*



2005). Take for example, shoppers having different usage rates for products or brands: larger pack sizes can be promoted and targeted specifically to attract heavy users which can result in substantial increases in market share (Neslin *et al.* 1985).

Several factors have been identified as affecting promotional response, including demographic factors such as income, age, education level and employment status, and purchasing characteristics such as shopping frequency and basket size. There have been many conflicting findings amongst the literature. What follows is an exploration into the findings as to how demographic and purchasing characteristics of shoppers drive promotional response. In understanding how different households respond to promotions it can assist in targeting promotions to maximum effect. For example, if high income shoppers are more responsive to promotions, then brands and products targeted at the premium end of the market should take advantage of this.

#### **3.3.5.1. Demographic Factors**

Demographics have been used to segment the market for decades. More recently new bases for segmentation, such as lifestyles and psychographic type have been identified, but are not yet being used significantly in research or in the profiling of target audiences by media (FitzGerald and Arnott 1996). The response to a promotion will not necessarily be the same for all consumer groups or markets. Demographic factors specific to individual shopper households may influence their response, although a definite relationship between demographics and promotional response has yet to be found. According to Bell *et al.* (1999) consumer factors influence the ability of the core clientele of the brand or category to respond to a promotion. Factors such as income, age and education level can influence the way consumers respond.

#### **Income**

There are some conflicting opinions regarding the relationship between income and promotional response. Following economic theory it is normal to expect households with lower incomes to be more responsive to promotions, and therefore a resultant negative relationship between income and promotional response should occur. This is in line with Ainslie and Rossi (1998), who argue that premium brands which specifically attract consumers with higher incomes, should find that their core clientele will be less responsive to price changes.



However, it has been argued that higher income households may be less restricted in their budget and this can actually increase the probability of impulse purchases in-store, implying that income is positively related to promotion response (Inman and Winer 1998). Premium brands could potentially experience greater stockpiling effects because the target shoppers (those with higher incomes) are more able to take advantage of promotional offers as they have more disposable income at hand (Bell *et al.* 1999). Further to this, Bawa and Gosh (1999) hypothesise that as higher income shoppers will spend more during a shopping trip, there will be a greater probability that they will buy into promotions.

### **Age**

Age has been found to affect promotional response. According to Inman and Winer (1998) younger shoppers are likely to make more decisions on impulse at the point of purchase than older shoppers, as they have greater motivation to process in-store stimuli such as displays and advertising. Ainslie and Rossi (1998) agree finding that older shoppers are less price-sensitive, and therefore less response to price changes and promotions than younger people. Brands which specifically attract older shoppers may therefore find that promotional activity does not result in significantly higher sales volume.

However, it has also been considered that older shoppers have more time to shop and therefore may be more likely to take advantage of promotions (Raju J. S. 1992). This positive relationship between age and promotion response has been also suggested by others including Burton *et al* (1993) and Webster (1971).

The conflicting arguments make it seem likely that there is in fact a U-shaped relationship between age and promotion response. This would assume both younger and older shoppers are more promotionally responsive, with middle-aged shoppers in between being less responsive to promotions (Bellenger *et al.* 1978).

### **Education Level**

Education level is likely to influence the ability of shoppers to think and search when making purchasing decisions. Bell *et al.* (1999) suggests that more educated consumers will be more assiduous in taking advantage of promotional offers and price changes. Brands and products which attract more educated consumers may see greater response to promotions than other brands. Within the meat sector, products which are likely to fit into this category include

those which offer perceived better animal welfare and farming techniques, such as organic, free range or outdoor reared meats.

It has been suggested that as those who are less educated may generally earn a lower income this in fact may make them more deal sensitive (Lichtenstein *et al.* 1997). However, we have already seen that it is unclear as to how income influences promotional response, with conflicting evidence as to whether income relates positively or negatively to promotional response. It is, on the whole, widely assumed that there is a positive relationship between education level and promotional response (Bell *et al.* 1999).

### **Employment Status**

The link between employment status and promotional response has also been studied. Evidence has pointed towards unemployed and retired households being more responsive to promotions (Blattberg R. C. *et al.* 1978). However, more recently Ainslie and Rossi (1998) and Ailawadi *et al.* (2001) found there to be a negative relationship between unemployed and retired households and promotional response.

Ailawadi *et al.* (2001) argue that those who are in full time employment with pressures on time may actually buy into promotions on impulse to save time. This is contradicted, however, by Inman and Winer (1998), who highlight that time pressures may reduce impulse purchases. It appears there is no conclusive evidence either way to suggest whether the true relationship between employment status and promotional response is positive or negative.

### **Geographical Location**

The study by Wittink *et al.* (1987) supports the notion that promotional elasticities will vary across regional markets. There were found to be differences between the resultant uplift in sales due to promotions in different regions of the United States. It is thought that these differences may be due to such factors as differences in population or market structure between regions, differences in taste, and differences in levels of retailer competition in differing regions.

More recently, Lodish (2007) identified that there is variation in market response to marketing mix variables such as promotions and prices geographically. Lodish (2007) makes the valid argument that marketing resources should be allocated geographically on the basis of

market response in specific locations. Resources should be concentrated on those regions which demonstrate a higher response to marketing activities such as promotions.

### **Household Size**

There is fairly consistent evidence of a positive relationship between promotional response and household size. The more members there are in a household, the further the shopping budget needs to stretch and hence promotions are very favourable. It is also in many circumstances more feasible for larger households to buy on promotion, particularly those which encourage multi-purchases, as they will have greater use in the immediate future for the extra product. This conclusion is backed up by many researchers including Inman and Winer (1998), Ainslie and Rossi (Ainslie and Rossi 1998) and Bawa and Gosh (1999).

Further to the subject of household size, the presence of young children within the household has also been identified as a further factor in influencing the response to promotions. Very young children require attention and time which, in turn, reduces the time available to the parent for food shopping (Urbany *et al.* 1996). This may increase the likelihood of responding to promotions on impulse to save time, but could reduce the likelihood of searching around for the best deals out-of-store (Blattberg R. C. *et al.* 1978).

### **Residence Type**

The type of accommodation in which shoppers reside has been found to influence promotional response. The reasons for this are mainly that it will affect the amount of storage space for keeping extra inventories of produce, particularly accrued through promotions which encourage stockpiling and accelerated purchases. If a household has sufficient storage facilities it will make it easier for them to respond to promotions, particularly for bulky items. Blattberg *et al* (1978) and Ailawadi *et al* (2001) are advocates of there being a positive relationship between residence type and promotional response. Ailawadi *et al* (2001) found evidence to suggest that people living in a house rather than a flat or apartment perceive their home to have more storage space and are more likely to respond positively to promotions.

### **Psychographic Traits**

Research has been carried out on how psychographic traits belonging to individuals may be associated with promotional response (Martinez and Montaner 2006). Perhaps unsurprisingly, Martinez and Montaner (2006) found that consumers with the trait of being price-conscious are most responsive to promotions. Traits such as impulsiveness, innovativeness and shopping enjoyment were also found to be factors influencing promotional responsiveness. Consumers who respond well to in-store promotions will not only be price-conscious but will also enjoy the process of shopping, act impulsively, enjoy brand-switching frequently and are attracted to new products.

#### **3.3.5.2. Household Purchase Characteristics**

Household purchase characteristics include such factors as basket size, shopping frequency and brand loyalty. They influence promotional response at a different level to demographics, but they may in themselves be related to demographic variables.

##### **Basket Size**

Those shoppers with larger basket sizes typically shop less frequently (e.g. weekly) than those who make frequent smaller shopping trips (e.g. several times per week). Some studies suggest that basket size can affect responsiveness to promotions. Ainslie and Rossi (1998) found households with larger basket sizes to be less price-sensitive and therefore less deal responsive, whereas Inman and Winer (1998) found that smaller basket shoppers make a smaller proportion of unplanned purchases, and so will be less sensitive to deals. These findings are conflicting, so it may be fair to say there is no clear relationship between promotional response and basket size.

##### **Shopping Frequency**

Shopping frequency and basket size have been found to be negatively correlated (Bell and Lattin 1998). No discernable relationship between basket size and promotional response has been identified and a similar conclusion can be drawn for the relationship between promotional response and shopping frequency.

Inman and Winer (1998) found more frequent shoppers are more likely to plan purchases in advance and will be less likely to deviate from their shopping lists to make impulse purchases in-store due to promotions. While on the other hand, Ainslie and Rossi (1998) found that it is typically families who make more frequent shopping trips and they tend to be more sensitive to prices and promotional deals.

### **Usage Rates and Loyalty**

The frequency with which a shopper purchases from a given product category and the loyalty shoppers have towards certain brands may affect how they respond to a given promotion for that product or brand. Previous research has identified that heavy users of a product and those with higher-preferences towards a particular product are more price sensitive than non-loyal and light users, and hence they will be more responsive to promotional price changes (Neslin *et al.* 1985, Baohong *et al.* 2003). Neslin *et al.* (1985) define heavy users as those consumers whose total purchase quantity is above the median purchase quantity across the entire sample of households during a given period. Heavy users are thought to be more able than light users to adjust their consumption, particularly for perishable products (Lim *et al.* 2005). Heavy users will increase their consumption or stockpile to take advantage of promotions. Shoppers who are loyal to a particular brand are found to have lower price elasticity than non-loyal shoppers who typically switch brands depending on offers (Krishnamurthi and Raj 1991). Multiple unit price promotions are most likely to attract heavy users of the product rather than converting non-users or infrequent shoppers to buy the promoted product (Foubert and Gijbrecchts 2007).

Bridges *et al.* (2006) highlight two theories with regards to how brand usage history and loyalty can affect the response to promotions. The 'usage dominance' concept suggests that after using a brand consumers will become less responsive to promotional activities for that brand because their experience outweighs external stimuli such as marketing activity. The consumers' own experience with the brand or product will be more important to them than external information when making future purchase decisions. As consumers become more aware of their own preferences between brands and products their choices are more likely to be driven by non-price factors.

Consumers driven by personal experience are much more likely to repurchase a brand when not on promotion than consumers who are new to a brand. The 'promotion enhancement' concept implies that the impact of marketing activities increases for all brands when the consumers' most recent purchase of any brand within the category was made on

promotion. This concept suggests that promotions reduce subsequent brand loyalty and increase responsiveness to marketing activities for all brands within a category. Research by Bridges et al (2006) revealed that the influence of promotion enhancement generally outweighed that of usage dominance, however it is more likely that in fact both effects coexist and influence brand choice jointly.

It has been found that both prior usage of a brand and prior promotional activity can both affect the responsiveness of consumers to promotions (Bridges *et al.* 2006, DelVecchio *et al.* 2006). Households that previously purchased a non-promoted brand will be more likely to buy it again, while those that only bought the brand on promotion will be less likely to buy again. DelVecchio et al (2006) report that sales promotions are far more harmful to brands which consumers are unfamiliar with. While promotions may be used to generate awareness and encourage trial for new or relatively unknown products; they can in turn be harmful in the long run because new customers become unwilling to pay full price once the promotion has ended. The customers in fact perceive the promotional price to be the real price, because they have not previously bought the product at full price.

The work of Van Heerde and Bijmolt (2005) compares the effects of marketing activities, including promotions, between store loyalty program members and non-members. The findings suggest that non-loyalty program members are much more responsive to promotional price discounts than members. This implies that customers loyal to a particular store would be less responsive to promotions than those who are not loyal customers to that particular store. This would appear to be the case for “deal seekers” who will shop around to find the best offers, rather than remaining loyal to a particular store. Lal and Bell (2003) and Anderson and Simester (2004) also found non-loyal customers to be more responsive to promotions than loyal shoppers.

If these findings are accurate, then communicating promotions widely both in and out of store will have a larger impact on store revenues generated from promotions than simply communicating offers directly to loyalty program members (e.g. through direct mailings), because it is the non-members who are more responsive to the price discounts.

### **3.3.6. Long-term Effects of Promotions**

Most of the empirical research into the effects of promotions has concentrated on the short-term impact. This is almost always positive, at least in terms of sales of the promoted brand; even if not for the value of the product category as a whole. Blattberg et al (1995) refer

to the question of the long-term impacts of promotions as “the most debated issue in the promotional literature”. It is a question to which there is no straightforward answers to be found within the promotional literature. Yet it is an issue of great concern because understanding if promotions have a long-term effect is necessary to ensure promotions are used effectively. This is especially important as there is concern that promotions can be detrimental to the long-term prospects of a brand (Dekimpe *et al.* 1999).

In the past it has been argued that the long-term impact of promotions is generally negative upon product sales and overall value of the category (Dodson *et al.*, 1978). More recently, studies have found very little evidence of any negative long-term effects. Dekimpe *et al.* (1999) found some evidence that the long-term effects of promotions are sometimes negative, in particular, for the soup market, where there was evidence of a very small negative long-run promotional effect on a major national soup brand. Pauwels *et al.* (2002) analysed the long-term effect of promotions on category choice, brand choice and purchase quantity. They found there to be virtually no permanent, long-term effects. Most promotional effects were found to last for an average of two weeks, and up to eight weeks at most. Nijs *et al.* (2001), who analysed the impact of promotions in 560 product categories, found only 3 per cent to have a positive long-term impact, while just 1 per cent of categories were found to have experienced a negative impact.

The long-term impacts may be dependent on whether the product category is a stable or evolving market. Mature, stable markets are considered to be less likely than evolving markets to exhibit permanent long term effects as a result of promotional activity (Bronnenberg *et al.* 2000).

The depth of the promotional price discount may influence the long term effects of a promotion. Anderson and Simester (2004) found that deeper price discounts increased the level of purchases by new ‘first-time’ customers in the long-term, after the promotional period had ended. However, a negative long-run effect was found amongst already established ‘loyal’ customers, as they reduced future purchases following much deeper price discounts. These existing customers may have found that such a deep discount destroyed the image of the brand they had previously been loyal to.

### **3.4. Concluding Remarks**

Over the last few decades there has been substantial inroads made in the empirical research into the effects of retail promotions. We know that the immediate impact of



successful price promotions will be to substantially increase sales. We also know that frequency of promotions, the type and depth of promotion, and characteristics specific to the product category and shopper can influence promotional response. Our understanding as to how promotional response varies by shopper and product characteristics is crucial as it enables marketers to design and target promotions to maximum efficiency to hopefully benefit the retailer, supplier and consumer.

Four main promotion response mechanisms have been identified as brand switching, purchase acceleration, repeat purchasing and category expansion. While this research will not be looking specifically at decomposing the promotional response within the meat category into that attributable to each mechanism, it is important to have an understanding of these effects. One of the key questions of this research is to find out whether meat promotions increase overall category demand or result in cross-species switching. This question addresses two of the key promotion response mechanisms, and through answering it, the research may also advance our understanding of promotional response, particularly with respect to such aspects as asymmetric switching and perish-ability.

It is apparent that there is a need for more research into the effects of promotions within the meat category specifically. However from the research conducted so far it can be seen that the response of shoppers to different promotions varies according to the specific cut of meat. It is likely that promotions can increase consumption and usage within the meat category, rather than merely bringing purchases forward. However, it is important that we have a better understanding of which promotions work best for each species and cut so that promotions can be implemented to greatest effect.

From the knowledge learned from the literature review both of meat purchasing behaviour and the consumer response to promotions we can formulate the initial research topic into a refined set of hypotheses.

### **3.5. Hypotheses**

The literature review revealed that factors specific to product categories may influence promotional response. Product characteristics such as the specific cut, species and brand tier of the product is thought to affect the response to promotions. For example, previous research has found shoppers to respond differently to key occasion meats, such as roasting joints, which are bought specifically with the meal occasion in mind, compared to core proteins such as mince, which are bought habitually without a specific meal occasion in mind (MLC, 2002). Other

studies have found differences in price elasticities of demand between different cuts of meat, and in particular a study by Fowler (2007) suggests shoppers are more price sensitive to higher priced cuts of meat.

The literature review also revealed that different types of shoppers can respond in different ways to price promotions. The literature review discusses the affect age and household size may have on promotional response of the individual shopper. It has been identified that the presence of children in a household and the age of the shopper may affect their purchasing behaviour for meat and their response to promotions. There is much conflicting evidence as to the effect age has, with some authors believing promotional response to increase with age (Burton *et al.* 1993, Raju J. S. 1992, Raju P.S. 1980), while others have suggested younger shoppers are more likely to purchase on impulse and therefore may be more likely to be influenced by promotions (Ainslie and Rossi 1998; Inman and Winer 1998). There is, however, a fairly consistent opinion that household size and the presence of children will have a positive influence on a household's response to promotions. The larger the family, the further the budget needs to stretch and the more likely they will be to buy into promotions (Bawa and Gosh 1999; Urbany et al 1996).

The affluence of shoppers may also influence promotional response. The literature review identified such factors as income, employment status and education level to potentially influence purchasing behaviour in response to promotions. All these components can be linked to a shopper's affluence. Within the literature, the general view is that shoppers who are less affluent will be more responsive to promotions.

For promotions to benefit the meat industry, ideally they would increase total fresh meat consumption, therefore expanding the fresh meat category. However a common effect of promotions is to switch sales from non-promoted brands to that which is on promotion, rather than increasing total category consumption. An important observation to make is that, on the whole, there is very little branding within the fresh meat category in British supermarkets. The majority of fresh red meat in the UK is sold under the supermarket own-brand umbrella and therefore this affects how the 'brand' switching mechanism operates within the category. Therefore when looking at switching behaviour within the meat category we are looking at whether promotions cause consumption to switch between cuts and/or species of meat depending upon what is promoted. If promotions within the fresh meat category are found to be resulting mostly in switching effects rather than category expansion then this is offering little benefit to the industry and the way meat is promoted will need to be reconsidered so as to maximise the chances of increasing total consumption.

On the basis of the insights gained from the review of literature relating to meat purchasing behaviour (chapter two) and the impact of promotions on purchasing behaviour (chapter three). The following research hypotheses are proposed:

1. Overall, promotions increase the value of the red meat category
2. The impact of promotions is dependent on the species, cut and product positioning (e.g. value, standard or premium)
3. The impact of promotions is dependent upon the mechanism used (e.g. temporary price reduction or multiple-unit promotion).
4. Price promotions result in shoppers switching behaviour between cuts, and species and asymmetric trading up/down from within a range (e.g. from value to standard and standard to premium).

Hypothesis one addresses the issue of whether promotions actually increase the overall value of the red meat category. If the main effect of promotions is to encourage shoppers to switch their purchases from one product to another to take advantage of a promotion then the overall value of the red meat category will not increase, since purchases have just been switched from one product to another. However, if shoppers switching from lower priced standard or value ranges up to premium priced ranges then it is possible that the overall value of the red meat category will increase as a result of promotions.

Earlier in this chapter the theory of asymmetric brand switching was highlighted as many previous studies have found that shoppers will trade up to high priced brands when on promotion, but won't trade down. If overall consumption increases as a result of promotion, either through existing customers buying more volume or through attracting new customers to the category, then this could also increase the overall value of the red meat category.

Hypothesis two asks whether the impact of promotions will differ depending upon the cut or species of meat. In Chapter two it was identified that previous research has shown there to be differences in the response between different cuts of meat either due to promotions or price changes. Research by Eales and Unnevehr (1988) found own price elasticities to be smaller at the aggregated species level than at the disaggregated cut level, which stressed the importance of drilling down to the cut level to get a better understanding of meat purchasing behaviour. Research by Tiffin and Tiffin (1999) and Fowler (2007) found there to be only

relatively small differences in the price elasticities for beef, lamb and pork at the species level, although not greatly so. Therefore, there is a need to understand the differential impacts of promotions at the disaggregated cut and price tier level, as opposed to necessarily the differences between species.

The study by Fowler (2007) indicated that more expensive cuts such as roasting joints and steaks have higher price elasticities than cheaper cuts such as mince. Although this study does not relate specifically to promotions, it does highlight the fact that shoppers do behave differently depending on the cut of meat, and do not treat all meat products the same. Therefore there is a need for more research at this level to get a clearer understanding of how different the response from shoppers is to promotions on different cuts of meat and to see which promotions work most effectively. Based on the findings of previous studies, it is expected that the promotional elasticities will be greater for more expensive cuts, 'key occasion' cuts such as roasting joints and fry/grilling steaks, and for premium price tier ranges such as premium and organic.

Hypothesis three addresses the issue of which type of promotional mechanic is most effective. Chapter two revealed that temporary price reductions are the most commonly used form of promotion in the meat sector (MLC/TNS World panel, 2007). However this does not necessarily mean they are the most effective form of promotion. It is likely that there is not one type of promotion which is most effective for all meat products, but rather that different promotions are more effective on different cuts of meat. Based on the findings of research by the Meat and Livestock Commission, it is expected that multiple unit offers will be more effective on 'core proteins' such as mince, whereas price reductions will be more effective on key occasion cuts such as roasting joints and fry/grilling steaks (MLC, 2002).

The aim of the fourth hypothesis is to determine out the extent to which promotions are leading to switching behaviour with the category. If promotions are resulting in shoppers switching their purchases from one product to another then the overall value of the category will not increase. Cross-price elasticities have been calculated in previous studies to identify the substitution effects due to price changes in the meat category. It is expected that meat products of the same type of cut are likely to be closely substitutable across tiers and species. For example, a beef roasting joint could be substituted for a lamb roasting joint but not for a packet of beef mince. However, as discussed in Chapter two, Fowler (2007) calculated cross-price elasticities between cuts and little evidence of switching between cuts or species due to price changes. Theories of asymmetric brand switching suggest that shoppers may trade up from value or standard price tiers to premium as a result of promotions, but this is something which as yet has not been researched in the meat sector.

Chapter three has presented a review of the literature relating to the impact of promotions on purchasing behaviour and outlined the key research hypotheses to emerge in the context of the fresh meat category. Chapter four will now explain the methodology to be used to test the hypotheses.

## **4. Methodology**

### **4.1 Introduction**

The previous chapters have explored the background to this research and the development of the research hypotheses. The aim of this chapter is to describe and justify the chosen methodology for testing the hypotheses. First, the chapter will explore the alternative approaches taken in analysing promotional response before explaining the methodology chosen for this research. The chapter will then describe the data used for the empirical analysis, the specification of the model used and the process undertaken.

### **4.2 Alternative Approaches to Analysing Promotional Response**

There have been several different methodological approaches taken by researchers for the analysis of promotional effects on purchasing behaviour. The specific method used will primarily depend upon the objectives of the study, the data available and the aspect of promotional response being looked at. However, there are some key methodologies that have been identified in the promotional literature which will be discussed in this section, including choice and purchase-incidence models, regression analysis and time-series analysis.

#### **4.2.1 Choice and Purchase-incidence Modelling**

Much of the promotional literature involves studies which have used choice and purchase-incidence modelling. These models are distinctive in that they put the focus on the individual consumer's behaviour rather than aggregate groups of consumers. Choice models can be used to help us understand the carry-over effects of promotions and heterogeneity in promotional response. Purchase-timing models can be used to analyse the stockpiling affects of promotions, and how the consumer changes the timing of their purchases because of promotions. Whereas regression analysis techniques, discussed later, enable us to identify brand switching and category-expansion effects of promotions; choice and purchase-timing models primarily help us to understand the sources of promotional uplifts, such as stockpiling and purchase acceleration.

## Choice Models

Choice modelling attempts to model the decision process of an individual, or group of individuals, in a particular context, such as the purchase decision where price promotions are present. Choice models have evolved over time and a number of different variations appear within the promotional literature. Choice modelling is generally used to predict consumer behaviour, on the assumption that consumers will switch randomly (stochastically) from brand to brand. For example, Alvarez and Casielles (2005) use brand choice logit modelling to evaluate the effect promotions have on brand choice. The dependant variable used is brand, with the independent variables being price, reference price, utility losses and gains and the different types of promotions.

Stochastic brand choice models will contain assumptions based around three factors: 'order of the process', heterogeneity and stationarity. The 'order of the process' refers to how past purchases will influence the current purchase. If a model assumes past purchases have no influence on current purchases, then the order is zero. In contrast, non-zero order process models assume that past purchases will influence the current purchase. If the order is equal to one, then it is assumed that only the last purchase influences the current purchase, if the order is equal to two, then the last two purchases are assumed to influence the current purchase, and so on.

The Bernoulli model is an example which assumes zero order of the process, whereas the Markov and Linear Learning models are examples which have non-zero order of the process assumptions (Blattberg and Neslin 1990). 'Order of the process' can be used to determine whether carry-over effects exist as a result of promotions. If the last purchase influences the current purchase (non-zero order) then inducing a shopper to switch by using a promotion will increase the probability of that shopper purchasing the brand again. However, if past purchases do not affect the current purchase, then the effect of a promotional offer will be limited to just one period, and will not necessarily lead to repeat purchasing.

The decision of brand choice can be affected by external stimuli such as price and promotions and by internal changes specific to the individual consumer such as learning (e.g. from past purchases). However, a change in brand choice might also be the result of a normal plan of alteration of brand choice on the part of the consumer (Bass *et al.* 1984). It is difficult to be sure about how much the consumer will be influenced by past purchases when a promotion is running. For example, some consumers are 'deal seekers' who seek out whatever brands are on promotion and will buy those promoted brands without thinking about past purchases (zero order of the process). Therefore the order of the process assumption made in brand choice models might not represent the true choice decision made by individuals. Bass *et al.* (1984)



suggest that the evidence indicates that there is heterogeneity with respect to order of the process. Therefore the order of the process will affect different consumers in different ways with respect to brand choice decisions. It could also be the case that order of the process will differ depending upon the product category in question.

Brand choice models do also make assumptions about heterogeneity amongst shoppers. Early stochastic brand choice models, such as the Bernoulli specification, assumed that the probability of purchasing the particular brand is the same for all households (homogeneity), whereas in reality we know that not all consumers have the same probability of buying a brand or buying into a promotion. Later choice models assume there will be heterogeneity amongst households' probabilities of purchasing. Linear learning models can allow for heterogeneity amongst shoppers, as the models' parameters theoretically will vary from individual to individual. The findings from choice models which assume there is heterogeneity amongst individuals are likely to be much more applicable to real life than those which don't, as consumers do behave differently, and allowing for these differences will create a better fit model.

Assumptions on stationarity will also be incorporated into brand choice models. Most stochastic brand choice models assume that the probability of purchasing a given brand over time is constant (stationary). However, in reality this assumption rarely holds true because the level of promotional activity will vary from one period to another, which will affect the probability of buying a given brand from week to week, or month to month. The lack of stationarity can only be overcome by incorporating marketing mix variables, such as promotion level and prices, into choice models, usually done by using logits. The results from choice models assuming stationarity without the incorporation of marketing mix variables are generally weak in terms of their application to real life scenarios, compared with models incorporating these variables (Bass *et al.* 1984).

The problems of incorporating stationarity and heterogeneity into choice models can be overcome using logistic regression, as this allows for the incorporation of marketing mix variables such as promotion level, advertising and prices, into a stochastic choice model. Logits are one of the most widely used functional forms of choice modelling within the promotions literature. Logit models can be estimated using weighted least squares or maximum likelihood methods. When using logits to study promotions, deterministic variables such as brand dummies, promotion occurrences, last purchase variables and demographic characteristics might be included (Blattberg and Neslin 1990). The main advantage of using logits when studying brand choice is that they enable promotion and price factors to be included as part of the

individual's brand choice decision, and therefore this will provide insight into how individual's brand choice is affected by such factors.

The multinomial logit model is traditionally the most commonly used by marketing researchers to study the effects of marketing mix variables on individuals' choice probabilities. However, a major limitation in using the multinomial logit choice model is what is known as the "independence of irrelevant alternatives" problem. This means that the model effectively ignores the similarities among the alternative choices available to an individual (Chintagunta P. K. 1992). The effects of marketing mix variables of a given brand on the choice probabilities of all other brand options in the choice set are constrained to be equal, when in reality the choice probabilities for the other brands are not necessarily the same. It is therefore, not possible to study the differential effects of marketing variables across competing brands using the multinomial logit model.

Baohong *et al.* (2003) found that brand-switching elasticities derived from logit choice models are overestimated as a result of rational consumer adjustment of their purchase timings to coincide with promotional offers. They suggest using dynamic structural decision models which they believe produce better coefficient estimates. In reality consumers may be more forward thinking and rational in their behaviour which makes it difficult for non-dynamic choice models to measure brand choice accurately. The dynamic choice model can incorporate consumer's promotion expectations, as they may forego or accelerate consumption depending upon their promotion expectations.

Traditionally brand choice logit models have tended to use retail price as the independent price variable. However, Kalwani *et al.*(1990) developed a price expectations model of brand choice, arguing that consumers use the price they *expect* to pay for a given brand on a given purchase occasion as a reference for deciding whether to buy or not. The analysis by Kalwani *et al.*(1990) argue that using a brand choice model in which consumers are assumed to respond to expected prices provides a better fit than traditional choice models in which consumers are assumed to respond to actual retail prices. More recent research, such as that of Alvarez and Casielles (2005), has included both price and expected price as independent variables.

One of the major disadvantages in using brand choice modelling is that it only looks at behaviour for the individual consumer, rather than groups of consumers. This makes it more difficult to make generalised inferences as to how the wider population of consumers as a whole will respond to promotions in terms of brand choice decisions.

### **Purchase-incidence Models**

Choice modelling will tell us *which* brand the shopper is likely to choose in response to promotions. However, we have already seen that promotions can also affect *when* the consumer makes a purchase and *how much* they purchase. Purchase-incidence models are used in research to determine the probability of a given household purchasing a brand in a fixed period of time.

Most purchase-incidence models follow the Poisson process or distribution, which assumes that purchase behaviour is independent over time, and therefore the time of the last purchase does not affect the current purchase. The Poisson process is a stochastic process which is used for modelling random events in time which occur largely independently of each other. The Poisson process is a continuous-time process, with similar underlying assumptions as the Bernoulli process used in choice modelling. Ailawadi and Neslin (1998) used a purchase incidence model for a household, combined with brand choice and quantity decision modelling, to identify the effect of promotion on consumption.

The purchase incidence model assumes that during a short interval the consumer will either buy one unit or zero units of the product and that the purchase rate will be constant over time and across consumers. These assumptions can be considered quite restrictive, especially as they do not truly reflect life, because in reality promotions will affect purchase timing, the quantity purchased, different consumers will respond differently to promotions and previous purchases may affect future purchases.

#### **4.2.2 Regression Analysis**

Regression analysis techniques are used to evaluate the separate contributions of one or more variables acting jointly on a single dependant variable. Regression modelling is easily applicable to the analysis of promotions as a given product may use several types of promotion, each of which may have a different effect on sales of both the promoted product and substitute products. Regression techniques provide the researcher with elasticity estimates which make it possible to predict the likely impact on sales when particular promotions are used. For example, Van Heerde *et al.* (2004) used a system of individual regression models to help identify cross-brand, cross-period and category expansion effects of promotions. Marketing managers can use this information to make decisions on which promotions to run, and when, depending upon the desired outcome of the promotion.

The dependant variable used for the model will vary depending upon which effects the researcher wishes to capture and the data available to them. Usually the dependant variable used

in analysing market response will be sales or market share (e.g. Martínez-Ruiz *et al.* 2006b, Van Heerde *et al.* 2004, and Bolton 1989). This may be the sales or share for individual products or brands, or it may be at the aggregated total category level. It is useful to model category sales as well as share for individual products because this will provide information on category expansion. Using market share or disaggregated sales alone only captures the brand switching effects of promotions and not the overall affect on the product category. The independent variables that could be used are numerous, but include dummy variables for different promotion types, advertising, displays, price, and price indexes.

When using regression modelling to analyse market response, the main functional forms are the simple linear and multiple linear, of which the simple linear form is the most basic. Bolton (1989) used a linear regression model to estimate brand elasticities. In this model, brand sales were considered to be a function of a brand's own price, advertising, couponing activity and display activity. In simple linear regression models, only one single independent variable is considered at a time, ignoring the effects of other independent variables, whereas multiple regressions incorporates several independent variables. Therefore the advantage of using multiple regression rather than the simple linear form is that it automatically incorporates an interaction among all the independent variables. Interaction is an action that occurs where two or more variables have an effect on each other. For example, more than one promotion may be running at the same time, or other factors such as advertising or seasonality may also be affecting the dependant variable. Multiple regression models include interactions because the effect on the dependant variable of one variable will depend on the level of all other variables, whereas the basic linear model will not account for the effects of interactions between independent variables.

A log-linear model can also be used which combines advantages of both linear and multiplicative regression models. The log-linear model is multiplicative, therefore incorporating interaction effects automatically, but can also incorporate dummy variables since only the log of the dependant variable need be computed (Blattberg and Neslin 1990). This makes for a relatively straight forward, yet accurate method for estimating market response. Macé and Neslin (2004) use a log linear regression model to estimate pre- and post-promotion dips in sales. The logarithm of sales is used for the dependant variable and the logarithm of a price index is used as the independent variable, along with dummies for seasonality and coupon availability.

Amongst the advantages of using linear regression techniques to analyse the effects of promotions are that they can incorporate large samples of data, large groups or whole populations of consumers can be analysed rather than just individual households and marketing

mix variables such as level of promotion or demographic variables can easily be incorporated. While regression analysis is well suited to identifying brand and category sales expansion and brand switching effects, it is not well suited to looking at repeat purchasing and purchase acceleration effects of promotions.

### **Quantity Decision Model**

The Quantity Decision model focuses on *how much* the individual shopper will buy of a brand as a result of a promotion. The assumption of the choice and purchase-timing models is that the shopper will buy their average quantity when a promotion occurs, however this does not take into account potential stockpiling effects. As we have already discussed, promotions can result in consumers moving forward their purchases from future time periods to take advantage of offers. Multiple regression analysis can be used to measure the individual purchase quantity decision, but often tobit models are used instead because they can be used to measure truncated data. A truncated observation is one which is incomplete; in the case of the quantity decision model this would reflect the fact that for certain levels of the independent variables the value zero is observed, because the individual shopper will not always make a purchase. Tobit models can be used to estimate expenditures for promoted and non-promoted variables, making it possible to help determine stockpiling behaviour.

Purchase quantity models have also been used in conjunction with brand choice models (e.g. Krisnamurthi and Raj 1988, 1991). Such combined models assume that there is correlation between brand choice and purchase quantity. According to Krisnamurthi and Raj (1988) the choice and purchase quantity decision should not be estimated independently because the choice decision will not necessarily be independent of the quantity purchased decision. If these decisions are modelled independently, such as using a logit model for the choice decision and regression for the quantity decisions, they can produce inefficient choice parameter estimates and biased regression parameter estimates because the two decisions will have some dependency on each other which should be taken into account. Such models which allow dependency between the two decisions follow a limited dependant variable approach. For example, if a consumer decides to switch brands due to a promotion, they may reduce their normal purchase quantity because they are unsure whether they will like the brand. Krishnamurthi and Raj (1991) model the choice and quantity decisions jointly to explore the relationship between consumer brand preference and price elasticity in purchase behaviour. The approach used models the brand choice decision by a choice logit model, the quantity purchased decision by a regression model and then links the two using a variable derived from the choice model as an additional variable in the regression model.

When looking at the impact of promotions on choice, purchase timing and quantity decisions, Gupta (1988) considered both brand choice and quantity purchased decisions to be dependent on the purchase-timing decision. Gupta uses multinomial logit to measure the brand choice and purchase timing decisions both together and separately, and the purchase quantity and purchase timing decisions, again together and separately. Other studies have also adopted models which allow for dependencies across all three decisions. For example, Foubert and Gijsbrechts (2007) and Bell *et al.* (1999) use models to estimate purchase-incidence, choice and quantity decisions at the individual consumer or household level for a given product category.

#### 4.2.3 Time Series Analysis

Time series analysis is another method used to analyse the impact of sales promotions. This method is particularly suited to studies which require the analysis of data over a long time period. There are several different approaches and techniques which can be implemented in time series analysis depending upon the objectives of the study and the data available.

Univariate time series analysis attempts to predict the value of a dependant variable as a function of previous values of the variable and random error terms. For example, the dependant variable when looking at promotions might be sales which would be predicted in the model as a function of previous sales. The key difference between this technique and multiple regression analysis is that univariate time series analysis does not include independent variables. Therefore independent variables such as the level of promotion or type of promotion are not included in the univariate time series model.

While univariate time series analysis does not include any independent variables such as promotion, it can be used to identify the baseline level of sales that would have occurred had there not been a promotion. The promotional response is then identified as the difference between actual sales in the promotional period and the time series analysis prediction of the baseline sales. This is often referred to as 'bump analyses' in the promotions literature. This technique is helpful, in a managerial sense, to evaluate past promotions and learn from these for future promotions. However, the weakness with univariate analysis is that it can give incorrect estimates of the effects of sales promotions, especially under certain circumstances. In circumstances where promotions are used frequently during the period before the promotion being evaluated or where promotions are highly correlated with seasons, the results of univariate analysis should be treated with much caution as there is a high risk they produce an incorrect estimate of the baseline sales.



Transfer function analysis, or multivariate ARIMA (autoregressive integrated moving average) as it is also known, builds upon the basic univariate time series analysis. Transfer function analysis is a logical progression, in that it adds independent variables such as price and promotion to the model. This technique separates itself from regression analysis in that it allows the independent variable to explain only the part of variation in the dependant variable that is not correlated with the regular periodic variation in the independent variable. Transfer function analysis is most appropriate where the independent variables are continuous over a long period, such as advertising.

Intervention analysis is a further progression from the transfer function analysis technique. Both techniques are similar, but intervention analysis is especially suited to the analysis of short term promotions. This is because it is especially useful for analysing short term pulses on the dependant variable. Promotions are more often than not only available over a short term period, and so can be identified as short term pulses intervening with the normal progression of the time series.

Transfer function analysis and intervention analysis both use the ARIMA univariate time series analysis method, devised by Box and Jenkins (1976) as the underlying model which the independent variables are added to. In a study assessing the longer term impacts of price promotion on brand, category and competitor sales, Dawes (2004) adopted the ARIMA method. It is possible to use a model which combines transfer function analysis and intervention analysis where both advertising and promotion effects need to be included in the same model. Both techniques enable us to evaluate the effects of past promotions, as with univariate analysis, but importantly they also enable us to make predictions of future sales under various promotional conditions.

Vector auto regression (VAR) models are used to capture the evolution and interdependencies between multiple time series, rather than a single time series. A VAR model describes the evolution of a set of endogenous variables measured over the same sample time period as a linear function of their past evolution. All the variables in a VAR are treated equally with the inclusion, for each variable, of an equation explaining its evolution based on its own lags and the lags of all the other variables in the model. VAR models have been applied to marketing problems by a number of studies, including Dekimpe *et al.* (1999), Bronnenberg *et al.* (2000) and Pauwels *et al.* (2002). The VAR model treats prices as endogenous variables, meaning that it allows lagged effects such as those of competitors' prices on the brand's current price. VAR models capture the direct consumer response to promotion, be it an immediate or lagged response, as well as the reaction from competitors in response to promotional price changes (Pauwels *et al.* 2002).



Vector autoregressive models which incorporate exogenous variables rather than endogenous variables are known as VARX models. Nijs *et al.* (2001) used VARX models to provide estimates of the short and long-term effects of price promotions on category demand. Lim *et al.* (2005) used VARX models when looking at consumer heterogeneity in price promotion effects. Within this model, Lim *et al.* (2005) used quantity sold and average price as the endogenous variables, with feature and display activity as the exogenous variables.

The main advantage of time series analysis over other techniques is that it allows the researcher to see how data changes over a long period of time. It can help us to understand the long term effects of promotions, whereas other techniques such as linear regression analysis concentrate on the immediate impact of promotions. Time-series analysis is most suitable where the researcher has access to long period of continuous data.

#### **4.2.4 Chosen Methodology**

So far this section has explored the different methodologies used in research on the effects of promotions, including choice and purchase-incidence models, regression analysis and time-series analysis. Each method has advantages and disadvantages which will depend upon what the researcher wants to find out and the research questions asked. It has been shown that choice and purchase-incidence models are more appropriate to help us to understand the sources of promotional volume, such as stockpiling and purchase acceleration. Regression analysis techniques are more suited to identifying such effects as brand switching and category-expansion due to promotions.

The research hypotheses developed in Chapter three focuses on the concept that the effect of price promotions on purchasing behaviour for meat can be influenced by characteristics specific to both the individual shopper and the product being promoted. Since fresh meat is a perishable product it is less likely that promotions encourage stock-piling or acceleration of purchases from future time periods. Instead research has indicated that promotions on perishable products encourage consumers to increase overall consumption (Bell *et al.* 1999; Wansink and Deshpandé, 1994). Thus, it is anticipated that the effect of promotions on fresh meat will either be to increase consumption within the red meat category or switch purchases from one product to another. The chosen methodology, therefore, needs to suit the promotional effects being measured, in this case category expansion and brand switching.

Taking all these factors into account a multiple linear regression approach was chosen as the most appropriate methodology, since it is one of the most widely used for measuring

category expansion and switching effects. It is also well suited to large samples of data, and for measuring the effects efficiently across different product sub-groups and identifying switching and substitution effects between products. It enables several independent variables to be modelled at the same time, taking into account interactions, and is a logical choice given the available dataset.

The next section will explore the different types of data which have been used in studies looking at the effects of promotions, as well as detailing the specific data used for this research.

### 4.3 Data

There are different types of data which have been used in studies analysing the effects of promotions. This section will first consider the common types of data which have been used in the promotions literature, and will then move on to describe in detail the data used specifically in this research project, including the data collection method.

#### 4.3.1 Types of Data

There are two main types of data used in the promotions literature to analyse the impact of promotions on purchasing behaviour: panel data and retailer scanner data. Panel data provides information at an individual household (or segmented) level; for example by household size or by age. Popular sources of panel data include A. C. Nielsen and TNS Worldpanel. Examples of studies which have utilised panel data include Ailawadi *et al* (2007), Bell *et al.*(1999), Chintagunta (1993), Foubert and Gijbrecchts (2007) and Vilcassim and Jain (1991).

Store-level scanner data pools all sales in a given store, or chain of stores over a period of time but does not contain information on specifically which type of household these sales relate to. Examples of studies which have incorporated store-level scanner data include Macé and Neslin (2004), Martínez-Ruiz *et al.* (2006b) and Raju (1992). Ailawadi *et al* (2006) used a combination of weekly store level scanner data from a leading chain of drugstores and panel data from the loyalty card programme for the same chain. The scanner data was used to estimate effects such as gross uplift and switching effects, while the panel data was used primarily to estimate stockpiling effects. However, a weakness in this research, although it utilised both panel and scanner data, is that it could not show the gross uplift in sales or switching effects for specific segments of consumers because the panel data was separate from the store level sales data.

Panel data is more detailed than store-level scanner data and can be more useful in many circumstances, for example where the researcher wishes to compare the effects of promotions on different categories of shoppers or on brand loyalty. However, panel data will be noisier than aggregate store-level data because in panel data sales will typically be generated from a smaller sample size of consumers, which is likely to result in more week to week variation. The lower noise in aggregate store sales data is a strong factor in favour of using it for many types of analysis. Store-level scanner data also has the advantage of containing a much larger sample than panel data, meaning there will be less variation in the sales data which should yield more robust results.

#### **4.3.2 Data Collection**

The source of data chosen for the purposes of this research is a database which combines the benefits of both store-level scanner data and panel data. The data is sourced from dunnhumby Ltd, and comprises of purchasing information from a panel of 14 million UK supermarket shoppers. The dataset comprises weekly purchasing information from all Tesco supermarkets across the UK, collected via the Clubcard loyalty scheme, which covers approximately 80% of total sales. The sample size used in the database is 10% of the total population of Clubcard holders, which was equal to approximately 1.4 million shoppers at the time the data was collected for this research, although the population is growing all the time.

Tesco launched its customer loyalty programme 'Clubcard' in February 1995. For every pound spent in Tesco the customer will receive one Clubcard point, which in turn is worth one penny in Clubcard vouchers. Clubcard vouchers are sent to customers four times a year; in February, May, August and November. In order to receive a statement of Clubcard vouchers, the customer must have earned a minimum of 150 points within that quarter, therefore spending a minimum of £150 in store.

Clubcard points can be collected by shopping in store, online through Tesco Direct and Tesco.com and at Tesco petrol stations. Points vouchers can benefit the shopper not only by saving money on everyday shopping but also can be put towards other activities such as holidays and pampering sessions. Further incentives to entice customers to join the loyalty programme include the option to sign up for free membership to one of Tesco's specialist clubs such as the Baby and Toddler club, the Food club and the Healthy Living Club. These clubs provide members with specialist information and further money-saving offers.

When a customer signs up for Clubcard they have to provide certain information about themselves using the application form. The application form contains a temporary Clubcard

which can be detached from the form and used to earn points immediately. However the customer will not receive any rewards until the card has been registered by filling in an application form, either in-store or online; an example of which can be seen in Appendix 1.

The application form itself contains five main sections. In the first section, the applicant is asked to provide basic details about themselves such as their name, sex and address, as illustrated in the annotated photograph of the first page of the Tesco Clubcard Application form in Appendix 2. The second section of the form asks the applicant to provide telephone and email contact details to enable Tesco Clubcard to contact them with offers and for market research purposes. There is however an option in the third section of the form, covering data protection, which enables the applicant to opt out of being contacted in such ways.

The fourth section of the form, as illustrated in the annotated photograph of the second page of the Tesco Clubcard Application form in Appendix 3, is not compulsory for the applicant to complete but they are encouraged to do so through being informed that they may then be sent rewards which are tailored especially to what might suit them. This section asks for details about the applicants' household, including how many people make up the household, the applicants' date of birth, and the ages of all other people living in the household.

The final section of the form covers the dietary needs of the applicant to ensure they are only sent offers relevant to their lifestyle. The applicant has the option to specify if they keep to any of the following diets: vegetarian, teetotal, diabetic, kosher or halal.

Once the application form has been completed the customer will be given a credit card style swipe card and two key fobs, all of which can be used at the checkout to earn points on purchases made. Providing the customer with the key fobs as well as the swipe card gives the customer the option to give other members of their household a method with which to collect points towards the same household Clubcard account. Through offering this option this also helps keep all Tesco purchases from one household together on one Clubcard account which helps to make the data set more robust for the analysis of household purchasing behaviour. If different members of one household shopped using a different Clubcard account then this would not represent a true picture of purchases made by households.

Approximately 14 million customers, 40% of UK households, own a Tesco Clubcard. Tesco is the largest grocery retailer in the UK, with a segmented retail strategy, serving the entire spectrum of shoppers from price sensitive to up-market, and through different retail formats such as on-line, convenience and supermarkets. Recent figures indicate Tesco's market share to be at 30.9% of total grocery retailing in the UK (TNS, 2009, cited in Wall Street

Journal [online], 2009). Thus, the sample of shoppers is considered to be as closely representative of UK supermarket shoppers as possible from a single dataset.

### 4.3.3 The Database

It was felt that the dataset was well suited to the research topic and the chosen methodology of regression analysis. The dunnhumby (sic) database contains supermarket panel data consisting of two years of continuous rolling weekly point-of-purchase sales data on all products sold within Tesco, which amounts to over 265,000 product items, of which approximately 30,000 are food items. There are in the region of 290 individual fresh beef products, 140 fresh lamb products and 180 fresh pork products.

One of the big advantages of using the dunnhumby data for this research is that it makes it possible to analyse meat demand at a disaggregated level, as each individual product sold or manually-created groups of products can be examined, rather than just aggregated data for the meat species or cuts. The literature review revealed the importance of using disaggregated data where possible, because shoppers do not choose to buy fresh beef or fresh lamb; they choose to buy specific cuts (e.g. organic lamb chops or healthy minced beef), and for specific meal occasions (e.g. mid-week snack or weekend dinner party).

The database provides the scale benefits of store-level data, through pooling sales data from over 1,800 Tesco stores in the UK. At the same time it is also possible to look at sales just within specific retail formats (e.g. Extra, Metro or Express) and regions. It is also possible to segment the data by certain shopper characteristics such as life-stage and lifestyle, as defined by dunnhumby. The database makes it possible to look at weekly data on key sales measures for all products sold in Tesco for a period of up to two years. These key sales measures include sales volume, sales value, the number of customers, the number of stores selling the product, the customer penetration and the average price per unit.

For the purposes of this research the database was used to create a panel data set, with sales data sorted based on shopper's life-stage and region. Within the dunnhumby database there are five life-stage segments and ten regions, which made it possible to create a panel dataset based on fifty individual segments in total. The different life-stage segments are young families, older families, young adults, older adults and pensioners. Shoppers are segmented by dunnhumby into life-stage segments based on the information about themselves which they include on the initial Tesco Clubcard application form. The different regions of the UK, used within the panel dataset, were Scotland, Wales and the West, the South West, the South East,

the Midlands, East England, London, Yorkshire, the North East and the North West. To create the panel dataset, sales information for each life-stage segment for each region was collated together into a large dataset with fifty panels.

The database has not previously been used for in depth analysis of the impact of promotions on purchasing behaviour for fresh meat. Given that Tesco accounts for the largest proportion of fresh meat sales in the UK, the potential insight gained from this research are highly relevant to the British meat industry.

#### **4.4 Analysis**

This section will explain in greater detail the specification of the regression model and how the analysis will be carried out with the dataset.

##### **4.4.1 The Model**

A multiple regression model estimated using the fixed effects method was chosen for the analysis. Fixed effects estimation was chosen as this method particularly lends itself to be used with a panel data set because it controls for heterogeneity across different types of shopper segments.

There are a number of key measures provided within the dunnhumby dataset which could be used as the dependant variable in the regression analysis, including sales volume, sales value and number of customers. Weekly data on sales value was the chosen key measure for the research since this made it possible to identify the effect of promotions on overall sales value of individual product subgroups and the category as a whole.

Using sales volume would have shown by how much the quantity sold increased as a result of promotions, but it would not have been possible to determine whether this had actually increased the value of sales or not. If a price promotion takes place, the sales quantity sold has to increase sufficiently for the value of sales to also increase and outweigh the cost of the promotion. The promotion will only be profitable to the retailer or supplier if the sales value increases as well as the volume sold, as they need to recover the cost of reducing the price. A further reason why volume sold was not used was because fresh meat is sold by weight, yet the dunnhumby database records sales as units sold rather than the weight sold. So one pack of steaks might weigh 500 grams and another 300 grams, but these are each counted as one unit sold, as opposed to 800 grams worth of sales.

Tesco are continually expanding and opening new stores. Therefore it is expected that sales will naturally increase over time due to an increase in a number of stores selling the products. In order to minimise the effects caused by increases in distribution. The dunnhumby database provides weekly information on the number of stores selling each product, therefore the sales value was divided by the number of stores selling the product each week. This created a new dependant variable; sales value per store. Through doing this it was possible to remove the effects of major changes in distribution making the dataset more robust for analysing the effects promotions have on sales, since it removes the effects caused by changes in distribution.

The independent variables used in the regression model were dummy variables for the different types of promotion. Price could have been used in the model as an independent variable to show what happens when prices are cut, however this was not used because the database only provides information on average price per unit. Most fresh meat is sold by weight, so a for example a price promotion would be offering the shopper a saving of  $x$  amount off a kilogram. The database only captures the average price per unit, not per kilogram, so therefore this variable will be influenced by weekly variations in the average weight of packs sold. Instead of using price dummy variables were used to represent the periods of promotion.

Since one of the hypotheses requires the identification of differential impacts of different promotional mechanisms, there were four different independent variables, each representing a different type of price promotion. Price reductions were by far the most commonly used form of promotion in the red meat category, so these were split into three different levels of price reduction. Small price reductions of less than fifteen per cent off, medium price reductions of between fifteen and thirty per cent off, and large price reductions of more than thirty per cent off the original price. The final independent promotional variable represented multiple unit promotions, or multi-buys, which encourage the shopper to buy at least two units of the product.

The following equation represents the model used for the regression analysis:

$$SALES_{it} = \beta_0 + \beta_1 SPC_{it1} + \beta_2 MPC_{it2} + \beta_3 LPC_{it3} + \beta_4 MULTI_{it4} + e_{it}$$

In the model,  $SALES_{it}$  represents the dependant variable sales value per store for a given product sub-group,  $i$ , in a given time period,  $t$ . The parameters of the model are  $\beta_0$ , which represents a fixed unknown parameter, and a series of 0-1 dummy variables representing the different types of price promotion for product sub-group  $i$  in the time period  $t$ . These independent variables are SPC, which represents a small price cut; MPC, which represents a medium price cut; LPC, which represents a large price cut; and MULTI, which represents a



multiple unit promotion. The error term,  $e$ , incorporates all the immeasurable factors which may also be influencing sales aside from promotions.

In order to analyse the switching effects of promotions, the model was adjusted to include all those promotional dummy variables within a particular category. For example, when looking at the effects of promotions within the roasting category, the parameters of the model included a variable for each type of promotion which occurred on each roasting product or sub-group.

The database itself does not provide information on when promotions have taken place; instead this information was sourced independently. At the beginning of the study, it was unknown whether it would be possible to source promotional calendars for the fresh meat categories from anywhere, such as meat suppliers, dunnhumby or Tesco themselves. Therefore, for an initial twelve month period promotional information within the fresh meat category was collected through weekly store auditing of local Tesco stores. All promotions in Tesco are run at a national level, so a promotion in one store on a specific product will also be running in all other stores where that product is sold. The store auditing process involved visiting a local Tesco supermarket weekly and recording the promotions taking place in the fresh meat section, including information on the mechanic used, the duration of the promotion and the promotional price.

Later into the study promotional calendars for the fresh meat sector were obtained from both dunnhumby and one of Tesco's largest meat suppliers to ensure accuracy. These promotional calendars were checked against the data obtained through store audits, which confirmed that the promotions being reported from suppliers and dunnhumby were indeed taking place in store. In total the promotional information collected through the store auditing and obtained from the other sources mentioned covered a period of eighty six weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008. This eighty six week period was therefore the time period used for the analysis because there was complete promotional information available.

The regression model was estimated using the statistical software STATA. The beta coefficients estimated through the regression analysis were used to estimate the promotional and cross-promotional elasticities for all product sub-groups. The promotional elasticity is the ratio of change in the dependant variable (sales) with respect to a change in the independent variables (promotions). Cross-promotional elasticities are estimated to identify brand switching and substitution effects. Cross-promotional elasticities tell us the ratio of change in the dependant variable for a given product, with respect to a change in the independent variables for another product.

The elasticities were calculated by multiplying the coefficients by the ratio between the average of the promotional dummy variable and the average sales for the product in question. The elasticities were then multiplied by the size of the price discount to show the proportionate impact on sales respect to the size of the discount. For example, elasticities with respect to small price discounts were multiplied by 7.5%, the average of size of small price reduction, in order to produce the proportionate impact. Similarly elasticities with respect to medium price reductions were multiplied by 22.5%, which is the average size of medium price reductions (15-30%). The average size of large price discounts was calculated to be approximately 36%, and was calculated as the average size of a large price discount of all the promotions taking place within the red meat category (above 30%). The average size of discount for a multi-buy promotion was calculated to be approximately 42%. Through doing this, it was possible to report the proportionate impact of promotions on sales respect to the size of the price discounts taking place.

The next section will explain in more detail how the products in the fresh meat category were categorised for the purposes of the research and how the analysis was structured around these sub-groups.

#### **5.4.2 Fresh Meat Category Breakdown**

The database contains purchasing information on hundreds of individual fresh red meat products. There are in the region of 290 individual fresh pre-packed beef products, 140 fresh pre-packed lamb products and 180 pre-packed fresh pork products. To make the dataset more manageable these products were reclassified into a number of subgroups made up of closely related products. These subgroups categorised products by species, by cut, and by tier<sup>1</sup>. Even though the products were therefore aggregated to a degree, the sub-groups used in the analysis were at a far more disaggregated level than the vast majority of other studies on either meat demand or meat purchasing behaviour in relation to promotions.

In total there were forty two red meat subgroups, of which eighteen groups are Beef, nine are lamb and fourteen are pork. Under the guidance of experts at the meat services division of the Agricultural and Horticultural Development Board (formerly the Meat and Livestock Commission), the products were sorted into sub-groups, first of all by species: lamb, beef and pork. The products were then sorted into groups by cut: roasting joints, frying and grilling meats such as steaks and chops, mince, and diced meats such as casserole steak. These groups were then further disaggregated by 'tier'. This meant that products were sorted into groups depending

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<sup>1</sup> The full list of subgroups and products making up each sub-group can be seen in Appendix 4.

upon whether they were sold under a standard label (e.g. Tesco private label brand), premium label (e.g. Tesco Finest brand), speciality label (including traditionally reared and other special farming techniques), organic label, value label (e.g. Tesco Value) or healthy label (e.g. lean or Tesco Healthy Living range). For example, premium mince beef is a subgroup which contains products which are beef mince sold under a premium quality label to the customer. A full breakdown of the products contained within each sub-group can be found in Appendix 4.

In order to test the first research hypothesis about whether promotions increase the overall value of the red meat category, it was necessary to analyse the effects of promotions at the total red meat category level. In order to do this the sales value per store for each individual product was summed up to provide the sales per store of red meat for each week. The promotion variables were also totalled up, so for example, for each week when a small price cut was running on any red meat product, the dummy variable for small price cuts on red meat was recorded as a one. The same was applied to medium price cuts, large price cuts and multi-buys. The disadvantage of aggregating up the data to the total category level was that promotions were in evidence in almost every week. With promotions running so frequently it is very difficult to infer how much of an effect they truly had on the value of the red meat category.

The main part of the analysis focused on the impact of promotions on the sales within the beef category. This includes looking at the impact of pork and lamb promotions on beef sales, to identify possible interactions between the two which could show evidence of switching between species due to promotions. Due to the large volume of data and to avoid excessive repetition in the reporting of the results it was decided that only the beef category would be analysed in detail.

The beef category was chosen because it is the largest of the red meat categories in terms of sales, and it was the most heavily promoted of the three red meat species over the time period. Furthermore, previous research looking at price elasticities of demand for meat have indicated that the beef category is one of the more responsive species to changes in price (Tiffin and Tiffin, 1999; Fowler, 2007). It was also thought that the inferences arising from the results of the beef category would also be able to be applied to other red meat sectors, since previous research has pointed towards larger differences in promotional response between cuts of meat rather than the individual species.

As detailed above, for the purposes of the analysis the products in the beef category were divided into sub-groups based on the type of cut and tier of the product. Substitution is most likely between the different tiers (e.g. Organic, Standard) of the same cut (e.g. Roasting joints), rather than between different cuts, therefore the analysis was carried out within the different cuts of meat. Roasting joints were analysed together, as were Fry/Grilling beef,

Minced beef and Diced beef. This made it possible to observe switching effects of promotions between tier levels of products, within each cut sub-category. For example, a promotion on standard roasting beef joints may influence sales of value roasting beef joints. Through conducting the analysis in this way, it made it possible to address all four research hypotheses.

This chapter has identified the chosen methodology for this research, which is multiple regression analysis and has explained that the data used will be that of supermarket loyalty card purchasing information. It has also been outlined how the analysis will be undertaken, including the formation of product sub-groups and how the model will be implemented. Chapter five presents the results from the analysis, including the proportionate impact on sales due to promotions, estimated from the regression model.

## **5. Results**

### **5.1 Introduction**

This chapter presents the results of the multiple regression analysis, the purpose of which is to identify the effects of price promotions on the sales of red meat at both the total category and sub-group levels. The focus of the analysis is primarily on the beef sector - the largest of the red meat categories and the most heavily promoted of the three red meat species over the time period studied.

The results are presented in six sections. The first section looks at the effects of promotions at the total red meat category level, which addresses the first hypothesis - the effect promotions have on the value of the red meat category as a whole. The second, third, fourth and fifth sections focus on the impact of promotions at the disaggregated 'cut' level, covering Roasting, Fry/Grilling, Minced and Diced sub-groups respectively. The results are divided into these sections because the products within each sub-group are widely considered to be substitutable. The final section looks at the impact of promotions in the lamb and pork sectors on sales of beef, to identify any cross-species switching effects. .

### **5.2 Total Red Meat Category**

The first hypothesis considers what impact promotions have on the red meat category as a whole.

Table 5.2.1 shows the percentage of sales which occurred while a promotion was running for each red meat category. These percentages were calculated by summing the sales of each individual beef, pork and lamb product during the weeks when a promotion was taking place on the given product, and then dividing this by the total sales for each product. The results for individual products were then totalled up to provide the percentage of total red meat sales that occur while on promotion.

Table 5.2.1: Percentage of Red Meat Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

| Category | % Of Sales on Promotion |
|----------|-------------------------|
| Red Meat | 20.00%                  |
| Beef     | 24.35%                  |
| Lamb     | 30.73%                  |
| Pork     | 11.51%                  |

In total 20% of fresh Red Meat sales occurred while promotions were running during the eighty six week time period. Drilling down to the species level, it can be seen that within the fresh beef category, 24.4% of sales occurred while promotions were taking place. Within the fresh Lamb category, over 30% of sales occurred while promotions were running, which is a considerably higher proportion than the average for red meat category overall. Conversely, in the fresh pork category just 11.5% of sales occurred while promotions were running, which is a much lower proportion than the red meat category overall.

These results perhaps justify further why the beef category is the most appropriate to present the results from, since the proportion of sales occurring while promotions are running is closest to the average for the red meat category as a whole, and is between the two extremes of pork, where the proportion of sales occurring when promotions are running is very low, and of lamb, where the proportion is much higher. As discussed in Chapter 2, TNS Worldpanel reported that 24% of Red Meat sales came from promotions in 2005 and 28% in 2006 (MLC/TNS World panel, 2007). This is slightly higher than the results in Table 5.2.1 show; however the TNS Worldpanel results differ in that they cover all UK retail outlets and include both fresh and frozen red meat sales.

Table 5.2.2 shows the proportionate impact on sales for red meat with respect to the different types of price promotion across the red meat category. Promotions on red meat account for 25% of the variance in sales at the total red meat category level. This is fairly low and suggests there is likely to be many other factors at play affecting red meat sales at the aggregate level aside from promotions. These factors were discussed in detail in Chapter 2, and include seasonality, price changes un-related to promotions, in-store merchandising and point-of-sale activity, adverse publicity and food scares, and economic factors.



Table 5.2.2: The Proportionate Impact on sales for Red Meat with respect to different levels of Price Promotion

| Promotional Mechanism | Proportionate Impact       |
|-----------------------|----------------------------|
|                       | Total Red Meat             |
| Small Price Cut       | 2.373 <sup>^</sup>         |
| Medium Price Cut      | <b>-25.007<sup>^</sup></b> |
| Large Price Cut       | 3.119 <sup>^</sup>         |
| Multi-Buy             | <b>33.798<sup>^</sup></b>  |
|                       |                            |
|                       | R-Sq 0.2492                |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

Medium price cuts and multi-buy offers were the only promotions to have an effect on red meat sales that were statistically significant at the 5% significance level. Overall medium price cuts, the most common of all the promotional mechanisms used, were found to have a negative impact on the value of the red meat category. The results imply that the red meat category was de-valued by just over 25% due to medium level price discounts (between 15-30% price reduction). Conversely, multi-buy promotions were found to increase category value by over 33%. This suggests that multi-buy offers attract new customers to the category and/or increase the quantity bought by existing customers, and hence overall spending increases. With price discounting, the value of the category will fall unless a sufficient number of new customers are attracted, or the volume existing customers buy increases, because the product becomes cheaper. These results indicate that price discounting does not significantly increase volume sales so as to offset the cost of reducing the price, and therefore the red meat category as a whole is de-valued through promoting in this way.

The results in tables 5.2.3 show the proportionate impact on sales of total red meat within the main Beef sub-groups. Promotions within the beef category explain just 11% of the variance in the sales value of red meat overall. This implies that many other factors are at play in influencing the sales of red meat, which will include promotions on lamb and pork.



Table 5.2.3: Proportionate Impact on sales of Red Meat with respect to promotions on different Beef cuts

|                              | Proportionate Impact      |
|------------------------------|---------------------------|
|                              | Total Red Meat            |
| Beef Roasting Promotions     | -5.763 <sup>^</sup>       |
| Beef Mince Promotions        | <b>15.813<sup>^</sup></b> |
| Beef Fry/Grilling Promotions | 0.035 <sup>^</sup>        |
| Beef Diced Promotions        | -10.216 <sup>^</sup>      |
|                              |                           |
|                              | R-Sq 0.1109               |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

The only promotions to have a statistically significant impact on the sales value of the red meat category as a whole are those within the beef mince sub-group. Beef mince promotions increased the sales value of the red meat category by 15.8%. The majority of beef mince promotions were multi-buys and these offers ran very frequently over the time period analysed. This result backs up the earlier results in Table 5.2.2, which showed multi-buy promotions to significantly increase sales value of the red meat category.

It is important to consider the reliability of aggregating the data up to the total category level, as there are very few weeks where no promotions were running at all and in most weeks several promotions were running at once. In the regression model, promotions are recorded as dummy variables. These promotional dummy variables should represent individual shocks in the time line, but when aggregated up to the total red meat category level they act more as a constant due to the frequency with which promotions take place within the category. This makes it difficult to determine the true impact of promotions at this level and adds weight to the argument that analysis should be undertaken at a much higher level of product disaggregation.

The next sections report the results of the analysis at the individual sub-group and product levels.

### 5.3 Roasting Beef

The roasting beef sub-group is made up of all the cuts of beef which are most commonly used in the home for roasting, such as those which are typically served up as part of

a roast dinner on a special occasion. Roasting cuts of beef include, for example, top rump and silverside joints. These are considered to be ‘key occasion’ high involvement proteins, in that the consumer will have planned the occasion for which the product will be eaten, but will not necessarily have decided on the species of meat or the specific cut (MLC, 2002). Factors at the point of sale such as promotions and merchandising could therefore have a strong impact on the particular product the shopper ultimately purchases. Qualitative research by the Meat and Livestock Commission has found price discounts to be more effective than multi-buys for key occasion meats because the shopper only wants enough of the product for the amount of people being catered for.

The roasting beef category was split into five different sub-groups or tier levels: Standard, Premium, Organic, Speciality, and Value. Each sub-group is made up of those individual products sold in Tesco which belong to that particular tier. For example, each organic roasting joint product collectively forms the organic roasting beef sub-group. Table 5.3.1 shows the share of total roasting beef sales each sub-group accounts for.

Table 5.3.1: Share of total Roasting Beef Sales split by individual Roasting Beef Sub-group

| <b>Sub-Group</b>         | <b>Share of Total Roasting Beef Sales</b> |
|--------------------------|---|
| Standard Roasting Beef   | 68.84%                                    |
| Premium Roasting Beef    | 18.52%                                    |
| Organic Roasting Beef    | 3.37%                                     |
| Speciality Roasting Beef | 4.89%                                     |
| Value Roasting Beef      | 4.39%                                     |

The standard roasting beef sub-group, which contains all the standard, generic-branded regular price level beef roasting joints, accounts for by far the largest share of sales, with a 68.8% share. Premium roasting beef, the highest tier, is the second largest sub-group, with 18.5% share of total sales value. The Organic, Speciality and Value sub-groups account for much a smaller share of sales, with organic being the smallest at just 3.4% share of sales.

Promotions occurred within each of these sub-groups except Value. Table 5.3.2 shows the proportion of roasting beef sales which occurred while promotions were taking place, at both the total category level and sub-group level.

Table 5.3.2: Percentage of Roasting Beef Sales occurring while on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

| <b>Category</b>          | <b>% Of Sales on Promotion</b> |
|--------------------------|--------------------------------|
|                          |                                |
| <b>All Roasting Beef</b> | <b>39.96%</b>                  |
|                          |                                |
| Standard Roasting Beef   | 50.31%                         |
| Premium Roasting Beef    | 27.88%                         |
| Organic Roasting Beef    | 31.71%                         |
| Speciality Roasting Beef | 15.72%                         |
|                          |                                |

In total almost 40% of roasting beef sales occurred while products were on promotion. Drilling down further, it can be seen that promotions were most prevalent in the standard roasting beef category, in that over 50% of sales were made while a promotion of some kind was running on standard roasting beef product. Within the organic roasting beef sub-group, 31.7% of sales occurred while a promotion was running, and within the premium roasting beef sub-group the figure was slightly less at 27.9%. Just 15.7% of sales within the speciality roasting beef category were made while promotions were running. This suggests that speciality roasting beef was the least heavily promoted roasting beef sub-group, or otherwise it could indicate that promotions are less effective at generating sales within this sub-group.

Table 5.3.3 shows the proportionate impact on sales for the roasting beef category as a whole, with respect to the different promotional mechanisms used within the category over the time period. The types of promotion which took place in the roasting beef category were medium and large price cuts, and multi-buy offers. Small price cuts of less than 15% off the original price were not present in this category.

Table 5.3.3: The Proportionate Impact on sales for the Roasting Beef category with respect to different Promotional Mechanisms

| Promotional Mechanism | Proportionate Impact      |
|-----------------------|---------------------------|
|                       | Roasting Beef             |
| Medium Price Cut      | -8.587                    |
| Large Price Cut       | <b>12.439<sup>^</sup></b> |
| Multi-Buy             | <b>9.779<sup>^</sup></b>  |
|                       |                           |
|                       | R-sq 0.1315               |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

Promotions on roasting beef products account for just 13% of the variation in sales within the roasting beef category overall. Both large price cuts and multi-buy offers had a statistically significant impact on sales value. Large price cuts on roasting beef generated the greatest uplift in sales, of around 12.5%, whereas multi-buy offers on roasting beef increased sales by 9.8%. This result highlights the value in offering significant price reductions to drive sales and increase the overall value of the roasting beef category. Previous research conducted by the MLC indicated that multi-buy offers would not be as effective in driving sales of higher involvement, ‘key occasion’ meats like roasting joints, since the shopper will not be as likely to stock up on these products like they would for core products such as mince which can be used in many meals during the week (MLC, 2002). The findings here confirm that that while multi-buy offers do increase the sales value of the roasting beef category, they are not as effective as large price discounts.

Table 5.3.4 shows the proportionate impact on sales for each roasting beef sub-group with respect to different price promotions within the roasting beef category.

Table 5.3.4: Proportionate Impact on sales for Roasting Beef sub-groups with respect to different Price Promotions

| Promotional Mechanism                     | Proportionate Impact      |                       |                           |                           |                           |
|---|---------------------------|-----------------------|---------------------------|---------------------------|---------------------------|
|   | Standard Roasting Beef    | Premium Roasting Beef | Organic Roasting Beef     | Speciality Roasting Beef  | Value Roasting Beef       |
| Speciality Roasting Beef Medium Price Cut | 4.267                     | 0.594                 | -0.217                    | <b>17.208<sup>^</sup></b> | 2.091                     |
| Premium Roasting Beef Medium Price Cut    | -7.817                    | 6.030                 | -2.530                    | 4.727                     | <b>-9.237<sup>^</sup></b> |
| Organic Roasting Beef Medium Price Cut    | -2.723                    | -3.861                | <b>17.511<sup>^</sup></b> | 10.579                    | -1.915                    |
| Organic Roasting Beef Large Price Cut     | 1.238                     | -0.643                | -0.892                    | -4.624                    | -0.005                    |
| Standard Roasting Beef Medium Price Cut   | 3.562                     | 4.531                 | 1.841                     | <b>25.158<sup>^</sup></b> | -3.241                    |
| Standard Roasting Beef Large Price Cut    | <b>14.789<sup>^</sup></b> | -4.277                | <b>9.364<sup>^</sup></b>  | 18.298                    | -3.576                    |
| Standard Roasting Beef Multi-Buy          | <b>10.987<sup>^</sup></b> | 2.678                 | <b>10.335<sup>^</sup></b> | <b>35.279<sup>^</sup></b> | 1.822                     |
| R-sq                                      | 0.174                     | 0.0611                | 0.3811                    | 0.3852                    | 0.1192                    |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

The remainder of this section will look individually at the different roasting beef sub-groups, referring back to this table of results.

### Standard Roasting Beef

The standard roasting beef sub-group is made up of six individual products. These products are all those which are simply generic standard supermarket own-label products. The individual products are listed in Table 5.3.5, alongside the share of total standard roasting beef sales each product accounts for.

Table 5.3.5: Share of Standard Roasting Beef Sales divided by individual product

| Standard Roasting Beef                      | Share of Standard Roasting Beef Sales |
|---|---------------------------------------|
| Fresh Beef TopSide/TopRump/SilverSide Joint | 67.96%                                |
| Fresh Beef Boneless Rolled Rib Roast        | 4.83%                                 |
| Fresh Beef Bone In Rib Roast                | 6.36%                                 |
| Fresh Beef Half Fillet                      | 2.43%                                 |
| Fresh Beef Sirloin Joint                    | 1.09%                                 |
| Fresh Brisket Slow Roast                    | 17.34%                                |

Those roasting joints which are Topside, Silverside or Top Rump are recorded under the same product number in the database, and therefore are treated as one individual product. This

product accounted for by far the largest share of standard roasting beef sales, with 68% share of sales. Brisket Slow Roast joints account for the second largest share of standard roasting beef sales at 17.3%. Other products are Bone-in-Rib Roast (6.4% share of sales), Boneless Rolled Rib Roast (4.8%), Half Fillet (2.4%) and Sirloin Joint (1.1%).

Of those products making up the Standard roasting beef category, promotions occurred on three of the six products. Table 5.3.6 shows the percentage of sales which occurred while promotions were taking place, at the product level within the standard roasting beef sub-group.

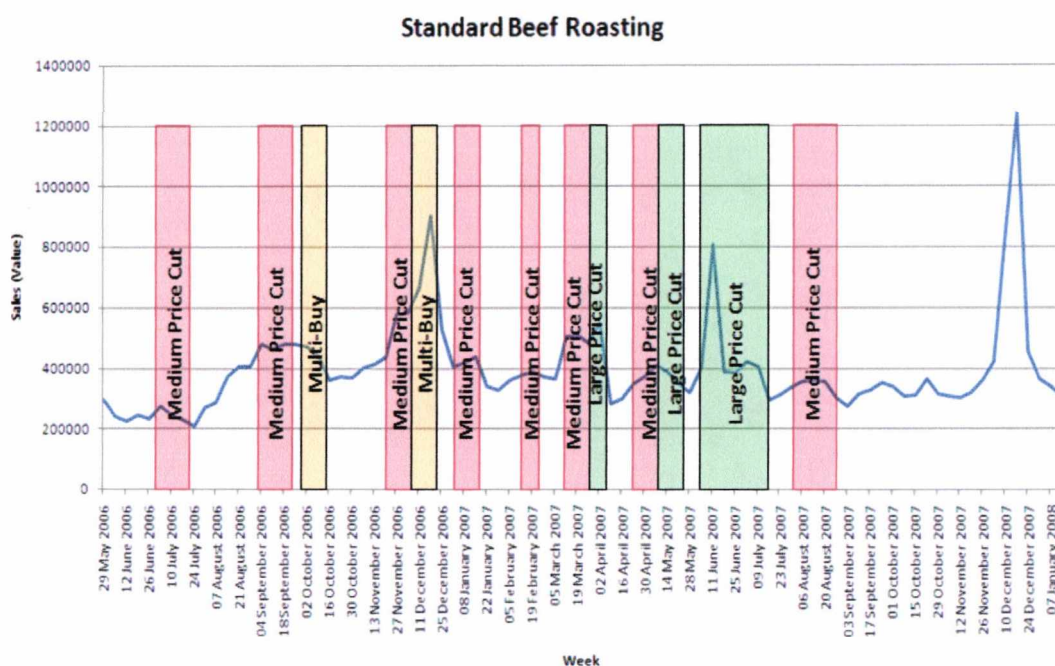
Table 5.3.6: Percentage of Standard Roasting Beef Sales occurring while on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

| <b>Standard Roasting Beef</b>               | <b>% Of Sales on Promotion</b> |
|---|--------------------------------|
| Fresh Beef TopSide/TopRump/SilverSide Joint | 47.85%                         |
| Fresh Beef Boneless Rolled Rib Roast Med    | 3.19%                          |
| Fresh Beef Bone In Rib Roast                | 12.58%                         |
| Fresh Beef Half Fillet                      | 0.00%                          |
| Fresh Beef Sirloin Joint                    | 0.00%                          |
| Fresh Brisket Slow Roast Medium             | 0.00%                          |

It was seen earlier in table 5.3.2 that promotions were most prevalent in the standard roasting beef category, with over 50% of sales being made while a promotion of some kind was running on standard roasting beef product. In Table 5.3.6 it can be seen that 47.9% of sales of standard beef topside/top rump/silverside joint occurs when a promotion on this product is running. This indicates that this product was the most heavily promoted in the standard roasting beef sub-group. Around 12.6% of sales of Bone-in-Rib Roast occurred while a promotion was running. The proportion of sales occurring while the Boneless Rolled Rib Roast product was on promotion is much lower at 3.2%, indicating this product was the least promoted of the three, or that promotions were least effective on this product.

The graph in Figure 5.3.1 shows the weekly sales value for the total standard roasting beef sub-group and indicates the periods of promotional activity over the time period. Standard roasting beef was very heavily promoted over the eighty six week time period, with medium price cuts being the most frequently used, although there were three periods of large price cuts and two multi-buy offers as well.

Figure 5.3.1: A Graph showing Sales for Standard Roasting Beef, indicating the periods of Promotional Activity



The graph shows that promotions were not always responsible for generating large uplifts in sales. During the week preceding Christmas in 2006, promotional activity took place, while none took place during the same week in 2007, yet both periods saw large sales uplifts. This indicates that sales of standard roasting beef are likely to increase significantly during Christmas, whether on promotion or not, and is an example of an external factor affecting sales other than promotions.

Referring back to Table 5.3.4, it can be seen that promotions account for about 17% of the variance in sales of standard roasting beef. The only promotions which were found to have a statistically significant effect on standard roasting beef sales were large price cuts and multi-buys on standard roasting beef, which created uplift in the sales value of the total category by 14.8% and 11% respectively. Although medium price cuts were used much more frequently, shoppers were more responsive to large price cuts and multi-buys which occurred far less frequently during the time period. This indicates that medium price cuts may not be deep enough to encourage an increase in consumption of standard roasting beef joints. It could also suggest that medium price cuts occur so frequently that shoppers were perhaps less responsive to them, instead waiting for better value promotions such as multi-buys and much larger price discounts.



### Premium Roasting Beef

The premium roasting beef sub-group is made up of five individual products. The products in this sub-group are all those which are labelled under the supermarket's premium tier brand 'Finest'. The individual products are listed in Table 5.3.7, alongside the share of total premium roasting beef sales each product accounts for.

Table 5.3.7: Share of Premium Roasting Beef Sales divided by individual product

| Premium Roasting Beef                                | Share of Premium Roasting Beef Sales |
|--|--------------------------------------|
| Finest Top Rump/TopSide/Silver Side Beef Joint Small | 59.49%                               |
| Finest Top Rump/TopSide/Silver Side Beef Joint Med   | 22.15%                               |
| Finest N/I Silverside Beef Joint                     | 11.14%                               |
| Finest Boneless Rib Roast                            | 7.03%                                |
| Finest Top Rump/TopSide/Silver Side Joint Large      | 0.19%                                |

As with the standard sub-group, those roasting joints which are topside, silverside or top rump are recorded under the same product number in the database, and therefore are treated as one individual product. In the case of the premium category, for topside/silverside/top rump joints there are in fact three different products depending upon the size of the pack. Small top rump/top side/silver side joints accounted for the largest share of premium roasting beef sales, at 59.5%, followed by medium joints which accounted for 22.2% of sales. Other premium products are Finest Northern Irish silverside joint (11% share of sales), Finest boneless rib roast (7%) and large top rump/ silverside/ top side joints (0.19%).

Of those products making up the Premium roasting beef category, promotions occurred on three of the five products. Table 5.3.8 shows the percentage of sales which occurred while promotions were taking place, at the product level within the premium roasting beef sub-group.

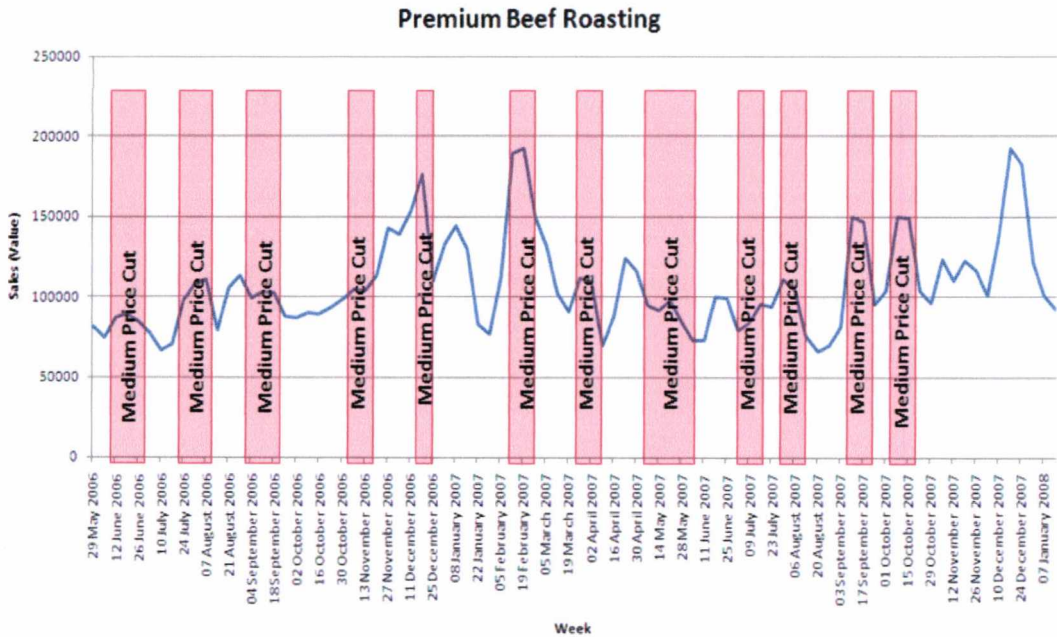
Table 5.3.8: Percentage of Premium Roasting Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

| <b>Premium Roasting Beef</b>                         | <b>% Of Sales on Promotion</b> |
|--|--------------------------------|
| Finest Top Rump/TopSide/Silver Side Beef Joint Small | 28.68%                         |
| Finest Top Rump/TopSide/Silver Side Beef Joint Med   | 18.41%                         |
| Finest Boneless Rib Roast                            | 9.95%                          |
| Finest N/I Silverside Beef Joint                     | 0.00%                          |
| Finest Top Rump/TopSide/Silver Side Joint Large      | 0.00%                          |

It can be seen that just over 28% of sales of small Finest topside/top rump/silverside joints occurred when a promotion on this product is running. This indicates that this product was the most heavily promoted of the premium roasting beef products. Around 18.4% of sales of medium Finest topside/top rump/silverside joints occurred while a promotion was running. The proportion of sales occurring while the Finest Boneless Rib Roast product was on promotion was lower at almost 10%.

The graph in Figure 5.3.2 shows the weekly sales for premium roasting beef, including the periods of promotional activity over the time period analysed. Premium roasting beef was very heavily promoted over the eighty six week time period, but medium price cuts were the only mechanism used. The reason for not using larger price discounting in a premium category may have been to avoid reducing the perceived value of the products in the eyes of loyal customers through larger discounts. As the graph shows, many of the promotions appear to have generated spikes in sales, however not all the spikes in sales are attributable to promotions.

Figure 5.3.2: A Graph showing Sales for Premium Roasting Beef, indicating the periods of Promotional Activity



Promotions account for about only 6% of the variance in the sales of premium roasting beef, as seen in the results in Table 5.3.4. As the sales graph (Figure 5.3.2) confirms, while most of the promotions appeared to generate an increase in sales, not all of them lifted sales significantly. There are also several periods of sales uplift, most notably around January 2007 and Christmas 2007, where sales increased significantly even though a promotion was not running. There were no promotions within the roasting beef category which were found to have a statistically significant impact on sales of premium roasting beef.

### Organic Roasting Beef

The organic roasting beef sub-group is made up of just two individual products. These products are those which are sold under the label of being organically produced. The individual products are listed in Table 5.3.9, alongside the share of total organic roasting beef sales each product accounts for.

Table 5.3.9: Share of Organic Roasting Beef Sales divided by individual product

| <b>Organic Roasting Beef</b>    | <b>Share of Organic Roasting Beef Sales</b> |
|---------------------------------|---|
| Organic Beef Roasting Joint     | 90.13%                                      |
| Organic Beef Brisket Slow Roast | 9.87%                                       |

It can be seen that the organic roasting joint accounted for 90.1% of total organic roasting beef sales. This product does not specify which specific roasting cut it is, so therefore it is likely that the same product number is used to encompass different cuts such as top side, top rump and silverside, depending upon the supply available. The organic brisket slow roast joint accounted for the remaining 9.9% share of sales.

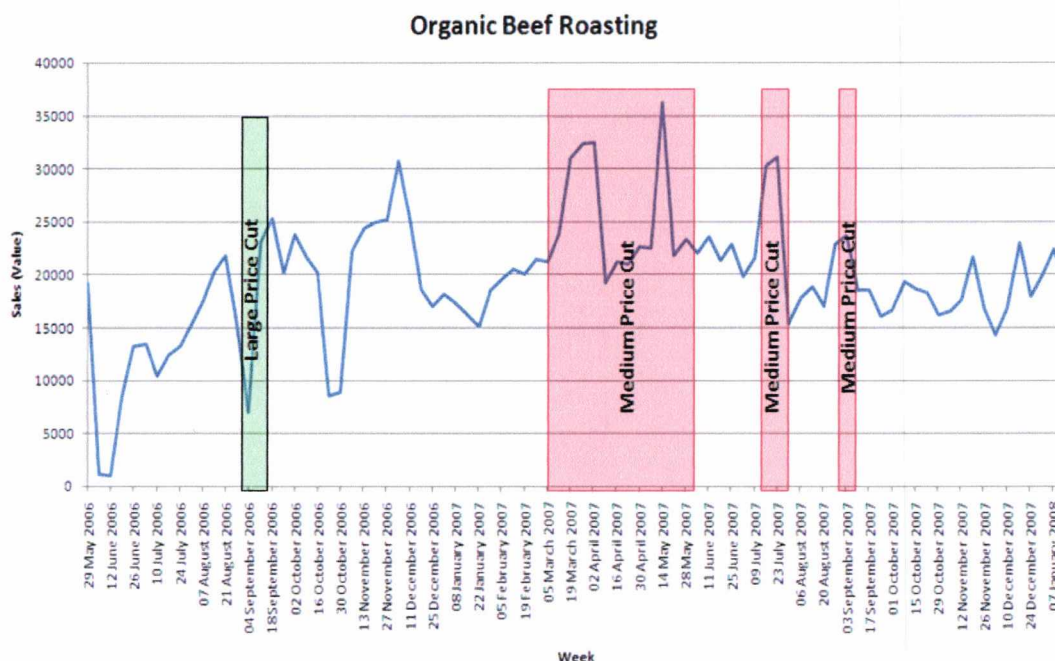
Of those products making up the organic roasting beef category, promotions only occurred on the organic roasting joint product. In Table 5.3.10 it can be seen that 26.7% of organic roasting beef joint sales occurred while promotions were taking place.

Table 5.3.10: Percentage of Organic Roasting Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

| <b>Organic Roasting Beef</b>    | <b>% Of Sales on Promotion</b> |
|---------------------------------|--------------------------------|
| Organic Beef Roasting Joint     | 26.71%                         |
| Organic Beef Brisket Slow Roast | 0.00%                          |

The graph in Figure 5.3.3 shows the weekly sales for organic roasting beef, indicating the periods of promotional activity over the time period. There were in total four promotions on organic roasting beef, three of which were medium price cuts and one being a large price cut. All the promotions lasted for a period of between two and three weeks, except for one medium price cut which lasted for a much longer period of twelve weeks. The graph shows that sales of organic roasting beef fluctuated considerably over the eighty six week period, and these fluctuations were not always in relation to promotions.

Figure 5.3.3: A Graph showing Sales for Organic Roasting Beef, indicating the periods of Promotional Activity



The results in table 5.3.4 show that roasting beef promotions account for just over 38% of the variance in sales of organic roasting beef, which is fairly high when compared with other roasting beef sub-groups. Medium price cuts on organic roasting beef were found to generate average uplifts in sales of 17.5%, which indicates that this is an effective form of promoting organic roasting beef. The response from shoppers to medium price cuts is sufficient to add value to the organic roasting beef sub-group. Large price cuts on organic roasting beef were not found to have a statistically significant impact on sales.

Also of statistical significance is the apparent uplift in sales of organic roasting beef due to promotions on standard roasting beef. Large price cuts and multi-buy promotions on standard roasting beef increased sales of organic roasting beef by 9.4% and 10.4% respectively. The reason for this apparent relationship is unclear, but may be due to promotional clashes. Large price cuts on standard roasting beef took place at the same time as medium price cuts on organic roasting beef, while one of the multi-buy promotions for standard roasting beef coincided with Christmas, when sales of organic beef were likely to be higher anyway. When promotions for standard and organic roasting beef clashed, some shoppers who normally purchased standard roasting beef may have decided to switch to

organic roasting beef as they could get a product with perceived better quality for a price within their budget.

### Speciality Roasting Beef

The speciality roasting beef sub-group is made up of five individual products. These products are all those which are simply either labelled as traditionally reared or specially selected, and therefore considered to be above the level of standard products, but neither at the premium or organic level. The individual products are listed in Table 5.3.11, alongside the share of total speciality roasting beef sales each product accounts for.

Table 5.3.11: Share of Speciality Roasting Beef Sales divided by individual product

| <b>Speciality Roasting Beef</b>  | <b>Share of Speciality Roasting Beef Sales</b> |
|----------------------------------|--|
| Trad Reared Beef Topside Joint   | 61.41%   |
| Specially Selected Ribeye Joint  | 16.29%   |
| Trad Reared Bone In Rib          | 10.09%   |
| Trad Reared Beef Brisket Joint   | 8.85%  |
| Specially Sel Boneless Rib Roast | 3.36%  |

The Traditionally Reared topside roasting joint accounted for the largest share of sales within the speciality roasting beef sub-group, with a share of 61.4%. The Specially Selected rib-eye joint accounted for the second largest share of sales, with 16.3% share. Traditionally Reared bone-in-rib and beef brisket joints accounted for 10.1% and 8.9% share of sales respectively. The product with the smallest share of sales was Specially Selected boneless rib roast joint, with just a 3.4% share.

Of those products making up the Speciality roasting beef category, promotions occurred on four of the five products. Table 5.3.12 shows the percentage of sales which occurred while promotions were taking place, at the product level within the speciality roasting beef sub-group.



Table 5.3.12: Percentage of Speciality Roasting Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

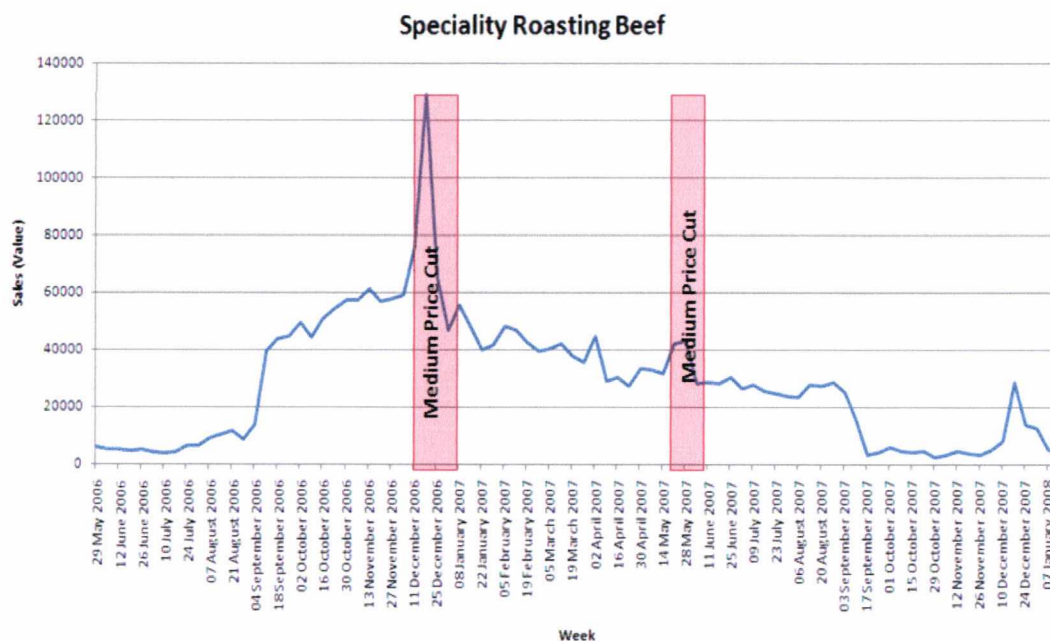
| <b>Specialty Roasting Beef</b>   | <b>% Of Sales on Promotion</b> |
|----------------------------------|--------------------------------|
| Trad Reared Beef Topside Joint   | 19.20%                         |
| Trad Reared Bone In Rib          | 15.56%                         |
| Specially Selected Ribeye Joint  | 13.31%                         |
| Trad Reared Beef Brisket Joint   | 4.97%                          |
| Specially Sel Boneless Rib Roast | 0.00%                          |

It can be seen that just over 19% of sales of Traditionally Reared beef topside joint sales occurred when a promotion on this product was running. For Traditionally Reared bone-in-rib and Specially Selected rib-eye joints 15.6% and 13.3% of sales occurred while promotions were running respectively. Just around 5% of sales of Traditionally Reared brisket joint occurred while promotions were running.

The graph in Figure 5.3.4 shows the weekly sales for speciality roasting beef, indicating the periods of promotional activity over the time period. There were two periods of promotional activity within this category, one of which coincided with the Christmas 2006 period, when traditionally sales would be expected to be higher anyway. Looking at the sales trends it is apparent that there was a significant boost in supply of these products in September 2006. Sales appear to have gradually declined since then, and supply significantly fell in September 2007.



Figure 5.3.4: A Graph showing Sales for Speciality Roasting Beef, indicating the periods of Promotional Activity



Roasting beef promotions accounted for 38.5% of the variance in sales of speciality roasting beef. The promotions on speciality roasting beef were found to increase sales value of the sub-group by just over 17%. This suggests that promotions were successful at driving sales within this sub-group, however as only medium price cuts took place it is impossible to know whether the response would have been different with smaller or larger price cuts.

Also found to be of statistical significance were medium price cuts and multi-buy offers on standard roasting beef, increasing sales of speciality roasting beef by 25.2% and 35.3% respectively. It is not clear why these promotions on standard roasting beef could have led to uplift in sales of speciality roasting beef, other than promotional periods coinciding across both categories. In this case it is quite possible that shoppers traded up from standard to a higher price tier product in response to a promotion, even if promotions were also running on standard products at the same time.

### Value Roasting Beef

The value roasting beef sub-group is made up only one product, which is simply labelled as 'Value Roasting Beef Joint' in the database. The 'Value' sub-group is the lowest

price tier, and is typically aimed towards price sensitive shoppers and those who are looking for value over the best quality.

No promotions took place within the value roasting beef sub-group, however promotions within the roasting beef category on other products accounted for almost 12% of the variance in sales. Table 5.3.4 shows that medium price cuts on premium roasting beef had a statistically significant, negative impact on the sales of value roasting beef. Sales of value roasting beef fell by 9.3% as a result of promotions in the premium sub-group. This result shows evidence of the shopper trading up from value to premium price level as a direct result of promotional activity. However, there is no statistically significant evidence to show value shoppers trading up to other tiers such as standard or organic.

#### 5.4 Minced Beef

The minced beef sub-group is made up of all the fresh beef products which are sold as mince. Mince is considered to be low involvement, 'core protein', because it can form the basis of many everyday meals. Most shoppers will have planned to buy a core protein like mince, but the meal occasion for which it will be used might not be planned. Such products are typically bought habitually and shoppers like to have the products at home ready for when they are needed. It is thought that multi-buy offers, which encourage people to buy extra volume, will be particularly effective on core products like mince, since the shopper will be confident they will be able to use the extra product (MLC, 2002).

The minced beef category is split into four different sub-groups or tier levels: Standard, Premium, Organic and Healthy. As with the other beef categories, each mince sub-group is made up of those individual products which belong to that particular tier. For example, each premium minced beef product collectively forms the premium minced beef sub-group. Table 5.4.1 shows the share of total minced beef sales each sub-group accounts for.

Table 5.4.1: Share of total Minced Beef Sales split by individual Minced Beef Sub-group

| <b>Sub-Group</b>     | <b>Share of Total Minced Beef Sales</b> |
|----------------------|---|
| Standard Minced Beef | 68.98%                                  |
| Healthy Minced Beef  | 14.69%                                  |
| Premium Minced Beef  | 12.19%                                  |
| Organic Minced Beef  | 4.15%                                   |

The standard minced beef sub-group, which contains the standard level supermarket own brand minced beef products, accounts for the largest share of sales, with a 69% share. Healthy minced beef is the second largest sub-group, with 14.7% share of total sales value, and contains products which are from the supermarkets healthier range, 'Healthy Living'. The premium sub-group accounts for 12.2% of total sales and contains those products which are sold under a premium label, including Tesco Finest. Organic minced beef is the smallest sub-group, accounting for just 4.15% of total sales value.

Promotions occurred within all of the four sub-groups over the time period analysed, making it one of the only beef categories where it was possible to analyse the impact of promotions within all sub-groups. Table 5.4.2 shows the proportion of minced beef sales which occurred while promotions were taking place, at both the total category level and sub-group level.

Table 5.4.2: Percentage of Minced Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

| <b>Category</b>      | <b>% Of Sales on Promotion</b> |
|----------------------|--------------------------------|
| All Minced Beef      | 39.00%                         |
| Standard Minced Beef | 54.67%                         |
| Premium Minced Beef  | 9.88%                          |
| Organic Minced Beef  | 3.47%                          |
| Healthy Minced Beef  | 19.91%                         |

In total almost 39% of total minced beef sales occurred while products were on promotion; a figure similar to that found in the roasting beef category. Promotions were most prevalent in the standard minced beef category where 54.7% of sales value was generated while a promotion of some kind was running on standard minced beef. Within the healthy minced beef sub-group almost 20% of sales occurred while healthy minced beef products were on promotion. Within the premium minced beef sub-group 9.9% of sales occurred while promotions were running and the organic minced beef category had the lowest percentage of sales occurring while promotions are running, at just 3.5%.

Table 5.4.3 shows the proportionate impact on sales for the minced beef category as a whole, with respect to the different promotional mechanisms present within the category over the time period. The types of promotion which took place in the minced beef category were medium and large price cuts, and multi-buy offers. As with the roasting beef category, small price cuts of less than 15% off the original price were not used in the minced beef category.

Table 5.4.3: Proportionate Impact on sales for the Minced Beef category with respect to different Promotional Mechanisms

| Promotional Mechanism | Proportionate Impact      |
|-----------------------|---------------------------|
|                       | Beef Mince                |
| Medium Price Cut      | -1.512                    |
| Large Price Cut       | -1.045                    |
| Multi-Buy             | <b>20.651<sup>^</sup></b> |
|                       |                           |
|                       | R-sq 0.1062               |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

Promotions on minced beef products account for only 10% of the total variance in sales within the minced beef category and only multi-buy offers were found to have a statistically significant impact on the sales value, creating uplift of 20.7%. Multi-buy offers are the most frequently used promotion mechanic within the minced beef category and previous research conducted by the MLC indicated that multi-buy offers are likely to be the most effective promotion for low involvement, core proteins such as mince (MLC, 2002). This is because the shopper will be more willing to stock up on mince since it can form the basis of many quick and easy weekday meals, it can be easily stored, as frozen, and the shopper knows they will use it up.

Table 5.4.4 shows the proportionate impact on sales for each minced beef sub-group with respect to different price promotions within the minced beef category.

Table 5.4.4: Proportionate Impact on sales for Minced Beef sub-groups with respect to different Price Promotions

| Promotional Mechanism               | Elasticity                |                            |                    |                           |
|-------------------------------------|---------------------------|----------------------------|--------------------|---------------------------|
|                                     | Standard Beef Mince       | Premium Beef Mince         | Organic Beef Mince | Healthy Beef Mince        |
| Premium Beef Mince Medium Price Cut | -2.242                    | <b>3.367<sup>^</sup></b>   | -3.181             | 1.877                     |
| Premium Beef Mince Multi-Buy        | 0.989                     | 2.032                      | -1.814             | 2.831                     |
| Standard Beef Mince Large Price Cut | -1.262                    | -0.176                     | -0.892             | -0.016                    |
| Standard Beef Mince Multi-Buy       | <b>20.059<sup>^</sup></b> | <b>-20.797<sup>^</sup></b> | 1.249              | -4.942                    |
| Organic Beef Mince Multi-Buy        | -0.695                    | -1.427                     | 2.056              | -0.006                    |
| Healthy Beef Mince Multi-Buy        | -1.656                    | -0.758                     | 4.771              | <b>27.795<sup>^</sup></b> |
|                                     |                           |                            |                    |                           |
| R-sq                                | 0.1641                    | 0.26                       | 0.1126             | 0.5438                    |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

The remainder of this section will look individually at the different minced beef sub-groups and will refer to the results in Table 5.4.4.

### Standard Minced Beef

The standard minced beef sub-group is made up of two individual products. These products are all those which are simply generic standard supermarket own-label products. The individual products are listed in Table 5.4.5, alongside the share of total standard minced beef sales each product accounts for.

Table 5.4.5: Share of Standard Minced Beef Sales divided by individual product

| Standard Minced Beef | Share of Standard Minced Beef Sales |
|----------------------|-------------------------------------|
| Beef Mince 500g      | 77.02%                              |
| Beef Mince 1Kg       | 22.98%                              |

The two standard minced beef products are essentially the same, but are different sized packs. Beef steak mince 500 grams is the product which accounts for the largest share of standard minced beef sales at 77%. The one kilogram pack therefore accounts for the

remaining 23% of sales. It can therefore be inferred that 500 grams is the most common and popular size pack for purchasing standard beef mince.

Of those products making up the Standard minced beef category, promotions occurred only on the 500 gram sized pack. Table 5.4.6 shows the percentage of sales which occurred while promotions were taking place at the product level within the standard minced beef sub-group

Table 5.4.6: Percentage of Standard Minced Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

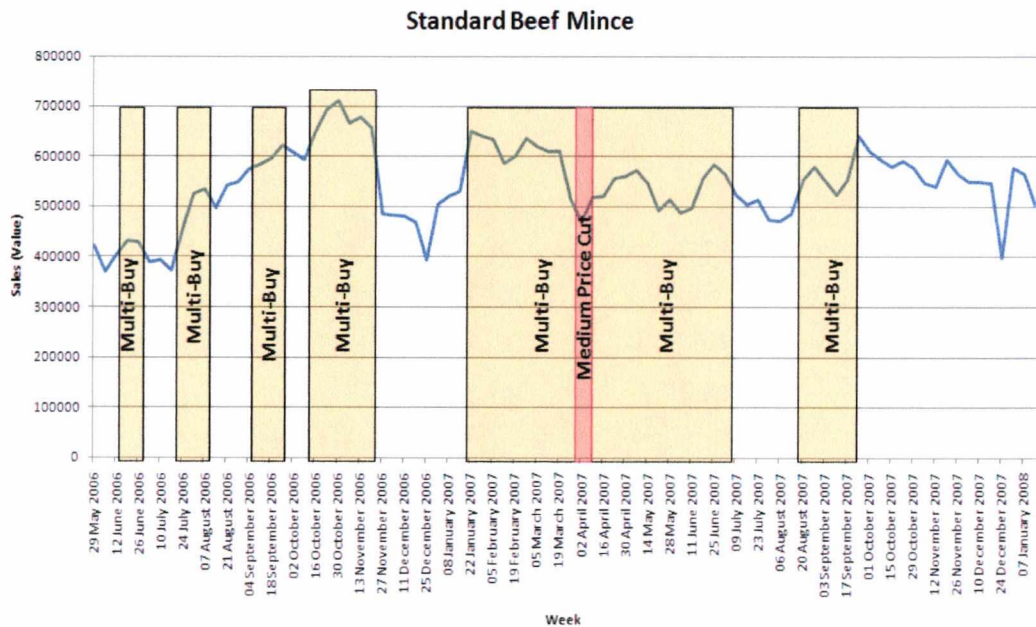
| <b>Standard Minced Beef</b> | <b>% Of Sales on Promotion</b> |
|-----------------------------|--------------------------------|
| Beef Mince 500g             | 45.90%                         |
| Beef Mince 1Kg              | 0.00%                          |

It was seen earlier in table 5.4.3 that promotions were most prevalent in the standard minced beef category, with almost 55% of total sales being made while a promotion of some kind was running on standard minced beef. In Table 5.4.6 it can be seen that 46% of the sales of standard beef mince (500 grams) occur when a promotion on this product is running. This is very high, but not unexpected since this product accounted for the largest share of standard beef mince sales and it has already been seen that 55% of total standard beef sales occurred when a promotion was running.

The graph in Figure 5.4.1 shows the weekly sales value for the total standard minced beef sub-group and indicates the periods of promotional activity over the time period. Standard minced beef was frequently promoted over the eighty six week time period, with multi-buy promotions being the main mechanism used.



Figure 5.4.1: A Graph showing Sales for Standard Minced Beef, indicating the periods of Promotional Activity



The graph shows that there was a long period between January and July 2007 where standard minced beef was on promotion constantly. There was only one other promotion aside from multi-buy offers - a medium price cut - which occurred in between two long term periods of multi-buy. From the graph it appears that sales dipped during the medium price cut, which is an indication that this type of promotion is therefore not as effective as a multi-buy on standard minced beef.

Referring back to Table 5.4.4, it can be seen that promotions account for about 16.4% of the variance in sales of standard minced beef. The only promotion which was found to have a statistically significant effect on standard minced beef sales were multi-buys on standard minced beef, which increased sales value by 20%. This result was to be expected, since multi-buys are used very frequently and it is in line with the suggestion that multi-buys are most effective on 'core proteins' like mince (MLC, 2002). The high frequency of multi-buy offers may be encouraging shoppers to wait for offers and stock pile when they occur. If this is the case, the overall category value could increase if fewer promotions were run, since shoppers would then be forced to buy the product at standard price more often. Standard minced beef sales were not found to be influenced by any other minced beef promotions.



### Premium Minced Beef

The premium minced beef sub-group is made up of four individual products. These products are all those which are sold under a premium label, including Finest. The individual products are listed in Table 5.4.7, alongside the share of total premium minced beef sales each product accounts for.

Table 5.4.7: Share of Premium Minced Beef Sales divided by individual product

| <b>Premium Minced Beef</b>          | <b>Share of Premium Minced Beef Sales</b> |
|-------------------------------------|---|
| Finest Ground Beef Mince 500G       | 38.81%                                    |
| Scot Reared Premium Beef Mince 500G | 28.13%                                    |
| Scot Reared Premium Beef Mince 800G | 31.32%                                    |
| Finest Ground Steak Mince 340G      | 1.74%                                     |

Finest ground beef mince (500 gram) accounts for the largest share of sales at 38.8%. Scot Reared premium beef mince 500 gram and 800 gram packs account for 28.1% and 31.3% share respectively. Finest ground steak mince (340 grams) accounts for just 1.7% of sales.

Of those products making up the premium minced beef category, promotions occurred on all products except Finest ground steak mince (340 gram). Table 5.4.8 shows the percentage of sales which occurred while promotions were taking place at the product level within the premium minced beef sub-group

Table 5.4.8: Percentage of Premium Minced Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

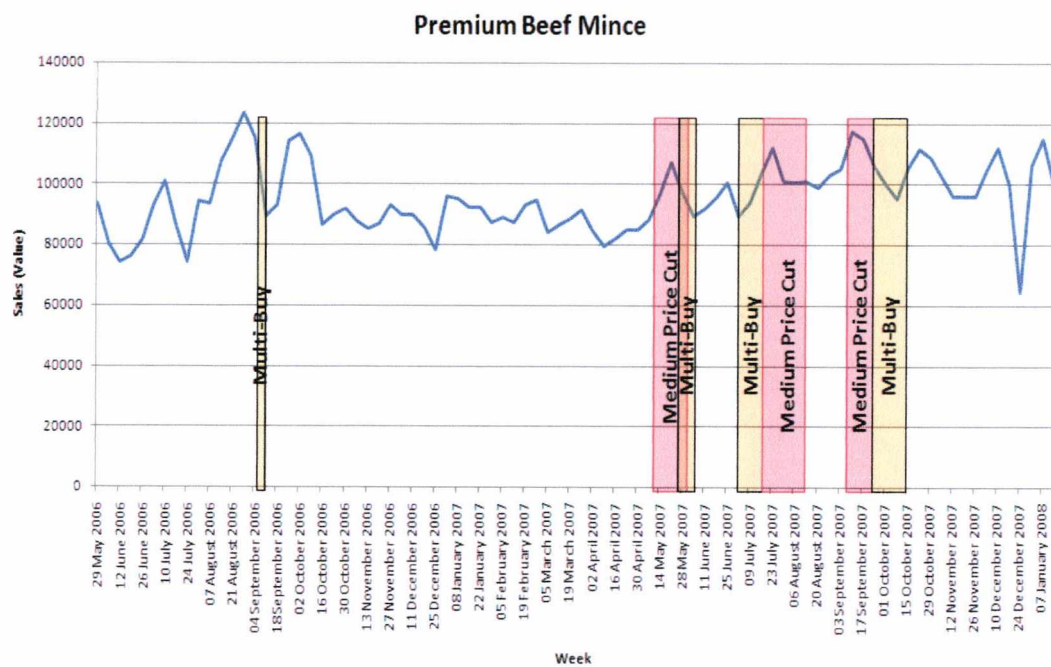
| <b>Premium Minced Beef</b>          | <b>% Of Sales on Promotion</b> |
|-------------------------------------|--------------------------------|
| Finest Ground Beef Mince 500G       | 10.83%                         |
| Scot Reared Premium Beef Mince 500G | 9.71%                          |
| Scot Reared Premium Beef Mince 800G | 9.47%                          |
| Finest Ground Steak Mince 340G      | 0.00%                          |

It was seen earlier in table 5.4.3 that just 9.9% of total premium minced beef sales occurred while a promotion of some kind was running on premium minced beef. In Table 5.4.8 it can be seen that 10.8% of the sales of Finest ground beef mince (500 grams) occurred

while a promotion on this product was running. The figure was not much lower for Scot Reared premium beef mince products, with 9.7% of the 500 gram pack sales occurring when a promotion was running and 9.5% for the 800 gram pack. The proportion of sales generated while promotions were running are fairly low, particularly when compared to the standard minced beef category, indicating that promotions may either be less frequent or less effective in the premium minced beef category.

The graph in Figure 5.4.2 shows the weekly sales value for the total premium minced beef sub-group and indicates the periods of promotional activity over the time period. A mixture of both multi-buy offers and medium price cuts were used within this sub-group.

**Figure 5.4.2: A Graph showing Sales for Premium Beef Mince, indicating the periods of Promotional Activity**



The graph shows that promotions within this category were very interspersed across the eighty six week period. There was a single multi-buy promotion in September 2006, followed by a long period with no promotional activity. From May to October 2007 promotions were used more frequently. From the graph it is evident that there were many other factors influencing sales, since there are many sales 'spikes' which occur without any promotional activity taking place. However, it does seem apparent that sales do also increase when promotions occur, particularly in the case of medium price cuts.

Referring back to Table 5.4.4, it can be seen that promotions account for about 26% of the variance in sales of premium minced beef. The only promotion on premium minced beef which was found to have a statistically significant effect on premium minced beef sales were medium price cuts, which increased sales value overall by around 3.5%. This result contradicts those findings of the standard minced beef sub-group, where multi-buys offers were found to be the most effective form of promotion. This finding suggests that those perhaps more affluent shoppers, to whom premium products are more likely to appeal to, may not respond so favourably to multi-buy promotions.

Aside from premium minced beef promotions, also of statistical significance was the impact of multi-buy promotions of standard minced beef on the sales of premium minced beef. Sales of premium minced were found to fall 20.8% directly as a result of standard mince being promoted. This shows evidence of substitution taking place due to promotions, and contradicts the theories of asymmetric brand switching which suggest that shoppers will trade up a price tier due to promotions, but not down (Krishnamurthi and Raj, 1991).

### **Organic Minced Beef**

The organic minced beef sub-group is made up of three individual products, each produced by organic farming techniques and sold under the organic label. The individual products are listed in Table 5.4.9, alongside the share of total organic minced beef sales each product accounts for.

Table 5.4.9: Share of Organic Minced Beef Sales divided by individual product

| <b>Organic Minced Beef</b>         | <b>Share of Organic Minced Beef Sales</b> |
|------------------------------------|---|
| Organic Beef Mince 500g            | 64.07%                                    |
| Organic Extra Lean Beef Mince 500g | 8.05%                                     |
| Organic Steak Mince 500g           | 27.87%                                    |

The three different organic beef products all come in the same 500 gram size pack. Organic beef mince is the largest sub-group with 64% share of sales. Organic steak mince has

the second largest share of sales at 27.9% and organic extra lean beef mince has the smallest share at 8%.

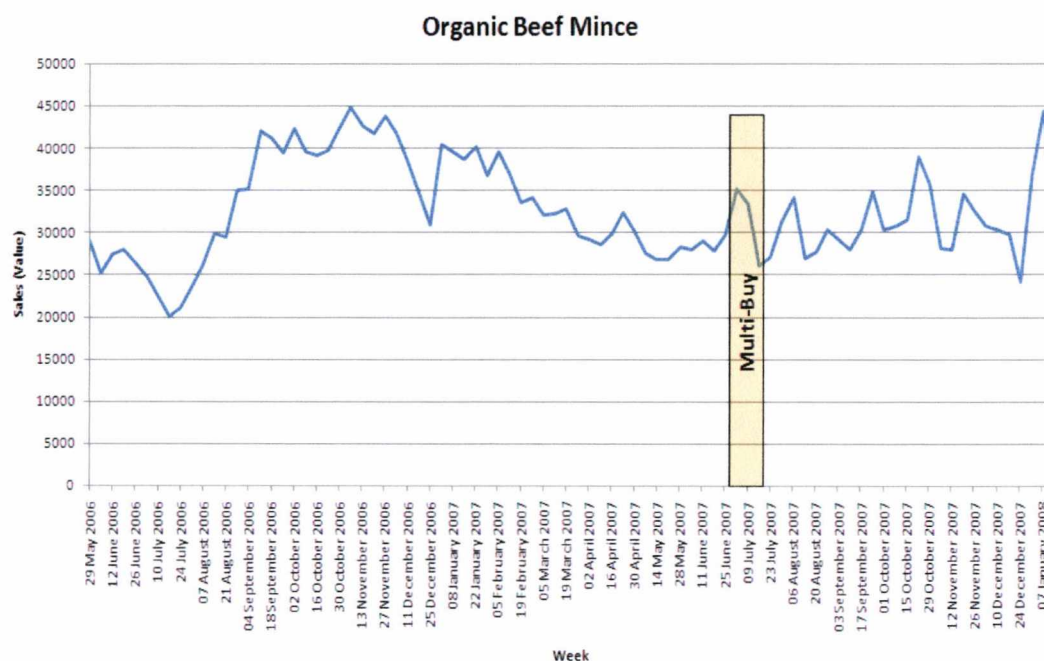
Of those products making up the organic minced beef category, promotions occurred only on the organic beef mince product, not the steak mince or extra lean mince products. Table 5.4.10 shows the percentage of sales which occurred while promotions were taking place at the product level within the organic minced beef sub-group.

Table 5.4.10: Percentage of Organic Minced Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

| <b>Organic Minced Beef</b>         | <b>% Of Sales on Promotion</b> |
|------------------------------------|--------------------------------|
| Organic Beef Mince 500g            | 5.52%                          |
| Organic Extra Lean Beef Mince 500g | 0.00%                          |
| Organic Steak Mince 500g           | 0.00%                          |

Previously it was seen in Table 5.4.3 that just 3.5% of total organic minced beef sales occurred while a promotion of some kind was running within the organic minced beef sub-group. In Table 5.4.10 it can be seen that 5.52% of the sales of organic beef mince (500 grams) occurred while a promotion on this particular product was running. This is a fairly low proportion of sales occurring on promotion; however this is attributable to the fact that only one promotion took place during the whole time period analysed. The graph in Figure 5.4.3 shows the weekly sales value for organic minced beef and highlights when the promotional activity took place over the time period.

Figure 5.4.3: A Graph showing Sales for Organic Beef Mince, indicating the periods of Promotional Activity



The only promotion which occurred was a multi-buy promotion which took place over 4 weeks from late June to mid July 2007. From the graph it can be seen that sales appear to fluctuate a lot within the sub-group irrespective of promotions on organic minced beef itself.

Referring back to Table 5.4.4, it can be seen that promotions across the minced beef category accounted for only 11% of the variance in sales within the organic minced beef sub-group. There were no promotions within the minced beef category which were found to have a statistical impact on sales of organic minced beef. This finding is not unsurprising since there was only one promotion occurring on organic minced beef over the time period studied. However, the results do reveal that organic minced beef shoppers are not responsive to promotions on other minced beef sub-groups, as they do not appear to switch their purchases towards other minced beef products when they are promoted. This suggests that organic shoppers are loyal to the organic 'brand'.

### Healthy Minced Beef

The healthy minced beef sub-group contains just one individual product; Healthy Living Steak Mince (500 gram). This product is from the supermarket's healthier own-brand range,



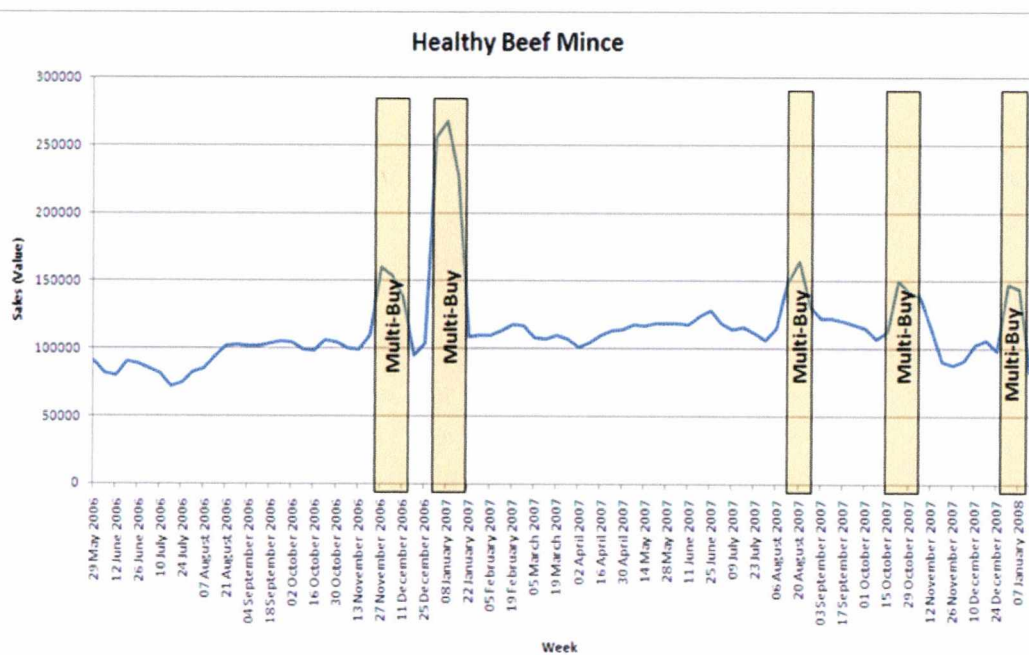
and will be leaner than the standard version of the product. From Table 5.4.11, below, it can be seen that 19.9% of healthy minced beef sales occurred while a promotion was taking place.

Table 5.4.11: Percentage of Healthy Minced Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

| Healthy Minced Beef  | % Of Sales on Promotion |
|----------------------|-------------------------|
| H/L Steak Mince 500g | 19.91%                  |

The graph in Figure 5.4.4 shows the weekly sales value for the healthy minced beef sub-group and indicates the periods of promotional activity over the time period. Multi-buy offers were the only type of promotion used in this sub-group, taking place over five separate occasions.

Figure 5.4.4: A Graph showing Sales for Healthy Beef Mince, indicating the periods of Promotional Activity



From the graph it is clear multi-buy promotions have an impact of sales, as indicated by the sales spikes which occur each time a promotion is running. Weekly sales outside of the promotional periods were fairly steady throughout the eighty six week period. The promotion

after Christmas in 2006 and leading into January 2007 appears to have been particularly successful as sales value increased substantially. This is probably due to shoppers wanting to be healthy in the New Year following the traditional over-indulgence at Christmas. Therefore a promotion on healthy minced beef would have attracted these shoppers trying to be healthier in January.

Referring back to Table 5.4.4, it can be seen that promotions account for about 54.4% of the variance in sales of healthy minced beef. Multi-buy promotions on healthy minced beef were found to have a statistically significant and positive impact on sales of healthy minced beef, increasing value of the sub-group by 27.8%. This result provides more evidence towards the theory that multi-buys offers are a very effective form of promotion on core meat products like mince. However, since no price cuts took place within the healthy minced beef sub-group, it is not possible to determine whether multi-buys are more effective than price cuts.

### **5.5 Fry/Grilling Beef**

The fry/grilling beef sub-group is made up of all the fresh beef cuts for which the main use or cooking method is to fry or grill. These products mainly include steaks, such as rump, sirloin and fillet. Like roasting joints, fry/grilling cuts are considered to be key occasion meats, in that the consumer will have the occasion in mind when choosing the product but not necessarily the species of meat or the specific cut. Therefore promotions amongst other things could have a significant impact on shoppers' ultimate purchase decision. As with other key occasion meats, it can therefore be hypothesised that shoppers will be more likely to respond better to price cuts than multi-buys when deciding which fry/grilling product to buy.

Products in the fry/grilling beef category were split into four different sub-groups or tier levels: Standard, Premium, Organic, and Value. As with the other beef categories, each fry/grilling sub-group is made up of those individual products which belong to that particular tier. Table 5.5.1 shows the share of total fry/grilling beef sales each sub-group accounts for.



Table 5.5.1: Share of total Fry/Grilling Beef Sales split by individual Fry/Grilling Beef Sub-group

| <b>Sub-Group</b>           | <b>Share of Total Fry/Grilling Beef Sales</b> |
|----------------------------|---|
| Standard Fry/Grilling Beef | 69.82%  |
| Premium Fry/Grilling Beef  | 19.45%  |
| Value Fry/Grilling Beef    | 9.51%   |
| Organic Fry/Grilling Beef  | 4.23%   |

The standard fry/grilling sub-group, which contains the standard level supermarket own brand fry/grilling products, accounts for the largest share of sales, with a 69.8% share. This is very similar to both the mince and roasting categories, where the standard tier also accounts for approximately 69% of total sales in each. Premium fry/grilling beef is the second largest sub-group, with 19.5% share of total fry/grilling beef sales. Value fry/grilling beef is the third largest sub-group, with share of sales of 9.5%. The value category is the lowest price tier, containing those products which offer the cheapest price to shoppers but may compromise on some aspects of the quality. The organic sub-group is the smallest, with 4.2% share.

Promotions occurred within all of the four sub-groups over the time period analysed, making it the only other beef category, alongside mince, where it was possible to analyse the impact of promotions within all sub-groups. Table 5.5.2 shows the proportion of fry/grilling beef sales which occurred while promotions were taking place, at both the total category level and sub-group level.

Table 5.5.2: Percentage of Fry/Grilling Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

| <b>Category</b>            | <b>% Of Sales on Promotion</b> |
|----------------------------|--------------------------------|
| All Fry/Grilling Beef      | 16.70%                         |
| Standard Fry/Grilling Beef | 17.61%                         |
| Premium Fry/Grilling Beef  | 23.32%                         |
| Organic Fry/Grilling Beef  | 12.44%                         |
| Value Fry/Grilling Beef    | 3.92%                          |

In total 16.7% of total fry/grilling beef sales occurred while products were on promotion, which is much lower than in the mince and roasting categories. Unlike the mince and roasting categories, it was the premium fry/grilling sub-group for which the greatest proportion of sales occurred while on promotion. Over 23% of premium fry/grilling beef sales occurred while promotions were running, compared to just 17.6% of standard fry/grilling beef sales. This suggests that promotions may be more effective in the premium sub-group than standard, or it may be because premium fry/grilling products are on promotion more often than standard products.

Within the organic fry/grilling beef sub-group 12.4% of sales occurred while organic products were on promotion. The value fry/grilling beef category had the lowest percentage of sales occurring while promotions were running, at just 3.9%, indicating promotions were not as frequent or as effective as other fry/grilling beef sub-groups. The literature review revealed that while shoppers will trade up to take advantage of promotions, they are unlikely to trade down to lower price tiers (Krishnamurthi and Raj, 1991; Martínez-Ruiz *et al.*, 2006a). It is less common to find value products on promotion because generally retailers are trying to encourage shoppers to move up from value to standard or premium level products. Only a very small percentage of sales of value fry/grilling products occurred while on promotion, indicating that either these promotions were not effective or that they were not very frequent.

Table 5.5.3 shows the proportionate impact on sales for the fry/grilling beef category as a whole, with respect to the different promotional mechanisms present within the category over the time period. All four types of promotional mechanism occurred within the fry/grilling beef category.

Table 5.5.3: Proportionate Impact on sales for the Fry/Grilling Beef category with respect to different Promotional Mechanisms

| Promotional Mechanism | Proportionate Impact      |
|-----------------------|---------------------------|
|                       | Fry/Grilling Beef         |
| Small Price Cut       | 0.535                     |
| Medium Price Cut      | <b>19.264<sup>^</sup></b> |
| Large Price Cut       | 2.174                     |
| Multi-Buy             | 0.832                     |
|                       |                           |
| R-sq                  | 0.3797                    |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

Promotions on fry/grilling beef products account for 38% of the total variance in sales within the fry/grilling beef category. This is the highest r-squared value of the four beef categories, suggesting that promotions were most important within the fry/grilling category. Only medium price cuts were found to have a statistically significant impact on the sales value, leading to sales uplift of 19.3 %. This supports the theory that price cuts are more effective than multi-buys on high involvement products such as fry/grilling cuts.

Table 5.5.4 shows the proportionate impact on sales for each fry/grilling beef sub-group with respect to different price promotions within the category.

Table 5.5.4: Proportionate Impact on sales for Fry/Grilling Beef sub-groups with respect to different Price Promotions

| Promotional Mechanism                       | Elasticity                 |                           |                           |                           |
|---|----------------------------|---------------------------|---------------------------|---------------------------|
|   | Standard Beef Fry/Grilling | Premium Beef Fry/Grilling | Organic Beef Fry/Grilling | Value Beef Fry/Grilling   |
| Premium Fry/Grilling Beef Small Price Cut   | <b>1.204<sup>^</sup></b>   | 0.277                     | <b>1.478<sup>^</sup></b>  | 0.504                     |
| Premium Fry/Grilling Beef Medium Price Cut  | <b>9.704<sup>^</sup></b>   | <b>6.921<sup>^</sup></b>  | -2.139                    | <b>16.731<sup>^</sup></b> |
| Premium Fry/Grilling Beef Large Price Cut   | 0.604                      | <b>5.619<sup>^</sup></b>  | <b>-6.852<sup>^</sup></b> | <b>7.864<sup>^</sup></b>  |
| Standard Fry/Grilling Beef Small Price Cut  | <b>0.527<sup>^</sup></b>   | 0.313                     | 0.709                     | -0.243                    |
| Standard Fry/Grilling Beef Medium Price Cut | 5.768                      | 1.740                     | -5.236                    | <b>11.021<sup>^</sup></b> |
| Standard Fry/Grilling Beef Large Price Cut  | -1.451                     | 1.448                     | -0.868                    | 4.032                     |
| Standard Fry/Grilling Beef Multi-Buy        | 0.214                      | -1.515                    | 0.807                     | -2.363                    |
| Organic Fry/Grilling Beef Small Price Cut   | <b>-0.812<sup>^</sup></b>  | -0.451                    | 0.811                     | -0.386                    |
| Organic Fry/Grilling Beef Medium Price Cut  | <b>2.276<sup>^</sup></b>   | <b>-2.243<sup>^</sup></b> | <b>7.580<sup>^</sup></b>  | 1.003                     |
| Organic Fry/Grilling Beef Large Price Cut   | -0.334                     | -0.855                    | 2.967                     | 0.050                     |
| Value Fry/Grilling Beef Small Price Cut     | -0.364                     | 0.210                     | 0.540                     | 0.239                     |
| Value Fry/Grilling Beef Medium Price Cut    | 1.020                      | <b>1.120<sup>^</sup></b>  | -0.097                    | 0.800                     |
|   |                            |                           |                           |                           |
| R-Sq  | 0.5665                     | 0.4648                    | 0.3411                    | 0.4436                    |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

The remainder of this section will look individually at the different fry/grilling beef sub-groups and will refer to the results in Table 5.5.4.

### Standard Fry/Grilling Beef

The standard fry/grilling beef sub-group is made up of five individual products. These products are all those which are simply generic standard supermarket own-label products. The individual products are listed in Table 5.5.5, alongside the share of total standard fry/grilling beef sales each product accounts for.

Table 5.5.5: Share of Standard Fry/Grilling Beef Sales divided by individual product

| <b>Standard Fry/Grilling Beef</b> | <b>Share of Standard Fry/Grilling Beef Sales</b> |
|-----------------------------------|--|
| Fresh Beef Rump Steak             | 30.44%   |
| Fresh Minute Beef Steak           | 1.44%  |
| Fresh Sirloin Steak               | 37.38%   |
| Fresh Thin Beef Steak             | 19.87%   |
| Fresh Fillet Beef Steak           | 10.86%   |

The five different fry/grilling products are each different types of steak. Sirloin steak accounts for the largest share of sales at 37.4%. Rump steak is the second largest product, with share of sales of 30.4%. Other standard products are thin beef steak, with 19.9% share of sales, Fillet steak with 10.9% share, and Minute steak with just 1.4% share of sales.

Of those products making up the standard fry/grilling beef sub-group, promotions occurred on all except the fillet steak. Table 5.5.6 shows the percentage of sales which occurred while promotions were taking place at the product level within the standard fry/grilling sub-group

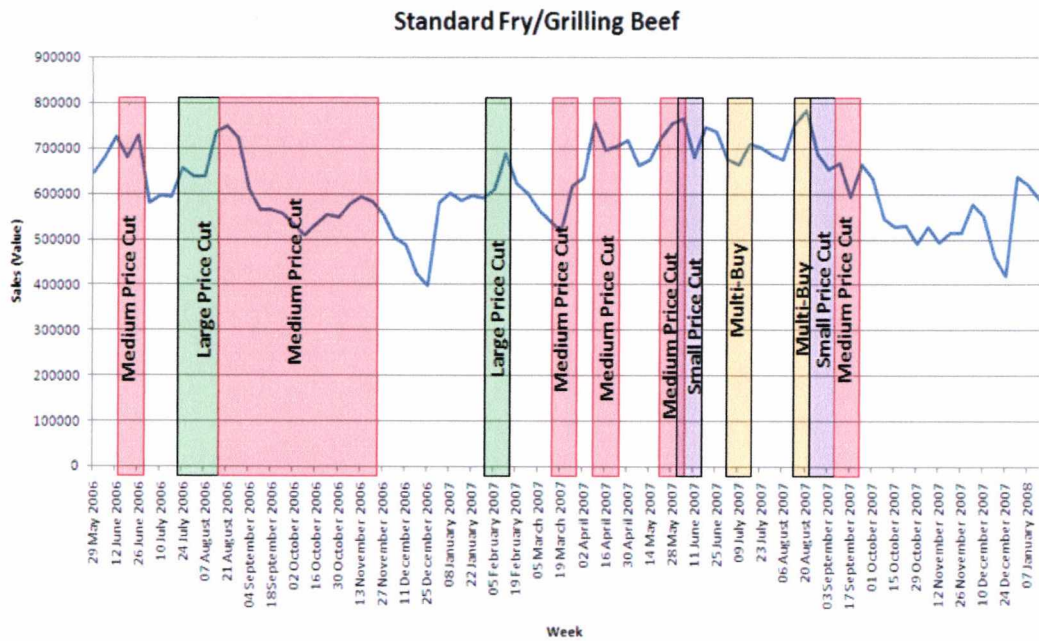
Table 5.5.6: Percentage of Standard Fry/Grilling Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

| <b>Standard Fry/Grilling Beef</b> | <b>% Of Sales on Promotion</b> |
|-----------------------------------|--------------------------------|
| Fresh Beef Rump Steak             | 20.43%                         |
| Fresh Minute Beef Steak           | 74.85%                         |
| Fresh Sirloin Steak               | 11.17%                         |
| Fresh Thin Beef Steak             | 17.61%                         |
| Fresh Fillet Beef Steak           | 0.00%                          |

From the results in Table 5.5.6 it can be seen that almost 75% of sales of minute steak occurred while a promotion on this product was running, which suggests that either the product was on promotion very frequently or that promotions were very effective at driving sales, or both. Of the other products which were promoted, 20.4% of rump steak sales, 17.6% of thin beef steak sales, and 11.2% of sirloin steak sales occurred while on promotion.

The graph in Figure 5.5.1 shows the weekly sales value for the total standard fry/grilling beef sub-group and indicates the periods of promotional activity over the time period. Standard fry/grilling beef was frequently promoted over the eighty six week time period, with a mixture of price cuts and multi-buys.

Figure 5.5.1: A Graph showing Sales for Standard Fry/Grilling Beef, indicating the periods of Promotional Activity



The graph shows that there was an extended period between July and November 2006 where promotions were continuously running on standard fry/grilling products. For the most part this was a medium price cut. However, this does not mean the same product was on promotion for the whole period. In fact different products were on promotion at separate times between July and November 2006, but they ran consecutively one after the other. As the graph shows the aggregate of when promotions were running for the whole standard fry/grilling beef sub-group, rather than individual products, it appears that the same promotion was running for a long period of time.

Referring back to Table 5.5.4, it can be seen that promotions accounted for about 57% of the variance in sales of standard fry/grilling beef. This is high compared to the findings in many other sub-groups, and indicates the significant impact of promotions on sales value

within the fry/grilling category. Interestingly the results imply that it was promotions within other fry/grilling sub-groups which had more of an impact on sales of standard products, than promotions within the standard sub-group itself. The only standard fry/grilling promotion to have a statistically significant effect on sales were small price cuts, however the proportionate impact is relatively low, generating sales uplift of less than 1%.

The results indicate that small and medium price cuts on premium fry/grilling cuts increase sales of standard fry/grilling cuts by 1.2% and 9.7% respectively. This is an unusual result, since it is unclear why a promotion within one sub-group would increase sales within another, when the products are substitutes. The result is even more unusual because it indicates shoppers may be trading down to standard products from premium. The most likely explanation is that promotions frequently clashed in the standard and premium sub-groups, and it appears this is the case here, since both the standard and premium fry/grilling sub-groups were heavily promoted.

Also of statistical significance were the effects of promotions within the organic sub-group on sales of standard fry/grilling products. Small price reductions on organic fry/grilling cuts were found to decrease sales of standard cuts by 0.8%. However, medium price reductions on organic cuts were found to have a positive impact on the standard sub-group, increasing sales by 2.3%. The reason for this is unclear, but may be a result of clashes in promotional activity across both sub-groups. The finding that small price cuts within the organic sub-group decreases sales of standard products by 0.8% does show evidence of shoppers trading up due to promotions. However, this evidence is diluted by the effect of medium price cuts, which have the opposite effect. Another explanation may be that supplies of organic fry/grilling beef ran low due to the popularity of the medium price reductions, and so regular purchasers had to find an alternative such as standard products.

### **Premium Fry/Grilling Beef**

The premium fry/grilling beef sub-group is made up of seven individual products, all of which are from the supermarkets own-label premium range, 'Finest'. The individual products are listed in Table 5.5.7, alongside the share of total premium fry/grilling beef sales each product accounts for.



Table 5.5.7: Share of Premium Fry/Grilling Beef Sales divided by individual product

| <b>Premium Fry/Grilling Beef</b> | <b>Share of Premium Fry/Grilling Beef Sales</b> |
|----------------------------------|---|
| Finest Ribeye Steak              | 17.59%  |
| Finest Fillet Steak              | 21.26%  |
| Finest Sirloin Steak             | 37.39%  |
| Finest Rump Steak                | 18.74%  |
| Finest Frying Steak              | 0.62%   |
| Finest Beef Olive Steak          | 0.79%   |
| Finest Beef Medallion Steak      | 3.61%   |

Finest sirloin steak accounts for the largest share of sales at 37.4%. Sirloin steak was also the largest product in the standard fry/grilling sub-group and similarly had a 37.4% share of sales. Finest fillet steak is the second largest product, with share of sales of 21.3%. Other premium fry/grilling products include Finest rump steak (18.7% share), Finest rib-eye steak (17.6% share), and Finest beef medallion steak (3.6% share). Finest frying steak and beef olive steak each account for a much smaller share of sales; with less than 1% each.

Of those products making up the premium fry/grilling beef sub-group, promotions occurred on all products except the two smallest products, in terms of share of sales; Finest olive steak and Finest medallion steak. Table 5.5.8 shows the percentage of sales which occurred while promotions were taking place at the product level within the premium fry/grilling sub-group.

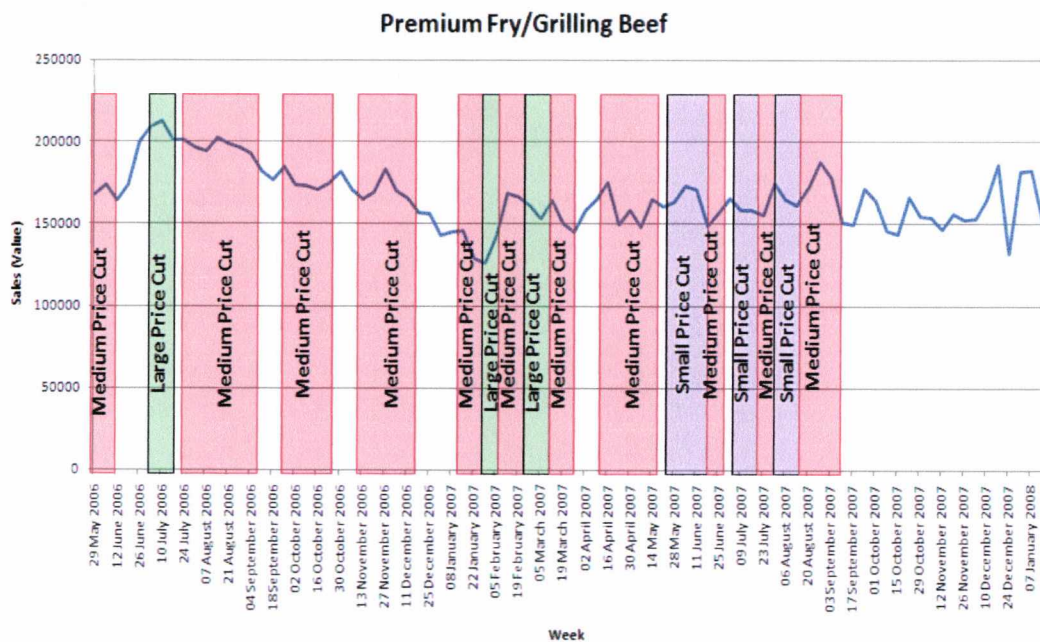
Table 5.5.8: Percentage of Premium Fry/Grilling Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

| <b>Premium Fry/Grilling Beef</b> | <b>% Of Sales on Promotion</b> |
|----------------------------------|--------------------------------|
| Finest Ribeye Steak              | 5.76%                          |
| Finest Fillet Steak              | 6.07%                          |
| Finest Sirloin Steak             | 26.03%                         |
| Finest Rump Steak                | 35.12%                         |
| Finest Frying Steak              | 47.02%                         |
| Finest Beef Olive Steak          | 0.00%                          |
| Finest Beef Medallion Steak      | 0.00%                          |

The results in Table 5.5.8 show that the products with the largest percentage of sales occurring while promotions were running were Finest frying steak, Finest rump steak and Finest sirloin steak. As much as 47% of sales of Finest frying steak occurred while on promotion, suggesting it was either the product most heavily promoted or most responsive to promotions of all the premium fry/grilling products. Of the other products, a much smaller percentage of sales occurred while a promotion was running; just 5.8% of rib-eye steak sales, and 6.1% of fillet steak sales.

The graph in Figure 5.5.2 shows the weekly sales value for the premium fry/grilling beef sub-group and highlights the periods of promotional activity over the time period. Premium fry/grilling beef was very heavily promoted over the eighty six week time period, with a mixture of small, medium and large price cuts.

Figure 5.5.2: A Graph showing Sales of Premium Fry/Grilling Beef, indicating the periods of Promotional Activity



From the graph it can be seen that the premium fry/grilling beef sub-group was very heavily promoted, mainly by way of medium price cuts. It is important to note that although at the sub-group level promotions were running very frequently, the individual products themselves were all promoted at different times and much less frequently. Therefore there is the strong possibility that shoppers within the premium fry/grilling sub-group would have switched between cuts depending what was on offer at the time. However, if shoppers were

simply switching between cuts depending upon what was on promotion this would have reduced the impact of promotions on the overall value of the premium fry/grilling sub group.

Referring back to Table 5.5.4, it can be seen that promotions account for 46% of the variance in sales of premium fry/grilling beef. This suggests that while promotions are quite important, there are also many other factors influencing the sales of premium fry/grilling beef products. Both medium and large price cuts within the premium fry/grilling sub-group were found to have a statistically significant impact on sales of premium fry/grilling beef. Medium price cuts generated the strongest uplift in sales value, of just under 7%. Large price cuts had a slightly smaller impact, increasing sales value of the sub-group by 5.6%. This result suggests that large price cuts were too large to generate the volume sales needed to increase the value of the sub-group by as much as medium price cuts. The larger the price cut, the greater the uplift in volume sales needs to be for the value sales to increase.

Medium price cuts for organic fry/grilling beef were found to have a small, but statistically significant, impact on sales of premium fry/grilling cuts. Medium price cuts on organic fry/grilling beef decreased sales in the premium sub-group by 2.2%. The organic sub-group is at a similar tier level to premium, and this evidence suggests that shoppers were switching their purchases to different sub-groups within a similar tier level to take advantage of promotional offers.

More surprisingly, it appears that medium price cuts on value fry/grilling beef increased sales within the premium sub-group. However, the relationship is fairly small, and is more likely due to a clash in promotions. There was only one medium price cut on value fry/grilling beef and this occurred while premium products were also on promotion.

### **Organic Fry/Grilling Beef**

The organic fry/grilling beef sub-group is made up of four individual products, all of which are listed in Table 5.5.9, alongside the share of total organic fry/grilling beef sales each product accounts for.

Table 5.5.9: Share of Organic Fry/Grilling Beef Sales divided by individual product

| <b>Organic Fry/Grilling Beef</b> | <b>Share of Organic Fry/Grilling Beef Sales</b> |
|----------------------------------|---|
| Organic Beef Sirloin Steak       | 31.64%  |
| Organic Beef Rump Steak          | 20.15%  |
| Organic Beef Ribeye Steak        | 21.43%  |
| Organic Beef Fillet Steak        | 26.79%  |

The share of sales is split out fairly evenly across the organic beef products. Organic sirloin steak is the largest organic product in terms of sales value, accounting for 31.6% share of sales. It has already been identified that sirloin steak was the largest sub-group in the standard and premium fry/grilling categories also. Of the other organic products, fillet steak has the second largest share of sales (26.8%), followed by rib-eye steak (21.4% share) and rump steak (20.2% share).

Of those products making up the organic fry/grilling beef sub-group, promotions occurred on all products except the fillet steak. Table 5.5.10 shows the percentage of sales which occurred while promotions were taking place at the product level within the organic fry/grilling sub-group

Table 5.5.10: Percentage of Organic Fry/Grilling Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

| <b>Organic Fry/Grilling Beef</b> | <b>% Of Sales on Promotion</b> |
|----------------------------------|--------------------------------|
| Organic Beef Sirloin Steak       | 23.10%                         |
| Organic Beef Rump Steak          | 14.32%                         |
| Organic Beef Ribeye Steak        | 4.06%                          |
| Organic Beef Fillet Steak        | 0.00%                          |

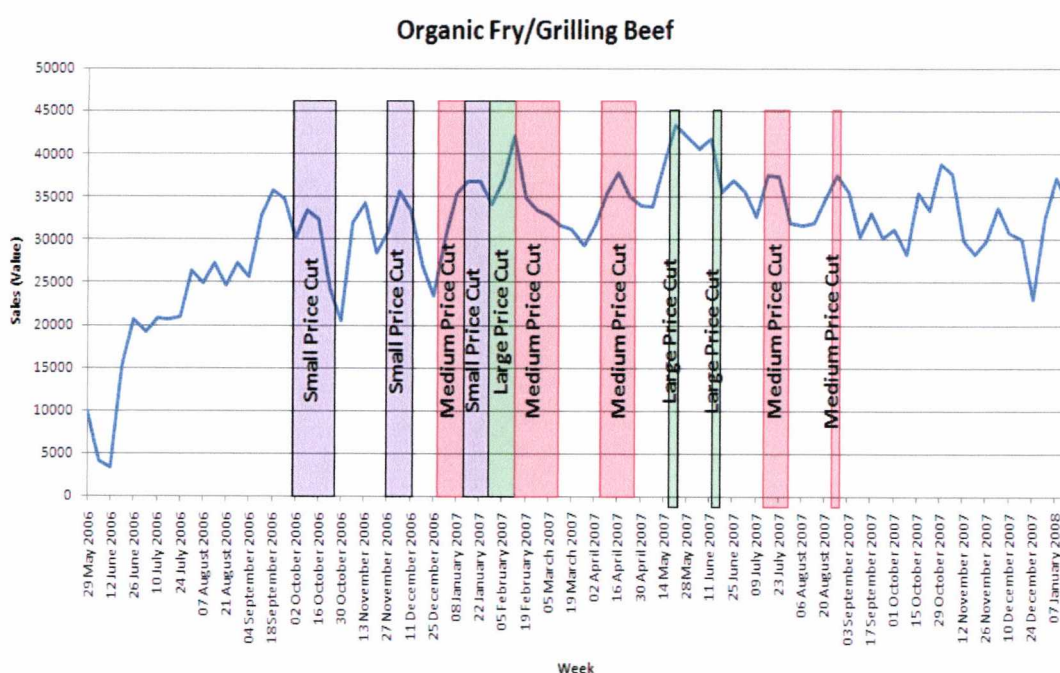
The results in Table 5.5.10 show that the product with the largest percentage of sales occurring while promotions were running was organic sirloin steak, with over 23% of sales occurring while the product was on promotion. Over 14% of organic rump steak sales occurred while the product was on promotion. The percentage of sales occurring while on



promotion was much smaller for rib-eye steak at just 4%, which is likely to be because this was the least promoted product.

The graph in Figure 5.5.3 shows the weekly sales value for organic fry/grilling beef and highlights the periods of promotional activity over the time period. Organic fry/grilling beef was frequently promoted over the eighty six week time period, with different levels of price cut being used but no multi-buy offers.

**Figure 5.5.3: A Graph showing Sales for Organic Fry/Grilling Beef, indicating the periods of Promotional Activity**



The graph shows that promotions occurred very frequently between September 2006 and September 2007. In total there were five medium price cuts, four large price cuts and three small price cuts. For several weeks from the end of December 2006 until early March 2007, promotions were run consecutively with no break.

In Table 5.5.4, which shows the proportionate impact on sales for organic fry/grilling beef with respect to different price promotions within the fry/grilling category, it can be seen that promotions account for about 34% of the variance in sales in the organic sub-group. This is lower than the other beef sub-groups, indicating that promotions are of less importance within the organic sub-group and that other factors play a bigger part in the shoppers purchasing choice. These factors might include environmental, health and animal welfare

issues in the case of organics, since it is likely that loyal customers will buy organic irrespective of what is happening elsewhere in the fry/grilling category.

The impact of organic fry/grilling promotions on sales is fairly small. Medium price cuts were the only organic promotion which had a statistically significant impact on sales of organic fry/grilling beef, increasing value sales by 7.6%. Interestingly it can be seen that promotions within the premium sub-group also have a statistically significant impact on sales of organic beef. Large price cuts in the premium sub-group coincided with decreased sales of organic cuts by 6.9%, providing evidence of substitution between tiers. More unusual is the positive impact small price cuts in the premium fry/grilling sub-group had on organic products, apparently increasing sales by 1.5%. The reason for this is unclear, especially as the same small price cuts were not found to have an impact on sales in the premium sub-group.

### **Value Fry/Grilling Beef**

The value fry/grilling beef sub-group contains three individual products. These products are all those which are sold under the supermarket's own-label value brand for a cheaper price and, as such, the quality of the products is below that of the standard level. The individual products are listed in Table 5.5.11, alongside the share of total value fry/grilling beef sales each product accounts for.

Table 5.5.11: Share of Value Fry/Grilling Beef Sales divided by individual product

| <b>Value Fry/Grilling Beef</b> | <b>Share of Value Fry/Grilling Beef Sales</b> |
|--------------------------------|---|
| Value Rump Steak               | 28.24%  |
| Value Frying Steak             | 49.85%  |
| Value Sirloin Steak            | 21.91%  |

The three different fry/grilling products are sirloin, rump and frying steak. Unlike the standard, premium and organic sub-groups, sirloin steak does not account for the largest share of sales in the value sub-group. Frying steak accounts for the largest share of sales with almost a 50% share. Value rump steak has the second largest share of sales at 28.2%, followed by value sirloin steak with a 21.9% share.

Of those products making up the value fry/grilling beef category, promotions occurred only on the rump steak product. It is unusual for promotions to occur in the value tier, since the products are already sold at prices below the standard level and generally retailers are more likely to use promotions as a tool to encourage shoppers to trade up to higher priced products. It's quite probable that promotions were used in the value sub-group here as a way to try to offload excess stock rather than expecting to gain significant returns in sales revenue. Table 5.5.12 shows the percentage of sales which occurred while promotions were taking place at the product level within the standard fry/grilling sub-group

Table 5.5.12: Percentage of Value Fry/Grilling Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

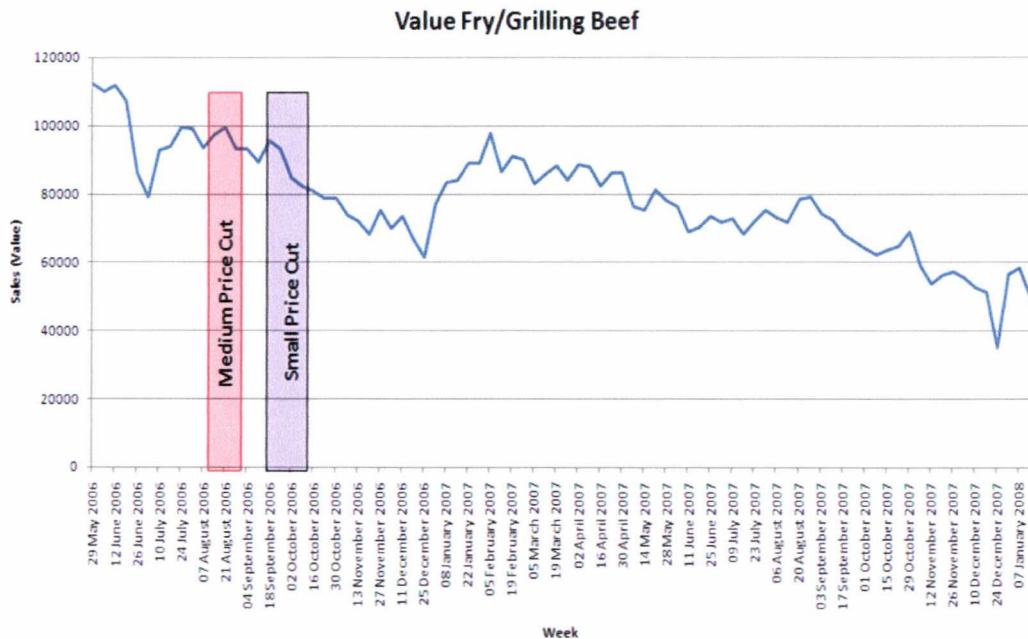
| <b>Value Fry/Grilling Beef</b> | <b>% Of Sales on Promotion</b> |
|--------------------------------|--------------------------------|
| Value Rump Steak               | 13.35%                         |
| Value Frying Steak             | 0.00%                          |
| Value Sirloin Steak            | 0.00%                          |

It can be seen that 13.4% of value rump steak sales occurred while a promotion on this product was running. This is fairly low, indicating that promotions were infrequent and/or ineffective in this sub-group over the time period analysed.

The graph in Figure 5.5.5 shows the weekly sales value for the total value fry/grilling beef sub-group and indicates the periods of promotional activity over the time period. Both small and medium price cuts were used, but only once each.



Figure 5.5.5: A Graph showing Sales for Value Fry/Grilling Beef, indicating the periods of Promotional Activity



The graph shows that there has been a gradual long term decline in the sales of the value fry/grilling sub-group. Both of the price cuts appears to have generated a very small uplift in sales; however there are many other regular fluctuations in sales value that would suggest many other factors are influencing sales within this sub-group.

Referring back to Table 5.5.4, it can be seen that promotions in the fry/grilling beef category as a whole explain 44% of the variance in sales of value fry/grilling beef. Promotions specifically on value products do not have a statistically significant impact on sales in the value sub-group. However, promotions in the standard and premium fry/grilling sub-groups were found to have a statistically significant and positive effect. Medium and large price cuts on premium fry/grilling cuts apparently increase sales in the value sub-group by 16.7% and 7.9% respectively, while medium price cuts on standard fry/grilling beef increase sales by 11%. This relationship is unexpected and the reasons are likely to be due to the fact that the promotions with the standard and fry/grilling category ran very frequently. Therefore there may have been natural fluctuations in sales of value products which coincided with premium and standard promotions.

## 5.6 Diced Beef

The diced beef sub-group is made up of all the beef products which are prepared and sold as diced beef, for example casserole and stewing steak. These types of products are likely to be considered similar to the mince category in terms of being a more low involvement, core protein, although they are not included in the study by the Meat and Livestock Commission from 2002. However, research into price elasticities of demand for meat by Fowler (2007) found purchases of stewing beef to be correlated with prices of minced beef. This suggests that there may be substitution occurring between minced and diced cuts, and so it is thought diced beef would also be considered a low involvement, core protein like mince. Diced beef can form the basis of everyday meals such as stews, curries and casseroles. As with other low involvement products such as mince, the shopper may plan to buy diced beef when they go shopping, but not necessarily have the specific meal occasion in mind when it will be consumed. It is probable that multi-buy offers, which encourage people to buy extra volume, would therefore be more effective than price promotions, as was found in the mince category.

Products in the diced beef category were split into five different sub-groups or tier levels: Standard, Premium, Organic, Speciality and Value. As with the other beef categories, each diced sub-group is made up of those individual products which belong to that particular tier. Table 5.6.1 shows the share of total diced beef sales each sub-group accounts for.

Table 5.6.1: Share of total Diced Beef Sales split by individual Diced Beef Sub-group

| <b>Sub-Group</b>      | <b>Share of Total Diced Beef Sales</b> |
|-----------------------|--|
| Standard Diced Beef   | 78.57%                                 |
| Value Diced Beef      | 13.83%                                 |
| Speciality Diced Beef | 4.00%                                  |
| Premium Diced Beef    | 3.59%                                  |
| Organic Diced Beef    | 2.88%                                  |

The standard diced beef sub-group, which contains the standard level supermarket own brand diced beef products, accounts for by far the largest amount of sales, with a 78.6% share. Value diced beef is the second largest sub-group, with 13.8% share of total sales value, and contains products which are from the supermarkets cheaper value range. Speciality, premium and organic diced beef account for the rest of the total diced beef sales, with 4%, 3.6% and 2.9% shares respectively. It is apparent that the more premium tier products are less important

within the diced beef category, as the share of sales are much lower for these sub-groups than for value and standard products.

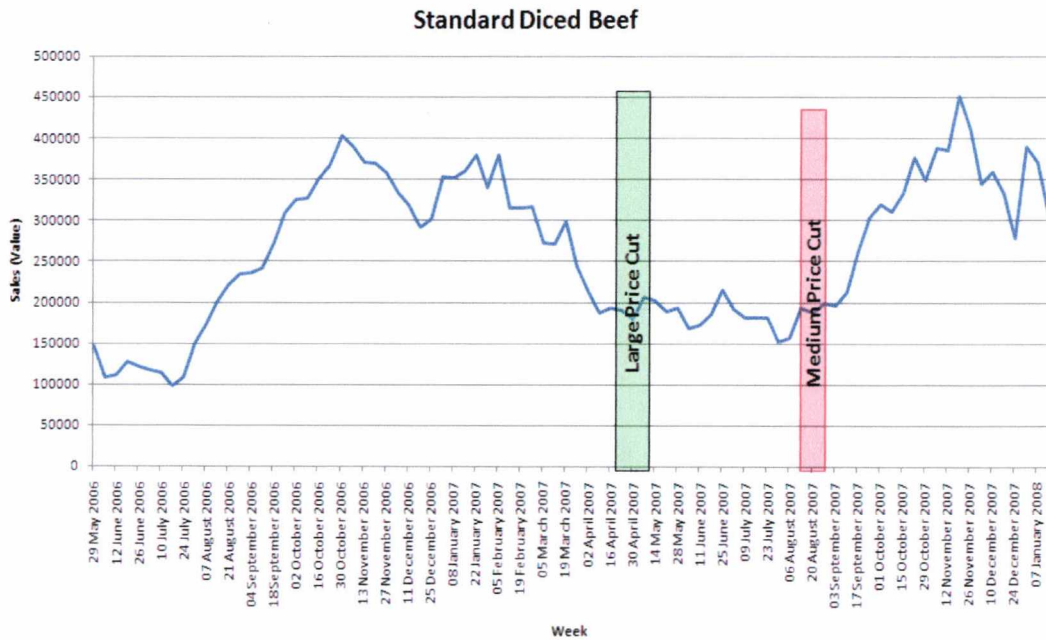
Promotions occurred within three of the sub-groups over the eighty six weeks analysed; standard, premium and organic. No promotions took place in the value sub-group despite it being much larger than the premium and organic sub-groups in terms of sales value. Table 5.6.2 shows the proportion of diced beef sales which occurred while promotions were taking place, at both the total category level and sub-group level.

Table 5.6.2: Percentage of Diced Beef Sales occurring on Promotion (86 Weeks from 29<sup>th</sup> May 2006 to 21<sup>st</sup> January 2008)

| <b>Category</b>       | <b>% Of Sales on Promotion</b> |
|-----------------------|--------------------------------|
| All Diced Beef        | 0.97%                          |
| Standard Diced Beef   | 1.15%                          |
| Premium Diced Beef    | 6.84%                          |
| Organic Diced Beef    | 1.51%                          |
| Speciality Diced Beef | 0.00%                          |
| Value Diced Beef      | 0.00%                          |

In total almost less than 1% of total diced beef sales value occurred while products were on promotion. This is an extremely low proportion of sales and the reason for this is because all of the promotions on standard beef, the largest sub-group, occurred during the summer months when seasonally the sales of diced beef are much lower, as seen in figure 5.6.1 below. Therefore the percentage of total sales occurring while promotions were running is much lower than the other categories.

Figure 5.6.1: A Graph showing Sales for Standard Diced Beef, indicating the periods of Promotional Activity



Casseroles and stews are traditionally consumed much more in the winter months which is why sales are much higher than in the spring and summer months. It is likely that promotions were run in the summer to try and boost sales out of season. Within the premium diced beef sub-group a higher proportion of sales, 6.8%, occurred whilst promotions were running.

Table 5.6.3 shows the proportionate impact on sales for the diced beef category as a whole, with respect to the different promotional mechanisms present within the category over the time period. The types of promotion which took place in the diced beef category were small, medium and large price cuts. No multi-buy promotions took place, despite the assumption that multi-buys are likely to be more effective on lower involvement, core products such as casserole and stewing steak.

Table 5.6.3: Proportionate Impact on sales for the Diced Beef category with respect to different Promotional Mechanisms

| Promotional Mechanism | Proportionate Impact |
|-----------------------|----------------------|
|                       | Beef Diced           |
| Small Price Cut       | -0.440               |
| Medium Price Cut      | 0.790                |
| Large Price Cut       | -2.486               |
|                       |                      |
|                       | R-sq                 |
|                       | 0.0295               |

The ^ suffix denotes the result is significant at the 5% Significance Level

Promotions on diced beef products account for only 3% of the total variance in sales within the diced beef category. This is unsurprising following the findings above that only 1% of diced beef sales occurred when promotions were running. None of the promotions were found to have a statistically significant impact on sales within the diced beef category.

Table 5.6.4 shows the proportionate impact on sales for diced beef at the sub-group level with respect to different price promotions within the diced beef category. As promotions do not have a strong impact within the diced beef category, the results at the sub-group level will be kept briefer than for the other beef categories. The only promotions found to have a statistically significant impact on sales in any sub-group were medium price cuts on premium diced beef.

Table 5.6.4: Proportionate Impact on sales for Diced Beef sub-groups with respect to different Price Promotions

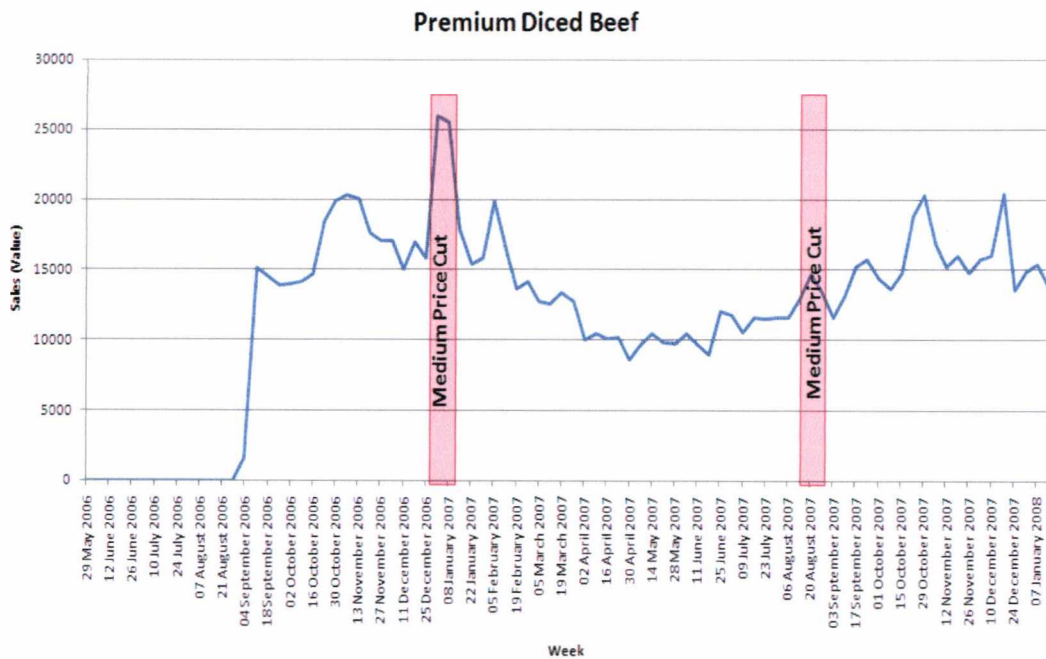
| Promotional Mechanism                | Elasticity          |                          |                    |                           |                          |        |
|--------------------------------------|---------------------|--------------------------|--------------------|---------------------------|--------------------------|--------|
|                                      | Standard Beef Diced | Premium Beef Diced       | Organic Beef Diced | Speciality Beef Diced     | Value Beef Diced         |        |
| Standard Diced Beef Medium Price Cut | -2.188              | -1.620                   | -2.220             | -7.464                    | -2.168                   |        |
| Standard Diced Beef Large Price Cut  | -2.576              | -1.620                   | -1.486             | -4.887                    | -1.855                   |        |
| Organic Diced Beef Small Price Cut   | -0.457              | 0.112                    | -0.244             | -1.103                    | -0.366                   |        |
| Premium Diced Beef Medium Price Cut  | 2.025               | <b>7.547<sup>^</sup></b> | 0.086              | <b>12.140<sup>^</sup></b> | <b>2.887<sup>^</sup></b> |        |
|                                      |                     |                          |                    |                           |                          |        |
|                                      | R-sq                | 0.0628                   | 0.0999             | 0.0297                    | 0.0714                   | 0.0645 |

The ^ suffix denotes the result is significant at the 5% Significance Level



The premium diced beef contains only one product, Finest lean braising steak. As seen in table 5.6.2, around 6.8% of these sales occurred while a promotion was running. The graph in Figure 5.6.2 shows the weekly sales value for the premium diced beef sub-group and indicates the periods of promotional activity over the time period. Premium diced beef was promoted just twice over the eighty six week time period, by way of medium price cuts.

Figure 5.6.2: A Graph showing Sales for Premium Diced Beef, indicating the periods of Promotional Activity



The graph shows that premium diced beef was launched at the end of August 2006, so was not on sale for the full eighty six week time period. It is also clear from the graph that the first medium price cut occurred over the Christmas period in 2006, and therefore this is likely to have affected sales as well as the promotion itself. It is clear from the graph that the uplift in sales over Christmas 2006 was greater than the uplift in 2007, suggesting that the promotion was at least partly responsible for increasing sales significantly.

Referring back to Table 5.6.4, it was seen that medium price cuts on premium diced beef increase the sales value by 7.6%. This implies they are successful at increasing sales value, although as already pointed out; one of the promotional periods was over Christmas when sales would traditionally be higher anyway. It is also apparent that medium price cuts on premium diced beef also increased sales of speciality and value diced beef, by 12.1% and 2.9% respectively. A likely explanation for this relationship is again because one of the

promotions took place at Christmas, when sales of speciality and value were higher than normal.

## 5.7 Cross-Species Effects of Promotions

In this section we consider the extent to which shoppers substitute one species for another. Thus, the purpose of this section is to explore the impact promotions on pork and lamb had on sales of beef. The same regression model was used to generate the results, replacing beef promotion variables for pork and lamb variables. Again the roasting, mince, diced and fry/grilling cuts were analysed separately, and the results below are grouped by these categories.

### 5.7.1 Roasting Cuts

This section looks at the effect on sales of the different roasting beef sub-groups due to promotions on pork and lamb roasting cuts. Table 5.7.1 shows the overall impact beef, lamb and pork roasting promotions had on sales of roasting beef, at the total category level.

Table 5.7.1: A Table showing the Proportionate Impact on sales of Roasting Beef with respect to promotions within the Beef, Pork and Lamb roasting categories

| Promotional Mechanism  | Proportionate Impact |
|--|----------------------|
|  | Roasting Beef        |
| Beef Roasting Promotions   | -8.159               |
| Pork Roasting Promotions   | 5.313                |
| Lamb Roasting Promotions   | 23.667               |
|  |                      |
|  | R-sq 0.0302          |
| <b>The ^ suffix denotes the result is significant at the 5% Significance Level</b> |                      |

At the aggregated level, promotions on roasting pork, beef and lamb explain just 3% of the variance in roasting beef sales. Therefore it can be concluded that at the category level promotions have little impact on the overall value of the roasting beef category. This result indicates that those promotions which are effective in the roasting category are likely to be as



a result of shoppers switching their purchases from other roasting products, rather than increasing overall demand for roasting beef. The results in section 5.3 showed that when drilling down further into the roasting beef sales by sub-group that some promotions were effective at increasing sales value within some sub-groups, however it is now evident that these promotions did not have a statistically significant effect on value the roasting beef category as a whole.

Table 5.7.2 shows the impact specifically of different pork roasting promotions on sales within the different beef roasting sub-groups. In total there were seven different types of promotion across the roasting pork sub-groups. Roasting pork promotions appear to have had the largest impact within the organic, speciality and value roasting beef sub-groups.

Table 5.7.2: A Table showing the promotional Proportionate Impact on sales for Roasting Beef with respect to different promotions on Roasting Pork

| Promotional Mechanism                   | Elasticity             |                       |                           |                           |                           |
|---|------------------------|-----------------------|---------------------------|---------------------------|---------------------------|
|   | Standard Roasting Beef | Premium Roasting Beef | Organic Roasting Beef     | Speciality Roasting Beef  | Value Roasting Beef       |
| Standard Roasting Pork Small Price Cut  | 0.549                  | 1.007                 | 0.688                     | <b>3.803<sup>^</sup></b>  | 0.503                     |
| Standard Roasting Pork Medium Price Cut | 5.782                  | -1.873                | 4.588                     | 6.794                     | -6.719                    |
| Standard Roasting Pork Large Price Cut  | 7.296                  | 3.097                 | <b>13.207<sup>^</sup></b> | <b>28.954<sup>^</sup></b> | 3.303                     |
| Organic Roasting Pork Small Price Cut   | -0.220                 | 0.298                 | 0.082                     | -1.174                    | 0.339                     |
| Organic Roasting Pork Medium Price Cut  | -1.858                 | -1.391                | 1.079                     | -0.019                    | -0.314                    |
| Premium Roasting Pork Small Price Cut   | -0.711                 | -0.696                | 0.490                     | 3.070                     | 1.099                     |
| Premium Roasting Pork Medium Price Cut  | -2.273                 | -0.909                | 5.045                     | -2.059                    | <b>-7.414<sup>^</sup></b> |
|   |                        |                       |                           |                           |                           |
| R-sq                                    | 0.0472                 | 0.0774                | 0.1473                    | 0.1959                    | 0.1437                    |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

Roasting pork promotions were found to explain 14% of the variance in sales of value roasting beef. This result suggests that promotions on roasting pork had slightly more of an effect on value roasting beef sales than promotions on roasting beef had. Roasting beef promotions were found to explain 12% of the variance in sales. Of statistical significance was the impact of medium price cuts on premium roasting pork which deflated the value of value roasting beef sales by 7.4%. This suggests that shoppers are not only willing to trade-up from the value to premium tier, to take advantage of promotions, but also across species.

Roasting pork promotions also had statistically significant affects on sales of organic and speciality roasting beef. Unexpectedly, it appears that price cuts on standard roasting pork have a positive effect on sales of both organic and speciality roasting beef. Large price cuts on

standard roasting pork apparently increase sales of organic roasting beef by 13.2% and speciality roasting beef by as much as 29%. Small price cuts on standard roasting pork were also found to increase sales of speciality roasting beef by 3.8%. However, it is important to consider that promotions on roasting pork explained much less of the variance in sales in both the organic and speciality sub-groups than roasting beef promotions did. Roasting beef promotions explained 38% of the variance in sales of organic roasting beef and 39% of the variance in sales of speciality roasting beef. Therefore it is likely that there is another explanation for the apparent uplift in sales in response to standard roasting pork promotion. Standard roasting pork was frequently on promotion during the eighty six week time period, so it is quite possible that these coincided with periods where sales of organic and speciality roasting beef were higher than average. It is extremely unlikely that promotions on standard roasting pork would actually be responsible for an increase in sales of roasting beef products, since they are substitute products rather than complements.

Table 5.7.3 shows the impact of roasting lamb promotions on sales of roasting beef. In total there were eight different promotions running across the roasting lamb sub-groups. Roasting lamb promotions were found to have the biggest influence on sales in the organic, speciality, and to a lesser extent, value roasting beef sub-groups. Promotions on roasting lamb apparently explain 51% of the variance in sales of organic roasting beef, 50% of the variance in sales of speciality roasting beef and 20% of the variance in sales of value roasting beef.

Table 5.7.3: A Table showing the promotional Proportionate Impact on sales for Roasting Beef with respect to different promotions on Roasting Lamb

| Promotional Mechanism                   | Elasticity             |                       |                           |                            |                           |
|---|------------------------|-----------------------|---------------------------|----------------------------|---------------------------|
|   | Standard Roasting Beef | Premium Roasting Beef | Organic Roasting Beef     | Speciality Roasting Beef   | Value Roasting Beef       |
| Standard Roasting Lamb Small Price Cut  | -0.731                 | -0.013                | 0.579                     | 0.964                      | 0.299                     |
| Standard Roasting Lamb Medium Price Cut | 11.204                 | 2.434                 | <b>34.826<sup>^</sup></b> | <b>110.971<sup>^</sup></b> | 5.309                     |
| Standard Roasting Lamb Large Price Cut  | 6.214                  | -5.516                | -3.295                    | <b>69.608<sup>^</sup></b>  | 5.741                     |
| Premium Roasting Lamb Small Price Cut   | -0.967                 | -0.595                | <b>-1.220<sup>^</sup></b> | -0.595                     | <b>-1.257<sup>^</sup></b> |
| Premium Roasting Lamb Medium Price Cut  | -0.269                 | 0.979                 | 1.309                     | -0.367                     | 1.187                     |
| Organic Roasting Lamb Small Price Cut   | 0.076                  | -0.786                | <b>-1.488<sup>^</sup></b> | <b>-2.942<sup>^</sup></b>  | -0.907                    |
| Organic Roasting Lamb Medium Price Cut  | -2.654                 | -3.094                | 0.483                     | <b>-12.021<sup>^</sup></b> | <b>-3.159<sup>^</sup></b> |
| Organic Roasting Lamb Large Price Cut   | 2.953                  | -0.664                | <b>7.740<sup>^</sup></b>  | 0.760                      | -0.604                    |
|   |                        |                       |                           |                            |                           |
| R-sq                                    | 0.0849                 | 0.0953                | 0.5106                    | 0.4987                     | 0.2027                    |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

Standard roasting lamb was almost constantly on promotion over the time period analysed, with the exception of a few weeks at the beginning and end of the time period. This is likely to explain the apparent strong impact on sales of organic and speciality roasting beef. In particular sales of speciality roasting beef were higher during the majority of the period while standard roasting lamb was promoted, and this is thought to be due to an increase in supply of the product within stores. However the results indicate this large increase in sales is due to medium and large price cuts on standard roasting lamb, which is unlikely since these products are considered to be substitutes. Similarly medium price cuts on standard roasting lamb were found to lead to a 35% increase in sales of organic roasting beef. The reason behind this is most likely to be because the promotions on standard roasting lamb clashed with promotions on organic roasting beef, which created a strong uplift in sales.

Small price cuts on premium and organic roasting lamb were found to decrease the value of organic roasting beef sales by 1.2% and 1.4% respectively. This suggests that switching across species does occur, particularly with the same or similar price tiers. For example, organic shoppers switched their purchases from beef to lamb to take advantage of small price promotions, resulting in a 1.2% decline in sales of organic roasting beef. Interestingly it appears that large price cuts on organic roasting lamb resulted in a 7.7% increase in sales of organic roasting beef. An explanation for this may be that the large price cut on organic lamb significantly increased demand for organic lamb, therefore reducing supply available to loyal organic shoppers who then had to switch their purchase to organic beef because lamb was unavailable. It is also possible that the large price cuts were so deep that it put regular organic shoppers off buying organic lamb because they may have perceived there to be a reduction in quality of the product and therefore bought organic beef instead.

The speciality roasting beef sub-group was negatively affected by both small and medium price cuts on organic roasting lamb. Small price cuts reduced the value of speciality roasting beef by 2.9%, while medium price cuts reduced the value by 12%. This adds more weight to the theory that shoppers will switch purchases across species to take advantage of promotions. The organic and speciality sub-groups are similar tier levels in that they are both contain products produced by special farming techniques, and therefore, it is unsurprising that shoppers would be willing to trade their purchases from speciality beef to organic lamb to take up a promotional offer.

Small price cuts on premium roasting lamb and medium price cuts on organic roasting lamb were also found to have a statistically significant negative impact on sales of value roasting beef. This provides further evidence of shoppers trading up from value to higher price tiers, and also indicates that shoppers will switch meat species as well as trading up.

### 5.7.2 Mince

This section looks at the effect in sales of the different minced beef sub-groups due to promotions on minced pork and lamb. Table 5.7.4 shows the overall impact minced beef, lamb and pork promotions had on sales of minced beef, at the total category level.

Table 5.7.4: A Table showing the Proportionate Impact on sales for Minced Beef with respect to promotions within the Beef, Pork and Lamb mince categories

| Promotional Mechanism | Proportionate Impact      |
|-----------------------|---------------------------|
|                       | Beef Mince                |
| Beef Mince Promotions | <b>11.571<sup>^</sup></b> |
| Pork Mince Promotions | 0.039                     |
| Lamb Mince Promotions | -0.479                    |
|                       |                           |
|                       | R-sq 0.0596               |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

At the aggregated level, promotions on minced pork, beef and lamb explain just 6% of the variance in total minced beef sales. This is very low, and indicates that many other factors are affecting the value of minced beef sales at the total category level aside from promotions. Minced beef promotions were found to have a statistically significant impact, increasing overall sales value of the minced beef category by 11.6%; however pork and lamb mince promotions do not have any significant effect.

The results indicate that pork and lamb mince promotions do not have any effect on sales of minced beef, therefore it is likely that there is very little switching occurring between the different species of mince due to promotions. It is important to point out that the beef mince category is considerably larger than the lamb and pork mince categories. Table 5.7.5 shows the share of total minced meat sales each of beef, pork, and lamb accounts for. Minced beef had an 87.6% share of total minced meat sales; therefore, a significant increase in sales of lamb or pork due to promotions would not to impact on the sales of minced beef as much even if some shoppers did switch species.

Table 5.7.5: A Table showing the percentage Share of Total Minced sales between each of the Red Meat Species

| Species     | Share of total Minced Sales |
|-------------|-----------------------------|
| Minced Beef | 87.64%                      |
| Minced Pork | 4.58%                       |
| Minced Lamb | 7.78%                       |

Table 5.7.6 shows the impact specifically of different minced pork promotions on sales within the different minced beef sub-groups. There was only one type of promotion within the minced pork category, which was a medium price cut on standard pork mince. It can be seen that promotions on minced pork had no statistically significant effect on sales of minced beef at all.

Table 5.7.6: A Table showing the Proportionate Impact on sales for Minced Beef with respect to different promotions on Minced Pork

| Promotional Mechanism                | Elasticity          |                    |                    |                    |
|--------------------------------------|---------------------|--------------------|--------------------|--------------------|
|                                      | Standard Beef Mince | Premium Beef Mince | Organic Beef Mince | Healthy Beef Mince |
| Standard Pork Mince Medium Price Cut | 0.306               | -0.082             | -0.360             | 0.587              |
|                                      |                     |                    |                    |                    |
| R-sq                                 | 0.002               | 0.0002             | 0.0016             | 0.0018             |

The ^ suffix denotes the result is significant at the 5% Significance Level

Table 5.7.7 shows the impact of minced lamb promotions on sales of minced beef. There was only one type of minced lamb promotion, which was a multi-buy promotion on standard lamb mince.

Table 5.7.7: A Table showing the Proportionate Impact on sales for Minced Beef with respect to different promotions on Minced Lamb

| Promotional Mechanism         | Elasticity          |                    |                    |                           |
|-------------------------------|---------------------|--------------------|--------------------|---------------------------|
|                               | Standard Beef Mince | Premium Beef Mince | Organic Beef Mince | Healthy Beef Mince        |
| Standard Lamb Mince Multi-Buy | -4.402              | -0.747             | 4.231              | <b>26.593<sup>^</sup></b> |
|                               |                     |                    |                    |                           |
| R-sq                          | 0.0297              | 0.0012             | 0.0164             | 0.2749                    |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

It appears that the multi-buy promotions on standard lamb mince did have an effect within the healthy minced beef sub-group. The results show minced lamb promotions to account for 28% of the variance in healthy minced beef sales, apparently generating uplift in sales value of 26.6%. However, the reason behind this uplift in sales of healthy beef mince is actually because during each of the periods when the multi-buy offer on standard minced lamb was running, a price promotion on healthy minced beef was also running. It can therefore be concluded that both pork and lamb mince promotions have little to no effect on sales within the minced beef category.

### 5.7.3 Fry/Grilling Cuts

This section looks at the effect in sales of the different fry/grilling beef sub-groups due to promotions on pork and lamb fry/grilling cuts. Table 5.7.8 shows the overall impact beef, lamb and pork fry/grilling promotions had on sales of fry/grilling beef cuts, at the total category level.

Table 5.7.8: A Table showing the Proportionate Impact on sales for Fry/Grilling Beef with respect to promotions within the Beef, Pork and Lamb Fry/Grilling categories

| Promotional Mechanism        | Elasticity                |
|------------------------------|---------------------------|
|                              | Fry/Grilling Beef         |
| Beef Fry/Grilling Promotions | <b>39.230<sup>^</sup></b> |
| Pork Fry/Grilling Promotions | -3.737                    |
| Lamb Fry/Grilling Promotions | 0.056                     |
|                              |                           |
| R-sq                         | 0.495                     |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

At the aggregated level promotions on fry/grilling pork, beef, and lamb explain 50% of the variance in fry/grilling beef sales. This result indicates that promotions are more influential on sales in the fry/grilling category than any of the other categories. However, it was only beef promotions which were found to have statistically significant impact on sales, generating uplift in the value of the total fry/grilling beef category by 39.2%.

Table 5.7.9 shows the impact of different fry/grilling pork promotions on sales within the different fry/grilling beef sub-groups. In total there were five different types of promotion across the fry/grilling pork sub-groups.

Table 5.7.9: A Table showing the Proportionate Impact on sales for Fry/Grilling Beef with respect to different promotions on Fry/Grilling Pork

| Promotional Mechanism                       | Elasticity                 |                           |                           |                           |
|---|----------------------------|---------------------------|---------------------------|---------------------------|
|   | Standard Beef Fry/Grilling | Premium Beef Fry/Grilling | Organic Beef Fry/Grilling | Value Beef Fry/Grilling   |
| Standard Fry/Grilling Pork Small Price Cut  | 0.202                      | -0.241                    | 0.520                     | -0.324                    |
| Standard Fry/Grilling Pork Medium Price Cut | -2.161                     | -1.224                    | 0.516                     | 2.269                     |
| Standard Fry/Grilling Pork Multi-Buy        | 2.760                      | <b>12.318<sup>^</sup></b> | -16.477                   | <b>19.136<sup>^</sup></b> |
| Premium Fry/Grilling Pork Small Price Cut   | 0.006                      | -0.041                    | 0.782                     | 0.671                     |
| Premium Fry/Grilling Pork Medium Price Cut  | 0.134                      | 0.710                     | -1.368                    | 0.246                     |
| R-Sq  | 0.0319                     | 0.2364                    | 0.0916                    | 0.2172                    |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

Fry/grilling pork promotions explain the most variance in sales within the premium and value fry/grilling beef sub-groups. The results show pork promotions to account for 24% of the variance in sales of premium fry/grilling pork and 22% of the variance in sales of value fry/grilling beef.

Multi-buy offers on standard fry/grilling pork was the only promotion to have a statistically significant impact on sales of fry/grilling beef. In fact this type of promotion was running quite frequently, with one multi-buy offer running consecutively for 15 weeks straight. It appears that this promotion increased sales of premium fry/grilling beef by 12.3% and value fry/grilling beef by 19%. The reasons behind this are unclear since the products are substitutes. However, premium fry/grilling beef was promoted very heavily, so it is likely that the uplift in sales is due to promotions coinciding. It is also possible that the multi-buy offer on standard fry/grilling pork deterred some shoppers who did not want the extra product; therefore they switched their purchases to the beef category. Pork fry/grilling cuts are cheaper



than beef cuts, and so it is quite possible that shoppers switched from standard pork to value beef, as these products are likely to be more within their price range than standard fry/grilling beef. The average price per unit of standard fry/grilling pork was £3.18, compared with £4.15 for standard beef, over the time period analysed. The average price of value fry/grilling pork was lower at £2.88 per unit. This result may also provide some evidence that multi-buys do not work as well on key occasion meats like fry/grilling cuts, since the shopper does not want more volume than they need.

Table 5.7.10 shows the impact of fry/grilling lamb promotions on sales of fry/grilling beef. In total there were five different promotions running across the fry/grilling lamb sub-groups.

Table 5.7.10: A Table showing the Proportionate Impact on sales for Fry/Grilling Beef with respect to different promotions on Fry/Grilling Lamb

| Promotional Mechanism                       | Elasticity                 |                           |                           |                           |
|---|----------------------------|---------------------------|---------------------------|---------------------------|
|   | Standard Beef Fry/Grilling | Premium Beef Fry/Grilling | Organic Beef Fry/Grilling | Value Beef Fry/Grilling   |
| Standard Fry/Grilling Lamb Small Price Cut  | <b>-1.445<sup>^</sup></b>  | 0.601                     | -0.637                    | -0.409                    |
| Standard Fry/Grilling Lamb Medium Price Cut | 1.085                      | -1.144                    | 8.428                     | <b>11.031<sup>^</sup></b> |
| Standard Fry/Grilling Lamb Multi-Buy        | -0.277                     | -0.082                    | 3.967                     | 0.728                     |
| Organic Fry/Grilling Lamb Small Price Cut   | 0.208                      | -0.105                    | 0.150                     | -0.355                    |
| Organic Fry/Grilling Lamb Medium Price Cut  | <b>3.681<sup>^</sup></b>   | -0.808                    | <b>6.719<sup>^</sup></b>  | -1.753                    |
| R-Sq  | 0.197                      | 0.0359                    | 0.1587                    | 0.0976                    |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

Fry/grilling lamb promotions were found to have the biggest influence on sales of standard and organic fry/grilling beef, explaining 19.7% and 16% of variance in sales respectively. Small price cuts on standard fry/grilling lamb were found to decrease the sales value of standard fry/grilling beef by 1.5%, which provides more evidence to suggest that some switching between species does occur, in this case within the same tier level. However, the results also show an apparent increase in sales of standard fry/grilling beef as a result of medium price cuts on organic fry/grilling lamb. Since the products are considered to be substitute products, it is hard to explain why a medium price cut on organic lamb would increase sales of standard beef. However, the promotional calendar shows that medium price cuts on organic fry/grilling beef ran very frequently, as did promotions on standard fry/grilling beef. Therefore this result is more likely to be due to coinciding promotions.

Similarly, sales of organic fry/grilling beef were found to increase in response to medium price cuts on organic fry/grilling lamb. Once again organic beef was also frequently promoted, suggesting the result may also be a coincidence due to clashes in promotions. There is also the possibility that the medium price cuts on organic lamb attracted many new customers resulting in stock availability problems for loyal organic shoppers who therefore switched to organic beef instead.

The results also suggest a statistically significant relationship between sales of value fry/grilling beef and medium price cuts on standard fry/grilling lamb. Sales of value beef apparently increase 11% as a result of this promotion on lamb. However medium price cuts on standard fry/grilling lamb ran very frequently, often for long periods of ten to fifteen weeks at a time. It is unlikely that a price cut would put shoppers off buying standard lamb, let alone trade down to value fry/grilling beef, so it is more likely that the uplift in sales were coincidental, especially since lamb promotions only explain 9.7% of the variance of value fry/grilling beef sales.

#### 5.7.4 Diced Meat

This section looks at the effect in sales of the diced beef sub-groups due to promotions on diced pork and lamb. Table 5.7.11 shows the overall impact diced beef, lamb and pork promotions had on sales of diced beef, at the total category level.

Table 5.7.11: A Table showing the Proportionate Impact on sales for Diced Beef with respect to promotions within the Beef, Pork and Lamb Diced categories

| Promotional Mechanism | Proportionate Impact |
|-----------------------|----------------------|
|                       | Beef Diced           |
| Beef Diced Promotions | -3.277               |
| Pork Diced Promotions | 1.635                |
| Lamb Diced Promotions | 4.865                |
|                       |                      |
|                       | R-sq 0.0298          |

The ^ suffix denotes the result is significant at the 5% Significance Level

At the aggregated level, promotions on diced pork, beef and lamb explain just 3% of the variance in diced beef sales, which is extremely low. Therefore it can be concluded that at the category level promotions have little impact on the overall value of the diced beef category. The results presented in section 5.6 revealed that diced beef promotions had very little impact on sales within the diced beef category. The main reason being that promotions tended to be run out of season, during the spring and summer months when sales of casserole and stewing beef were much naturally much lower. The fact that lamb and pork promotions also have little impact on diced beef sales goes further to highlight that there are other factors, in this case seasonality, which are affecting sales to a greater extent than promotions.

Table 5.7.12 shows the impact of diced pork promotions on sales within the different diced beef sub-groups. In total there were two different types of promotion; medium and large price cuts on healthy diced pork.

Table 5.7.12: A Table showing the Proportionate Impact on sales for Diced Beef with respect to different promotions on Diced Pork

| Promotional Mechanism               | Elasticity               |                          |                          |                           |                          |
|-------------------------------------|--------------------------|--------------------------|--------------------------|---------------------------|--------------------------|
|                                     | Standard Beef Diced      | Premium Beef Diced       | Organic Beef Diced       | Speciality Beef Diced     | Value Beef Diced         |
| Healthy Diced Pork Medium Price Cut | -2.656                   | -1.830                   | -1.878                   | -5.592                    | -2.039                   |
| Healthy Diced Pork Large Price Cut  | <b>5.477<sup>^</sup></b> | <b>7.840<sup>^</sup></b> | <b>6.560<sup>^</sup></b> | <b>23.486<sup>^</sup></b> | <b>5.886<sup>^</sup></b> |
| R-sq                                | 0.0808                   | 0.053                    | 0.0651                   | 0.0988                    | 0.083                    |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

From the results it appears that large price cuts on healthy diced pork generate uplift in sales within all diced beef sub-groups, and particularly strongly within the speciality diced beef sub-group. However, the reason behind this apparent relationship might be explained by the fact that there was only one large price cut on healthy diced pork, and this occurred during the first three weeks of December in 2006. This promotion on pork took place during the peak season for sales of diced beef, in late autumn. Therefore it is very unlikely that there is truly a relationship between promotion of healthy diced pork and sales of diced beef. The low r-squared value also indicates the relationship to be very weak.

Table 5.7.13 shows the impact of diced lamb promotions on sales of diced beef. There were two different promotions on diced lamb over the time period, however these were found to have very little influence on the sales of diced beef

Table 5.7.13: A Table showing the Proportionate Impact on sales for Diced Beef with respect to different promotions on Diced Lamb

| Promotional Mechanism               | Elasticity          |                    |                    |                          |                          |
|-------------------------------------|---------------------|--------------------|--------------------|--------------------------|--------------------------|
|                                     | Standard Beef Diced | Premium Beef Diced | Organic Beef Diced | Speciality Beef Diced    | Value Beef Diced         |
| Healthy Diced Lamb Small Price Cut  | 0.409               | 0.395              | -0.061             | <b>5.143<sup>^</sup></b> | <b>1.028<sup>^</sup></b> |
| Healthy Diced Lamb Medium Price Cut | 1.098               | 4.583              | -2.661             | 16.349                   | 3.306                    |
|                                     |                     |                    |                    |                          |                          |
| R-sq                                | 0.0084              | 0.0164             | 0.0081             | 0.1268                   | 0.061                    |

The <sup>^</sup> suffix denotes the result is significant at the 5% Significance Level

Small price cuts on healthy diced lamb were found to have a statistically significant impact on sales of speciality diced beef, although the relationship is weak. Diced lamb promotions explain 13% of the variance in sales of speciality diced beef. The only small price cut on healthy diced lamb which took place was at the end of February 2007. Speciality diced beef was only on sale for 12 months between September 2006 and September 2007, and therefore this promotion on lamb may seem to have more of an effect on speciality beef sales than it actually did, since the regression analysis was based on the full eighty six week time period.

## 5.8 Discussion

This chapter has outlined the results of the empirical research into the impact promotions have in the red meat category and particularly the beef sector. The results have thrown up many interesting points, some of which backs up the existing theory, as well as some things which are harder to explain without further research.

Promotions across the red meat category were found to explain 25% of the variance in sales of the total red meat category, highlighting the fact that there are many other things having an influence on sales, many of which were discussed in Chapter two. The results revealed that at the red meat category level, medium level price cuts and multi-buy offers were the only types of promotion to have a statistically significant impact on the overall value of the category. Medium level price cuts were found to de-value the red meat category as a whole, while multi-buy offers increased the value. This finding suggests that price discounting as a whole is not effective enough to increase volume sales by enough to offset the cost to the

retailer or supplier of reducing the price. However, when drilling down to the cut level, it can be seen that while multi-buys were most effective for minced products; they were not within other categories. This highlights the importance of disaggregating the data and drilling down, rather than looking at only the total category level effects.

When drilling down into the beef category specifically, it was seen that standard tier products account for by far the largest share of sales within all sub-groups. Very few promotions occurred on value tier products. This was unsurprising since retailers are likely to be more interested in driving sales of higher price tier products, than value products which already have very low profit margins. As seen in Chapter three, previous research has already found that if a lower tier brand is on promotion it does not attract customers from higher tiers (E.g. Krishnamurthi and Raj, 1991).

Of all the four beef categories, the largest percentage of sales occurring while promotions are running was within the roasting category, where 40% of all roasting beef sales occurred while a promotion was running. Within the roasting category, it was found that large price cuts were most effective at driving sales value. This confirms what was found in a qualitative study by the Meat and Livestock Commission (2002), which indicated that price discounts would be more effective than multi-buys at driving sales of key occasion meats such as roasting joints. Similarly, price cuts were more effective within the fry/grilling category, another 'key occasion' meat, than multi-buy offers, which again backs up the study by the MLC. Multi-buys were found to be the only effective form of promotion within the minced beef category, which adds further backing to the research carried out by the MLC.

Within the diced beef category, only 1% of total sales occurred while promotions were running, and just 3% of the variance in sales was found to be explained by promotions. Generally the category was a lot less heavily promoted than the others, but the main reason why so few sales occurred while on promotion was that these promotions took place out of season. Stewing and casserole beef is a very seasonal product, which sells in much greater volumes in the winter months than spring and summer. Seasonality has a much greater impact on sales within this category than price promotions.

The results have highlighted the importance of drilling down further, not just to the cut level, but also to the product tier level. There were found to be some differences between tiers, over and above the differences occurring between cuts. Since the standard tier products accounted for the largest share of sales in all categories, the results at the aggregate level were mainly reflective of the promotional effects within the standard tier. Through drilling down further it could be seen that there were some differences within other tier levels. At the total category level for roasting cuts, large price reductions were found to be the most effective

form of promotion in terms of the impact on roasting beef sales. However, within the premium and speciality roasting beef sub-groups medium price cuts were the most effective type of promotion, and in fact generated a greater uplift in sales within the respective tiers, than large price cuts did on standard roasting beef. Within the value tier, it was seen that promotions on premium roasting joints significantly decrease the sales within the value sub-group. This adds weight to the theories of asymmetric brand switching, as seen in Chapter three.

Drilling down within the mince category, multi-buys were found to be the most effective form of promotion within all sub-groups except the premium mince sub-group. Medium price cuts were found to be more effective on premium tier minced beef products than multi-buy promotions. The results from the mince category also revealed that multi-buy promotions on standard minced beef negatively affected sales of premium minced beef. This goes against the theories of asymmetric switching seen in Chapter three, which say that shoppers will only trade up a tier level to take advantage of a promotion, but not down.

Within the fry/grilling category promotions were found to explain a large proportion of the variance in sales, compared to the other categories. However, there were a lot of substitution effects occurring between tier levels, many of which were hard to explain, however it is likely to be because the category is heavily promoted within most sub-groups. It appeared that sales within some tier levels went up in response to promotions within other tiers which would more likely be seen with products which are complementary to each other. However, there were a lot of conflicting promotions happening at the same time, making it difficult to truly identify which promotions were the most effective. Most of the apparent switching effects appear to be explained by conflicting promotions. However, the most important result was that overall promotions by way of medium price reductions did increase the value of the fry/grilling category by around 19%.

In conclusion, one of the main points arising from the results is the considerable variability in the impact of different promotion mechanics between and within the different categories. This illustrates the point that one promotion does not fit and promotional strategies should take greater notice of the effectiveness at the individual product level, to avoid devaluing the red meat category and rendering it less not more sustainable in the process. There are differences in which promotions work best within each cut and tier, which could not be captured by analysis of highly aggregated data.

The results have revealed what is happening as a result of promotions, but what they have not shown is how the promotions are working or which type of shopper is buying into them. Before drawing the conclusions and recommendations arising from the research, further analysis was undertaken in order to try to gather a bigger picture behind how some promotions

are working. This will help retailers and/or suppliers to understand how they can better plan for promotions in the red meat sector, depending upon the specific outcome they hope to achieve from the promotion.

### **5.9 Additional Analysis**

So far the results and discussion have revealed what the effect on sales is as a result of different promotions and how this differs between different tiers and cuts of beef. However, it is also possible to drill down further into the results to identify how those promotions which are effective are actually working. In order for sales to increase, the promotions will either be encouraging existing customers to spend more or attracting new people to buy into the product or sub-group of products.

An advantage of the dunnhumby database is that it is possible to look not only at what is happening to sales, but also other key measures such as spend per customer and customer penetration and the profile of shoppers that are buying into promotions.

In order to drill down into the results further and identify *how* successful promotions are working, additional analysis was carried out on a selection of promotions which were found to be amongst the most effective. These included multi-buy promotions on healthy and standard beef mince, a medium price cut on premium beef mince and premium fry/grilling beef, and a large price cut on standard roasting beef. For each of these sub-groups, one individual period of promotion from the full eighty six week time period was chosen to carry out the additional analysis. Within each sub-group the particular promotion analysed was chosen based on there being a comparable period directly before the promotion where no promotional activity took place. This makes it possible to directly compare what happened over an equal number of weeks before the promotion took place to what happened during the weeks the promotion was running.

The additional analysis in this section will identify where the uplift in sales came from as a result of promotions, through looking at spend per customer and customer penetration before and during the selected promotions. In addition, the analysis will seek to identify the extent to which the promotions appealed to particular shopper segments. For the purpose of illustration, the analysis considers how different life-stages responded to the promotions – the extent to which different promotions appealed to different life-stage segments. This has important implications for the targeting of promotions to specific shopper segments rather than the tactics adopted thus far, which has been to offer the same promotions to all shoppers



regardless of their individual preferences. Households are segmented by life-stage based on the information provided on the Tesco Clubcard application form, as discussed in chapter three. The different life-stage segments are classified by dunnhumby as older families, older adults, young families, young adults, pensioners and mixed households. Figure 5.9.1 below shows the percentage of Tesco shoppers belonging to each segment alongside a description of each segment.

Figure 5.9.1: Description of the Lifestage Segmentation in the dunnhumby Database

| Lifestage segment | % shoppers | Age & family                          |
|-------------------|------------|---------------------------------------|
| Young Adults      | 16%        | Adults aged 20-39 with no children    |
| Older Adults      | 14%        | Adults aged 40-59 with no children    |
| Young families    | 15%        | Adults with all children under 10     |
| Older families    | 16%        | Adults with one or more child over 10 |
| Pensioners        | 9%         | Adults over 60 with no children       |
| Mixed             | 28%        | Multigenerational households          |

Table 5.9.1 shows the average spend per customer before and during the promotion for each promoted sub-group and for the total category as a whole. For example, the first promotion in the table is a multi-buy on Healthy minced beef. The table shows average spend per customer specifically on healthy minced beef, and the average spend per customer within the whole minced beef category. Spend per customer tells us the average spend per customer in the specific sub-group over the weeks the promotion took place compared with the same number of weeks before the promotion. If spend per customer increased during the promotion, this indicates that the promotion induced existing customers to spend more on the promoted sub-group.

Table 5.9.1: Table showing the Spend Per Customer Before and During particular Promotions

| Sub-Group Promotion                         | Promoted Product |              | Category     |              |
|---|------------------|--------------|--------------|--------------|
|   | Before Promo     | During Promo | Before Promo | During Promo |
| Healthy Beef Mince - Multi-Buy              | £3.51            | £3.52        | £2.72        | £2.78        |
| Standard Beef Mince - Multi-Buy             | £2.54            | £2.53        | £2.83        | £2.85        |
| Premium Beef Mince - Med Price Cut          | £2.65            | £2.55        | £2.76        | £2.74        |
| Standard Roasting Beef - Large Price Cut    | £5.29            | £5.74        | £5.52        | £5.95        |
| Premium Fry/Grilling Beef - Large Price Cut | £6.64            | £6.02        | £6.47        | £6.78        |

Table 5.9.2 shows the customer penetration before and during the promotion for each promoted sub-group and for the total category as a whole. Customer penetration tells us the percentage of Tesco shoppers who bought into the sub-group before and during the promotion. If customer penetration increases during the promotion, this indicates that the promotion has attracted new shoppers to the sub-group.

Table 5.9.2: Table showing the Spend Per Customer Before and During particular Promotions

| Sub-Group Promotion                         | Promoted Product |              | Category     |              |
|---|------------------|--------------|--------------|--------------|
|   | Before Promo     | During Promo | Before Promo | During Promo |
| Healthy Beef Mince - Multi-Buy              | 2.66%            | 3.72%        | 21.48%       | 29.87%       |
| Standard Beef Mince - Multi-Buy             | 17.23%           | 19.50%       | 23.95%       | 26.66%       |
| Premium Beef Mince - Med Price Cut          | 1.90%            | 2.50%        | 25.81%       | 25.44%       |
| Standard Roasting Beef - Large Price Cut    | 3.66%            | 4.05%        | 5.25%        | 5.43%        |
| Premium Fry/Grilling Beef - Large Price Cut | 1.20%            | 1.48%        | 12.39%       | 8.59%        |

The healthy beef mince multi-buy promotion analysed took place over two weeks from 31<sup>st</sup> December 2006 to 13<sup>th</sup> January 2007. The average spend per customer on healthy minced beef barely changed during the promotion compared with the period before the promotion, indicating that the multi-buy promotion did not encourage existing shoppers to spend any more than usual on that product. The spend per customer on healthy mince was greater than the average spend per customer within the mince beef category as a whole, both before and during the promotion. The promotion on healthy minced beef also increased the spend per customer within the mince category overall by six pence, indicating the promotion increased expenditure on mince as a whole.

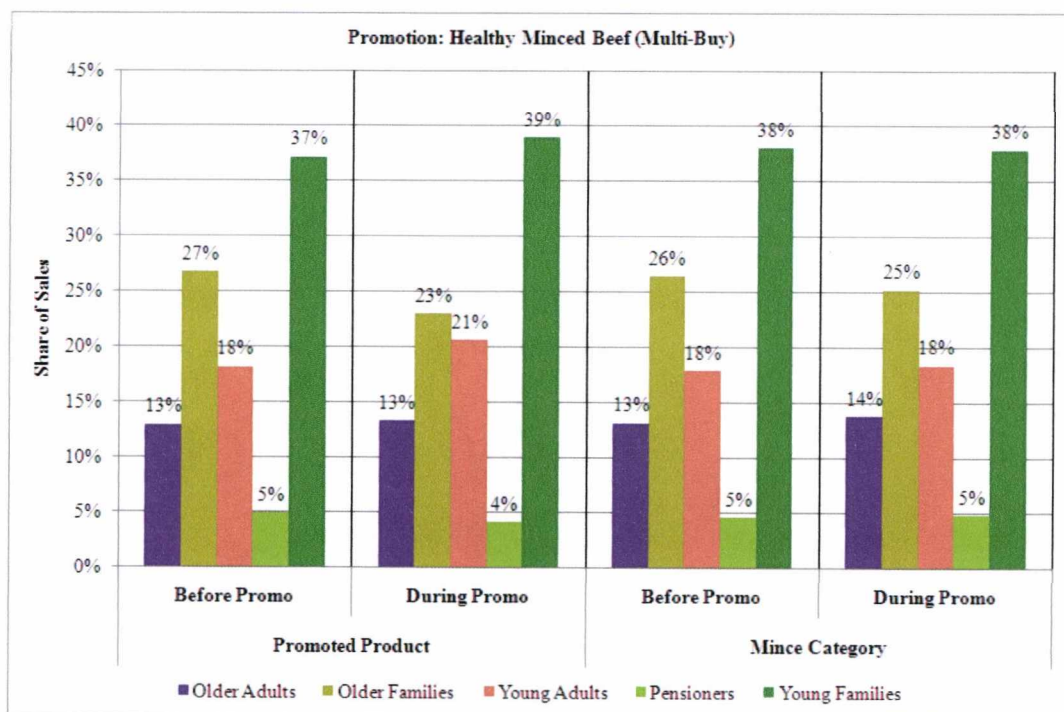
However, customer penetration of healthy minced beef increased from 2.66% to 3.72%, indicating that the promotion did encourage new shoppers to buy the product.

Similarly customer penetration for the whole minced beef category grew from 21.5% to 29.9%, indicating the promotion drew in new customers to the minced category over all, even if they did not necessarily end up buying into the healthy mince promotion.

If the promotion was a buy one get one free offer this would explain why expenditure on healthy mince did not change during the promotion, since existing customers did not have to spend any more, but gained double the quantity. However, the promotion did not encourage existing customers to stockpile the product by buying more than two packs.

The graph in Figure 5.9.2 shows the share of total sales for healthy minced beef and the total minced beef category for each life-stage segment before and during the promotion. It can be seen that young families and young adults were most responsive to the multi-buy on healthy minced beef since their share of sales increased at the expense of older families and pensioners. This suggests that younger people are most responsive to multi-buy promotions. For the total mince category, the share of sales amongst segments barely changed as a result of the promotion on healthy mince. This indicates that the promotion encouraged shoppers to switch between mince tiers, or brands, rather than attracting brand new customers to the minced beef category.

**Figure 5.9.2: A Graph showing the share of sales for Healthy Minced beef before and during a promotion, by life-stage segment**



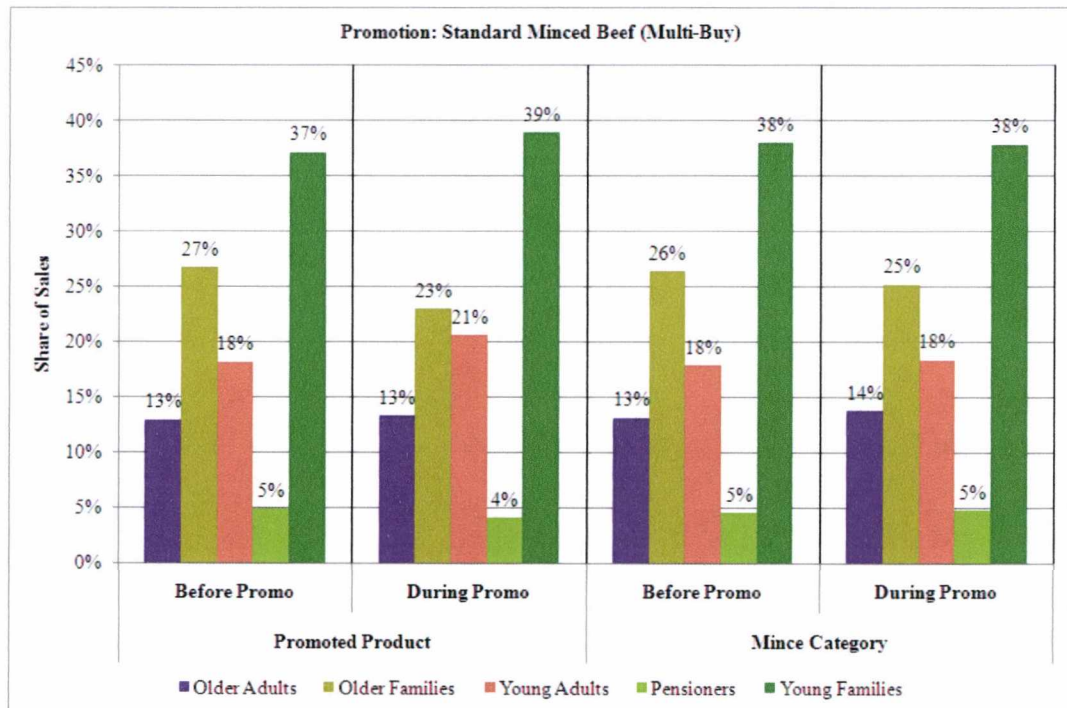
The standard beef mince multi-buy promotion analysed took place over five weeks from 20<sup>th</sup> August to 23<sup>rd</sup> September 2007. The average spend per customer on standard mince was almost the same during the promotion compared with the period before the promotion, suggesting that the multi-buy promotion did not encourage existing shoppers to spend any more or less than usual. Similarly the amount spent per customer also did not increase much for the total minced beef category; with spend increasing only by two pence per shopper.

Customer penetration for standard mince increased from 17.2% to 19.5%, which suggests that the multi-buy promotion attracted new customers to buy into the sub-group who might otherwise have not. This finding is similar to the healthy minced beef multi-buy promotion, in that expenditure did not change, but new customers were attracted to buy into the category. However, as with the healthy beef mince multi-buy, the promotion did not encourage existing customers to stockpile the product by buying more than two packs, since their expenditure did not change. Overall, customer penetration in the total minced beef category grew from 24% to 26.7%, as a result of the standard minced beef promotion.

The graph in Figure 5.9.3 shows the share of sales for standard minced beef and the total minced beef category for each life-stage segment before and during the promotion. It can be seen that young families were most responsive to the multi-buy promotion, since their share of sales for standard minced beef increased from 36.3% to 37.5%. The share of sales for pensioners also increased, but only very slightly, from 4.6% to 4.9% of sales. The share of sales fell most for older adults and older families. This does not necessarily mean that households in these segments bought any less standard minced beef because of the promotion, but they did not increase their purchases by as much as young families. For the total mince category, the share of sales amongst segments barely changed as a result of the promotion on standard mince. This again indicates that the promotion encouraged shoppers to switch between mince tiers rather than attracting brand new customers to the minced beef category.



Figure 5.9.3: A Graph showing the share of sales for Standard Minced beef before and during a promotion, by life-stage segment



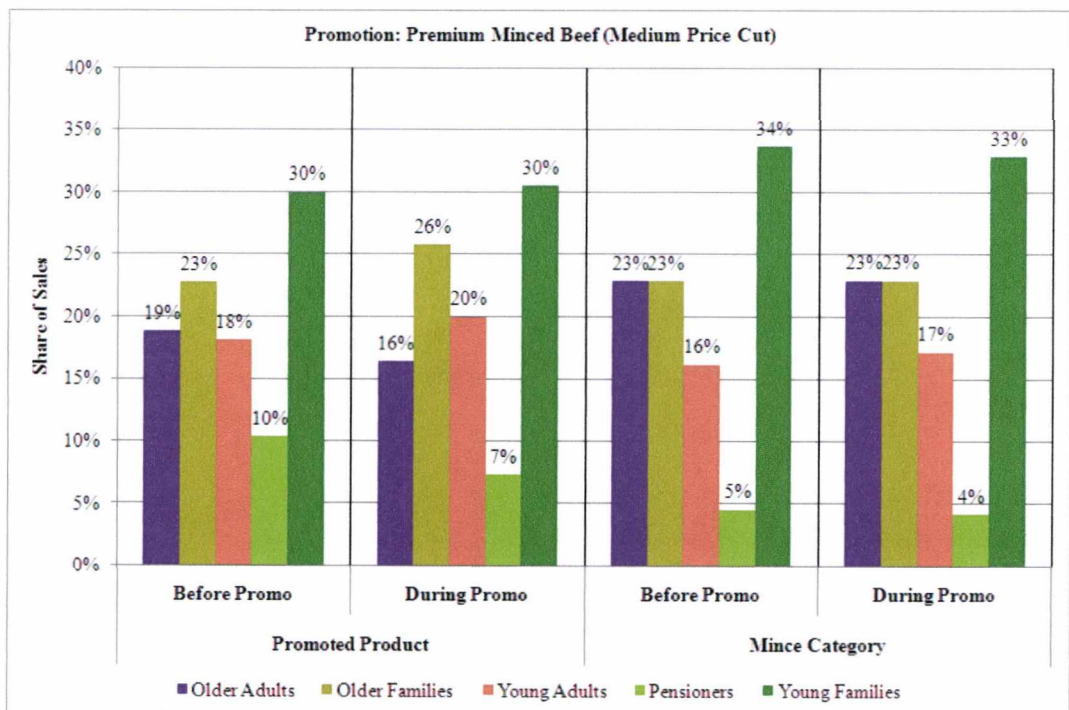
The premium beef mince medium price cut analysed took place over three weeks from 14<sup>th</sup> May to 3<sup>rd</sup> June 2007. The average spend per customer on premium minced beef decreased from £2.65 to £2.55, which highlights that shoppers spent less as a result of the price cut. Spend within the mince category overall also fell by two pence per shopper, indicating that the promotion was not successful at encouraging existing customers to spend more within the mince category, for example through stockpiling, but rather reduced their overall expenditure.

However, customer penetration for premium mince increased from 1.9% to 2.5%, indicating that the promotion attracted new customers to the premium sub-group. However, customer penetration for the mince category overall was slightly down compared to the pre-promotion period. This result shows that medium price cuts on premium mince are ineffective at attracting new customers to the mince category. The medium price cut did encourage customers to buy into the premium tier, from other mince tiers, but at the same time reduced the total amount spent per customer.

Figure 5.9.4 shows the share of total sales for premium minced beef and the total minced beef category for each life-stage segment before and during the promotion. It can be seen that older families and young adults were the most responsive to the promotion. The

share of sales of premium mince for older adults and pensioners fell quite substantially. This suggests that the new customers enticed to the premium minced beef sub-group by the promotion were older families and young adults. Existing customers who were older adults and pensioners did not necessarily buy any less due to the promotion, but new shoppers from these segments were not attracted by the promotion, therefore the share of sales within these segments fell, because more older families, young adults, and to a lesser extent young families were buying into the sub-group. The share of sales between segments did not significantly change for the total mince category as a result of the promotion.

Figure 5.9.4: A Graph showing the share of sales for Premium Minced beef before and during a promotion, by life-stage segment



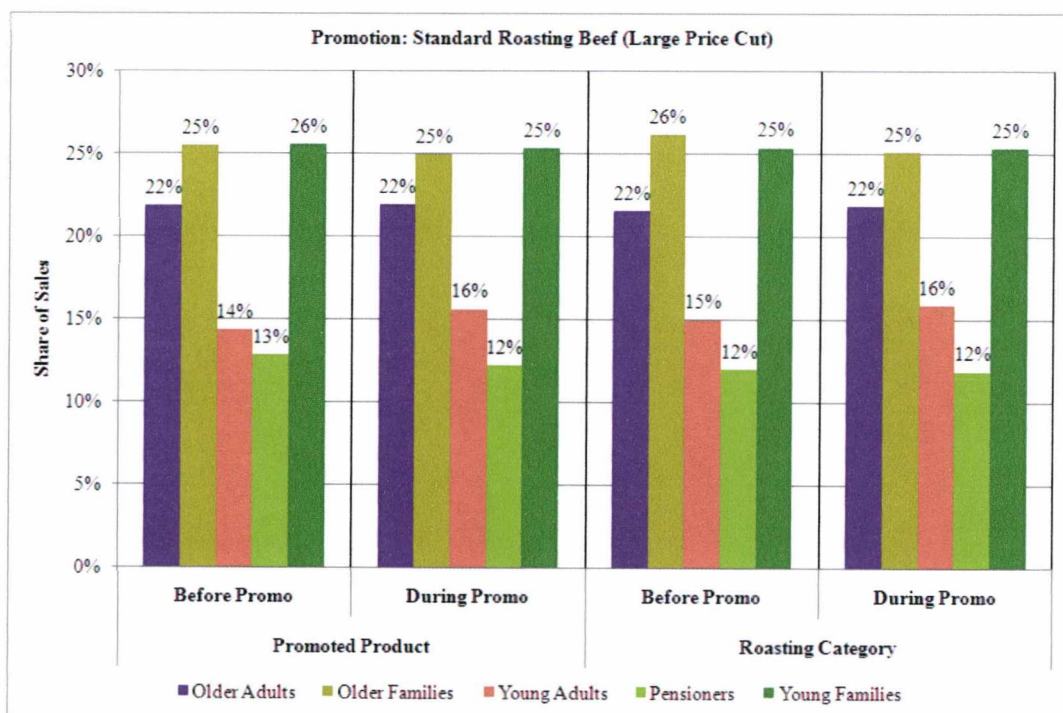
The standard roasting beef large price cut analysed took place over five weeks from 11<sup>th</sup> June to 15<sup>th</sup> July 2007. The average spend per customer on standard roasting beef increased from £5.29 to £5.74, which highlights that the promotion increased expenditure within the sub-group. The average spend also increased within the roasting category as a whole, indicating that the promotion was successful at increasing expenditure on roasting beef. The large price cut may have been enough to encourage loyal existing customers to stockpile and therefore spend more within the sub-group. This is an unusual finding, since other research

(MLC, 200) has suggested that shoppers are less likely to stockpile key occasion products like roasting joints. This is because they are bulky to store, they are perishable unless kept in a freezer, and the shopper generally buys them with the occasion for their use already in mind.

The customer penetration also increased as a result of the large price cut, but only marginally from 3.7% to 4.1%, indicating that the promotion attracted some new customers. Customer penetration within the roasting category as a whole also did not increase significantly as a result of the promotion.

The graph in Figure 5.9.5 shows the share of total sales for standard roasting beef and the total roasting beef category for each life-stage segment before and during the promotion. It can be seen that young adults were most responsive to the large price cut, with the share of sales of standard roasting beef increasing from 14.3% to 15.6%. This result indicates that young adults are attracted to the roasting category as a result of large price discounts. The share of sales amongst other life-stage segments does not change drastically for either standard roasting beef, or within the total roasting beef category overall.

Figure 5.9.5: A Graph showing the share of sales for Standard Roasting Beef before and during a promotion, by life-stage segment



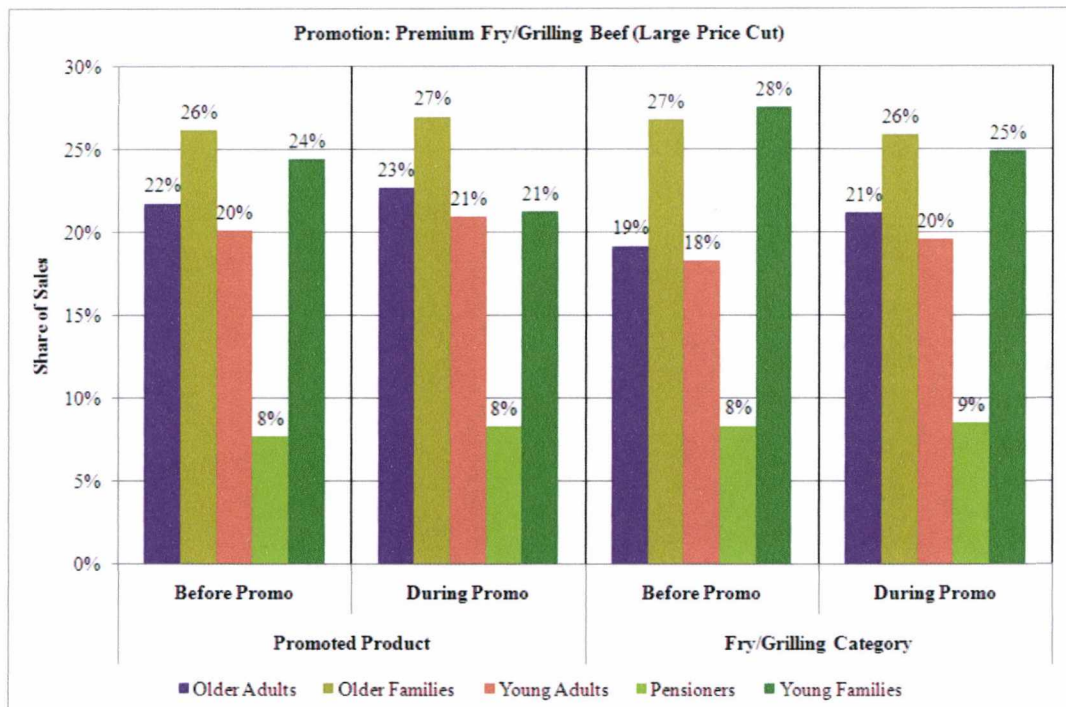


The premium fry/grilling medium price cut analysed took place over six weeks from 9<sup>th</sup> April to 20<sup>th</sup> May 2007. The average spend per customer on premium fry/grilling cuts decreased from £6.64 to £6.02, which indicates that the promotion reduced expenditure within the sub-group. This means that the medium price cut was not successful at encouraging existing customers to spend more on the product by stockpiling or consuming more. However, expenditure within the fry/grilling category as a whole did increase during the promotion. This may indicate that the promotion encouraged shoppers to also buy other products within the fry/grilling category. The promotion on premium fry/grilling cuts may have attracted their attention to the fixture, and in turn they also spent money elsewhere within the category either as well as or instead of buying the promoted product.

Customer penetration for premium fry/grilling steak increased from 1.2% to 1.5%, indicating that the promotion attracted new customers to the sub-group although not by a large amount. However, overall customer penetration within the category fell during the premium fry/grilling promotion. Since the fry/grilling category as a whole was very heavily promoted, this is fall in customer penetration in the category overall may be in response to the ending of another promotion elsewhere in the category.

The graph in Figure 5.9.6 shows the share of total sales for premium fry/grilling beef and the total fry/grilling beef category for each life-stage segment before and during the promotion. It can be seen that the promotion increased the share of sales within all segments, at the expense of young families, whose share of sales fell from 24% to 21%. It can also be seen that the share of sales for young families fell significantly for the total category overall, again indicating that something else may have happened elsewhere within the fry/grilling category which resulted fewer young families buying into the category.

Figure 5.9.6: A Graph showing the share of sales for Premium Fry/Grilling Beef before and during a promotion, by life-stage segment



The additional analysis carried out on a small sample of the more effective promotions has indicated that generally red meat promotions appear to work by attracting new customers rather than increasing the expenditure of existing customers. This may be because red meat is a perishable product and in many cases is bought with a specific occasion in mind. Existing customers will take advantage of the savings made through promotions but will not normally spend any extra or stock pile products. Even with multi-buy promotions which encourage the shopper to buy at least two products, shoppers do not appear to buy any more than the amount required for the offer. For example, a multi-buy promotion on minced beef offering the shopper to buy one get one free, potentially could buy two units and get two units free. However, it appears that this is not the case, since the findings above show that expenditure per customer on standard or healthy minced beef did not change as a result of multi-buy promotions.

The two medium price cuts promotions for which analysis was carried out, one on premium minced beef and one on premium fry/grilling beef, decreased the average spend per customer. This finding indicates that price cuts at the medium level reward loyal customers by offering them a cheaper price, but they do not buy a greater volume in response. New

customers are attracted by medium price cuts, however, so provided a sufficient amount of new customers are buying into the promoted product this will result in an increase in the value of the product sub-group.

It appears that large price cuts do result in a significant increase in expenditure, at least within the standard roasting beef sub-group. This finding indicates that large price cuts are sufficient enough to encourage existing customers to buy more as well as attracting new customers. Roasting joints are bought with a specific meal occasion in mind and are bulky and therefore difficult to store. For these reasons they are not considered a product which shoppers are likely to stockpile when on promotion. However, it appears that large price cuts may be deep enough to encourage some shoppers to buy more of the product. Large price cuts are those which are over thirty per cent off the original price per kilogram. Therefore, for the average spend per customer to increase many existing shoppers must have bought more than one unit of the product, unless the average weights of the packs sold on promotion were considerably more than the normal weight of packs off promotion. This result could imply that if the retailer or supplier has excess supply of roasting cuts to shift, large price cuts may be the most effective way to do this since they attract new customers and increase expenditure amongst existing customers.

The additional analysis also revealed that shoppers will respond in different ways to promotions, depending upon the life-stage of their household. No clear pattern has emerged as to which segments are most responsive to promotions as it appears to vary by product and promotion type. However, these results highlight the fact that retailers and meat suppliers cannot assume that all shoppers will respond in the same way to all types of promotions. It might have been assumed that families will always be the most responsive to promotions since they will typically have more mouths to feed and are likely to be the most able to make use of multi-buys since they know they will be able to use the extra product, more-so perhaps than a single pensioner or student, or young couples without children. However, the results have revealed that young families were amongst the most responsive to promotions on standard, premium and healthy minced beef, but not to fry/grilling or roasting cuts. Older families behaved slightly differently, in that they were responsive to the promotion on premium minced beef, but not healthy or standard mince. Young adults were most responsive to the large price cuts on standard roasting beef, suggesting that this promotion attracted young adults who would not normally buy such a product at full price. Therefore if the aim is to expand consumption in the roasting category, this finding could suggest that promotions should be targeted at young adults, to encourage them to buy into the category more. This could be done, for example, through targeted mail-outs containing coupons to young adult households.

The additional analysis has made it clear that further in-depth analysis is needed to further our knowledge about how promotions work in the red meat sector. As well as this, more research is needed to understand how shopper characteristics, including household life-stage, affect the promotional response. Through a better understanding of both how promotions are working and who is responding to them, offers can be better planned based on what they aim to achieve.

This chapter has presented the results and findings from the analysis into the impact of promotions in the red meat sector, as well as discussion with regards to how these findings answer the original research hypotheses. Additional analysis was also carried out to attempt to address some further questions about how promotions worked and the differences in the ways different shoppers respond to promotions. The following, and final, chapter explores the conclusions, recommendations and limitations of the research undertaken for this thesis.

## 6. Conclusions, Recommendations and Limitations

### 6.1 Conclusions

The purpose of this research project was to investigate the impact of promotions in the red meat sector. The reason for undertaking this research was to a) generate unique empirical insights into the effectiveness of promotions using supermarket loyalty card data, and, to b) provide retailers, meat processors and livestock producers with a better understanding of how promotions in the red meat sector work.

British livestock farmers in recent years have struggled to make a sustainable living from farming, partly as a result of long term decline in red meat consumption and increased pressure from cheaper imports. The use of price promotions in the meat sector has increased over recent years, and these have been used both as a tool to boost sales of British meat, but also as a tool for retailers to increase footfall to their stores in pursuit of increased footfall and market share.. In the short-term, price promotions entice shoppers to increase the quantity they purchase or to switch from one product to another, but it is not evident that, in all cases, the increase in consumption offsets the reduction in price and there is very little published evidence of the impact that promotions have on the profitability of the fresh meat category as a whole.

At the onset of this research project it was felt that a more sophisticated approach to promotions is required which delivers benefits to all links involved in the meat supply chain; farmers as well as the retailers, meat processors and consumers. In order for this to be achieved it was deemed necessary to gain a better understanding as to how shoppers react to different kinds of promotions within the fresh meat category, to enable retailers and suppliers to plan promotions more effectively in the future. By identifying which promotions work best, for which categories, products and shopper segments.

One major advantage of using the dunnhumby data for this research was that it made it possible to analyse meat demand at the disaggregated tier and cut levels, rather than just aggregated data for the red meat categories. The literature review revealed the importance of using disaggregated data where possible, because shoppers do not choose to buy fresh beef or fresh lamb; they choose to buy specific cuts (e.g. organic lamb chops or healthy minced beef), and for specific meal occasions (e.g. mid-week snack or weekend dinner party). The research carried out was also unique in its chosen data source since a dataset of this magnitude had not

previously been used for in depth analysis into the impact of promotions within the fresh meat sector.

The results revealed many interesting findings, some of which added further evidence to support the theories of earlier studies, while others were more difficult to explain. The first hypothesis specifically addressed the category expansion effects of promotions, asking if promotions increase the overall value of the red meat category. Category expansion occurs where the value of a sub-group or product category as a whole is increased as a result of a promotion. For category expansion to take place, a promotion will need stimulate increased consumption of the product. Since the research in this thesis was looking specifically at sales value, the promotion needed to stimulate increased consumption of the product to the extent that it would outweigh the costs of the promotion. Value sales will only increase, if the increase in consumption is great enough to offset the reduction in price as a result of the promotion. If promotions can increase total category consumption then they can be profitable without stealing share from competing or substitute products (Putsis and Dhar 2001).

The results revealed that at the total red meat category level, medium level price cuts and multi-buy offers were the only types of promotion to have a statistically significant impact on the overall value of the category. Medium level price cuts were found to de-value the red meat category as a whole, while multi-buy offers increased the value. This finding suggests that price discounting as a whole is not effective enough to increase volume sales in the red meat category by enough to offset the cost to the retailer or supplier of reducing the price. This result however, contradicts the notion by Foubert and Gijsbrechts (2007) that retailers aiming to follow a strategy to increase category sales will find multi-buy promotions or promotional bundle offers to be relatively ineffective. It was thought that multi-buy promotions were better for encouraging brand switching behaviour, while straight price reductions are much more likely to substantially increase sales at the category level (Foubert and Gijsbrechts 2007). While the results from this analysis appear to contradict the theory, it is however, important to consider the reliability of analysing promotions at the total red meat category level, especially since promotions of some kind within the category were running almost constantly throughout the time period. This highlighted the importance of carrying out the analysis at a more disaggregated, product level. This was possible by categorising products within the beef sector into sub-groups by tier and cut, in order to look at the effects at the more disaggregated level.

The results at the disaggregated level reveal a much clearer picture of what happens as a result of promotions when you drill down within categories. It can be seen that while multi-buy promotions do increase the value of the minced beef category, they are not as effective within other sub-groups at expanding category value. Within the roasting and fry/grilling



categories, price cuts were found to be most effective forms of promotion for driving sales value. These results provide empirical evidence to support the qualitative research by the MLC (2002) which suggested that price discounts would be more effective than multi-buys at driving sales of key occasion meats such as roasting joints and fry/grilling steaks. The study by the MLC also indicated that multi-buys would be the most effective form of promotions on everyday 'core proteins' such as minced beef; a theory which is also supported by the findings within this thesis.

While there were clear differences between the main cuts as to which types of promotion were most effective at expanding the value of the category, there were also found to be differences between the different price tiers of products of the same type of cut. This result indicates that industry should not assume that the same promotion will work most effectively on all tiers of products, within a category. For example, within the minced beef category, multi-buys were found to be the most effective promotion at generating sales uplift for most types of minced beef. However, medium price cuts were found to be more effective on premium tier minced beef products than multi-buy promotions. If retailers had been aware of this fact, then they would have realised that it makes much more sense only to implement medium price cuts within the premium tier, rather than wasting time and resources on multi-buy offers which are less effective. Within the premium minced beef category four multi-buy promotions took place, compared with three medium price cuts.

Similarly there were differences within the roasting category. On standard roasting beef, large price reductions were found to be the most effective form of promotion in terms of increasing sales value. However, within the premium and speciality tiers, medium price cuts were the only form of promotion used, but generated a greater uplift in sales within the respective tiers, than large price cuts did on standard roasting beef. It appears therefore that price promotions may be more effective within the more differentiated, premium level product tiers, than the standard tier. This finding suggests that some of the value sales may be coming from shoppers would have normally bought value or standard tier roasting joints, but have traded up to more differentiated, premium tier products. The results showed that promotions on premium roasting joints significantly decreased the sales within the value tier sub-group. This adds weight to the theories of asymmetric brand switching, whereby shoppers will trade up to higher tier products, but not down.

Existing research on brand switching is unanimous in the belief that if a lower tier brand is promoted it does not attract customers from high-tier brands, but the promotion of higher quality, premium priced brands impacts significantly upon weaker brands (Kumar and Leone, 1988; Krishnamurthi and Raj, 1991; Mulhern and Leone, 1991; and Martínez-Ruiz *et al.*,



2006a). While the results from the roasting sub-group back up this theory, some other results were conflicting. Within the mince category, multi-buy promotions on standard minced beef negatively affected sales of premium minced beef, suggesting shoppers traded down to the standard product when on promotion. Within the fry/grilling sub-group there were a lot of switching effects occurring between tier levels, many of which were hard to explain, but were likely to be because the category is so heavily promoted within most sub-groups. The results showed sales of value tier products, increasing as a result of promotions on premium and standard products, which goes against theories of asymmetric brand switching, and suggests the products are complementary in some way. However, the result was affected by the heavy presence of promotions within the fry/grilling category, making it probable that such a relationship does not really exist.

The effects of promotions across species were also analysed, through looking at the effects of pork and lamb promotions on beef sales. From the results it could be concluded that generally there was little evidence of cross-species switching due to promotions, with lamb and pork promotions explaining very little of the variance in sales of beef, although there were some exceptions. There was some evidence to suggest that shoppers within the roasting category will substitute beef with lamb if the products are within a similar tier level, such as organic. There was also evidence of asymmetric switching occurring across species. Sales of value roasting beef fell in response to promotions on both premium roasting pork and premium roasting lamb. Research by Fowler (2007) looking at the cross-price elasticities between meat species and cuts, found little evidence of substitution effects across species.

Additional analysis was carried out in an attempt to identify how successful promotions were working. When promotions expand the value of the category, the additional sales will either be coming from existing customers spending more or from new customers to the product or category. The results indicated that generally red meat promotions appear to work by attracting new customers rather than increasing the expenditure of existing customers. This result indicates that more needs to be done to increase the amount existing customers are spending, perhaps in other ways such as providing recipe cards to demonstrate additional ways to use the product during the week. Red meat is a perishable product, making it difficult to store, and in many cases is bought with a specific meal occasion in mind. However, through informing customers of new ways to use the product over several different meal occasions in the week, the shopper may be more likely to buy a larger quantity when on promotion.

Additional analysis also identified that shoppers will respond in different ways to promotions, depending upon the life-stage of their household. The results highlighted the fact it cannot be assumed that households will respond in the same way to all types of promotions.

For example, young families were found to be amongst the most responsive to promotions on standard, premium and healthy minced beef, but not to promotions on fry/grilling or roasting cuts. Young adults were found to be most responsive to the large price cuts on standard roasting beef, suggesting that this promotion attracted young adults who would not normally buy such a product at full price. Therefore if the aim is to expand consumption in the roasting category, this finding could lead to the conclusion that promotions should be targeted at young adults, to encourage them to buy into the category more. This could be done, for example, through targeted mail-outs containing coupons to young adult households.

In conclusion, the first hypothesis asked whether promotions add value to the total red meat category. The evidence from the analysis suggests that this really depends upon the type of promotional mechanism used. Multi-buys were the only mechanism found to significantly add value to the red meat category as a whole. However, the results revealed that it is essential to drill down to the product level, as it can be seen that the effectiveness of promotions depends on the cut and tier level, as well as the mechanism used. The second hypothesis was concerned with the impact of promotions across species, tier-level and/or cut of red meat. There was strong evidence from the results to suggest that the impact of promotions is sensitive not only to the category, but also to the cut of meat on which the promotion is used. This ties in with the third hypothesis which was concerned with the differential impact by type of promotion used be it multi-buy or price reduction – again the evidence suggests that not all promotions work in the same way or to the same extent. The fourth hypothesis was concerned with switching between tiers or species of meat cuts as a result of promotions. The general conclusion from the analysis was that there was evidence of switching between tiers, particularly from value and standard to premium tiers, but not as much as between species.

## **6.2 Recommendations**

Drawing upon the findings from the results and main conclusions a series of recommendations can be made to both the British meat industry and retailers, in terms how promotions could be implemented more effectively.

One of the most obvious conclusions drawn from this research is the fact that there is not a single type of promotion which works best across the board for red meat. Instead the effectiveness of promotions varies depending specific characteristics of product, including the cut and tier level. Generally shoppers are most responsive to multi-buy promotions on core proteins like mince, and are more responsive to straight price cuts on key occasion meats like

roasting joints and fry/grilling cuts. However within the product tiers, there are some types of promotion which are more effective than others.

Multi-buys are most effective on all mince products, except those of the premium tier. In order to implement promotions successfully within the premium mince tier it is recommended that medium level price cuts of between fifteen to thirty percent off are used to generate the greatest uplift in sales value. It was evident that promotions on standard minced beef steal sales away from the premium tier significantly. Therefore it is recommended that standard minced beef should be promoted less frequently, in order to encourage more shoppers to purchase within the premium tier. This is especially important since British livestock farmers are being encouraged to differentiate their products more in order to remain competitive in a market becoming increasingly affected by cheaper imports. Such differentiated products, for example by region or production method, will be sold under a premium label. If standard mince continues to be heavily promoted it may negatively affect the demand for premium products, which in turn will negatively affect the producers of those products.

Within the roasting category, shoppers were most responsive to promotions within the premium and speciality tiers. Medium price cuts on these premium, differentiated, products generate a stronger uplift in sales, than large price cuts do on standard roasting beef products. Therefore it is recommended that promotional activity is focused more within on these more premium level products to encourage growth in the value of these sub-groups, rather than standard level products.

Within the fry/grilling beef category is very heavily promoted with many coinciding promotions across the different product tiers. This makes it difficult to identify which promotions work most effectively and within which tiers. This is also likely to confuse the shopper who is being confronted with promotions on organic, premium, standard and even value steaks all at once. It is recommended that promotions within the fry/grilling category are implemented in a more focused way, concentrating on just promoting one or two products at once. This is particularly important in terms of encouraging shoppers to trade up to premium level products. If promotions are running on value and standard products at the same time as premium, then they have less incentive to trade up.

Promotions need to be concentrated more on premium or differentiated products such as specially reared or organic, rather than value or standard lines since these pull customers up away from cheaper lines, and should add more value to the red meat category. This will benefit the British meat industry in the long term, since it entices shoppers away from cheaper products, which are often imported rather than British. Expanding demand for these types of

differentiated products will also help to encourage more producers to engage in ways to differentiate their products.

The results of additional analysis revealed that different shoppers respond to promotions in different ways depending upon the life-stage of their household. It is recommended that further research is carried out to build up a fuller picture as to how shoppers respond differently within all product sub-groups. Such information is essential so that promotions can be targeted more towards specific segments. For example, the analysis revealed that young adults were most responsive to large price cuts on standard roasting beef, suggesting that this promotion attracted young adults who would not normally buy such a product at full price. Therefore if the objective is to expand consumption within the roasting category, this result suggests that promotions should be targeted at young adults, to encourage them to buy into the category more. Specific segments of society can be targeted through coupons in magazines which they are likely to read, or through mail-outs to specific customers.

### **6.3 Limitations**

There were several limitations to this research which need to be taken into consideration. It was seen from the results that overall promotions explained only 25 per cent of the total variance in sales in the red meat sector. Therefore, it is clear that there are many other factors at play which are influencing sales, which ideally need to be taken into account in order to identify the true impact promotions have. Many of these factors were not possible to measure without further information, such as what kinds of point of sale displays and merchandising were taking place at the time of promotion. If some products on promotion are being positioned on aisle ends, then this is likely to increase the impact of the promotions since more people will be aware of the promotion. Since this information was unavailable, it was not possible to consider how the positioning of promoted products influenced the impact on sales.

Another factor which may have a strong impact on sales aside from promotions is seasonality, especially since some meat products are traditionally eaten more in some seasons than others. The influence of seasons was particularly evident when analysing the promotions for the diced beef category, where the only promotions taking place were during the summer when sales are seasonally much lower, however this was not accounted for in the regression model. Seasonality could have been accounted for in the model using dummy variables to indicate when particular products were in season.

There were also further short falls within the model due to the fact that a lagged sales variable was not included to show how sales in previous weeks impacted up current sales. Theories discussed in chapters two and three, such as Loudon and Della Bitta's (1998) interpretation of the consumer decision making process, suggest that shopper behaviour is influenced by feedback from past experiences, including past purchases. Therefore including a lagged sales variable within the model would have taken into account the potential impact of purchases made in previous weeks on the current sales. If a successful promotion had been running within a particular product category, the model does not account for the impact that this promotion may have had on future sales. For example, shoppers may have stockpiled on the product and therefore delay making future purchases, or the promotion may have altered future sales as shoppers who enjoyed the product when they tried it on promotion continue to buy it after the promotion ends.

Another limitation to the research was the fact that not all types of promotional mechanism occurred within all the product sub-groups. Therefore it was impossible to identify in many cases which type of promotion would truly have been the most effective. For example, within the roasting beef category there were no small price promotions of less than fifteen per cent off. Therefore it is not possible to draw conclusions about how effective smaller price cuts would have been on roasting cuts.

Another limitation was that the analysis did not consider the impact of other substitute products aside from the three red meat species. In fact there may be substitution effects between poultry and red meat, or between fresh and frozen meat, which were not considered in this research. For, example sales of roasting beef joints may be affected if there is a promotion on whole chickens, which are used for a similar meal occasion. Such affects were taken into account within this research between the three red meat species, but there is scope for further analysis to identify the effects, if any, promotions on poultry meat have on red meat sales. Similarly there may be substitution occurring between fresh and frozen meat, or between pre-packaged meat and that sold loose over the deli counter.

A further limitation to the research carried out is that it does not consider any additional benefits that promotions within the red meat category brought to the retailer. Even if a promotion does not increase the value of the particular promoted sub-group, it is still possible that the retailer is benefiting from increased footfall as a result the promotions and shoppers are spending money elsewhere in the store. However, these possible indirect effects of promotions to the retailer do not benefit meat suppliers or farmers who inevitably lose out, particularly if promotions are de-valuing products within the meat category.

#### **6.4 Concluding Remarks**

This chapter has explained the key findings and conclusions arising from the research carried out, along with recommendations and limitations. The research carried out in this thesis has made a significant contribution to the literature on the response to promotions, through identifying which types of promotions work most effectively on which types of red meat products. The research has also added to the promotional literature in general with regards to such areas as asymmetric brand switching. There is a lot of scope for further research into the impact of promotions in the red meat sector to build upon the findings here. Such research is necessary in order for industry to be able to make more informed decisions about which promotions to use in order to get the best results. Production of British meat is declining, and with the focus moving towards product differentiation in order to remain competitive in a market facing growing threats from imports, it is essential that we understand how to attract consumers to buy these differentiated, British products. Price promotions are an important tool in influencing shopper behaviour, but they need to be used appropriately, taking into account the characteristics of the product and the type of shopper who you want to attract through the promotion.

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## Appendices

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Appendix 1  
Tesco Clubcard Application Form

Application Form

Start using Clubcard today

And enjoy bigger rewards

Apply for your permanent card today

This is the bit you absolutely have to fill in so we can send you your permanent Clubcard and Key Fobs

**All about you – we need your details in order for us to send you your Clubcard Vouchers**

Title:  Mr  Ms  Mrs  Miss  Other  Yes  No

First name(s):

Surname:

Home no:  Region: Home

Street, Town/City:

Postcode:

**Contact details – we'd like to email you news of relevant offers and occasionally call you for market research purposes**

Telephone contact number (Home, work or mobile):

E-mail address:

Your Clubcard number: **834004101431216215**

**Lost your card?**  
This form is only for customers applying for a Clubcard for the first time. If your card has been lost, stolen or damaged, please call us straightaway to request your replacement Clubcard on **0800 59 16 88**.

**Data Protection – for you to choose what we contact you about**

We would like to reassure you that your details are safe with us and will never be released to companies outside the Tesco Group for their marketing purposes. Your details will never be passed on to other companies for their marketing purposes. You can be sure we'll never give your name and details to other companies for their marketing purposes. If you do not wish to receive other information about Tesco products and services, please tick the  box. If you do not wish to receive other information about Tesco products and services, please tick the  box. If you do not wish to receive other information about Tesco products and services, please tick the  box. If you do not wish to receive other information about Tesco products and services, please tick the  box.

**Signature**

By signing you agree to be bound by the Terms and Conditions on the inside of your card.

**By filling in this bit we will be able to send you rewards, that we think you might like**

**Household details – so we can send you relevant information and coupons for your household**

How many people live there in your household?  1  2  3  4  5  6  7  8  9  10  11  12  13  14  15  16  17  18  19  20  21  22  23  24  25  26  27  28  29  30  31  32  33  34  35  36  37  38  39  40  41  42  43  44  45  46  47  48  49  50  51  52  53  54  55  56  57  58  59  60  61  62  63  64  65  66  67  68  69  70  71  72  73  74  75  76  77  78  79  80  81  82  83  84  85  86  87  88  89  90  91  92  93  94  95  96  97  98  99  100  101  102  103  104  105  106  107  108  109  110  111  112  113  114  115  116  117  118  119  120  121  122  123  124  125  126  127  128  129  130  131  132  133  134  135  136  137  138  139  140  141  142  143  144  145  146  147  148  149  150  151  152  153  154  155  156  157  158  159  160  161  162  163  164  165  166  167  168  169  170  171  172  173  174  175  176  177  178  179  180  181  182  183  184  185  186  187  188  189  190  191  192  193  194  195  196  197  198  199  200  201  202  203  204  205  206  207  208  209  210  211  212  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813  814  815  816  817  818  819  820  821  822  823  824  825  826  827  828  829  830  831  832  833  834  835  836  837  838  839  840  841  842  843  844  845  846  847  848  849  850  851  852  853  854  855  856  857  858  859  860  861  862  863  864  865  866  867  868  869  870  871  872  873  874  875  876  877  878  879  880  881  882  883  884  885  886  887  888  889  890  891  892  893  894  895  896  897  898  899  900  901  902  903  904  905  906  907  908  909  910  911  912  913  914  915  916  917  918  919  920  921  922  923  924  925  926  927  928  929  930  931  932  933  934  935  936  937  938  939  940  941  942  943  944  945  946  947  948  949  950  951  952  953  954  955  956  957  958  959  960  961  962  963  964  965  966  967  968  969  970  971  972  973  974  975  976  977  978  979  980  981  982  983  984  985  986  987  988  989  990  991  992  993  994  995  996  997  998  999  1000  1001  1002  1003  1004  1005  1006  1007  1008  1009  1010  1011  1012  1013  1014  1015  1016  1017  1018  1019  1020  1021  1022  1023  1024  1025  1026  1027  1028  1029  1030  1031  1032  1033  1034  1035  1036  1037  1038  1039  1040  1041  1042  1043  1044  1045  1046  1047  1048  1049  1050  1051  1052  1053  1054  1055  1056  1057  1058  1059  1060  1061  1062  1063  1064  1065  1066  1067  1068  1069  1070  1071  1072  1073  1074  1075  1076  1077  1078  1079  1080  1081  1082  1083  1084  1085  1086  1087  1088  1089  1090  1091  1092  1093  1094  1095  1096  1097  1098  1099  1100  1101  1102  1103  1104  1105  1106  1107  1108  1109  1110  1111  1112  1113  1114  1115  1116  1117  1118  1119  1120  1121  1122  1123  1124  1125  1126  1127  1128  1129  1130  1131  1132



## Appendix 2

### Annotated Photograph of Page 1 of the Tesco Clubcard Application Form

This is the bit you absolutely have to fill in so we can send you your permanent Clubcard and Key Fobs

**All about you – we need your details in order for us to send you your Clubcard Vouchers**

Applicants are asked their Sex

Title: Mr  Mrs  Miss  Ms  Other:  Sex:

First name(s):

Surname:

House no:  House name:

Street, Town/City:

Postcode:

Name and Address details are required in order to receive Clubcard Quarterly Statements

**Contact details – we'd like to email you news of relevant offers and occasionally call you for market research purposes**

Preferred contact number: (home, work or mobile)

Email address:

Provision of Email and Telephone Details is Optional

Your Clubcard number 634004101431216215

Each Clubcard has a unique Identification Number

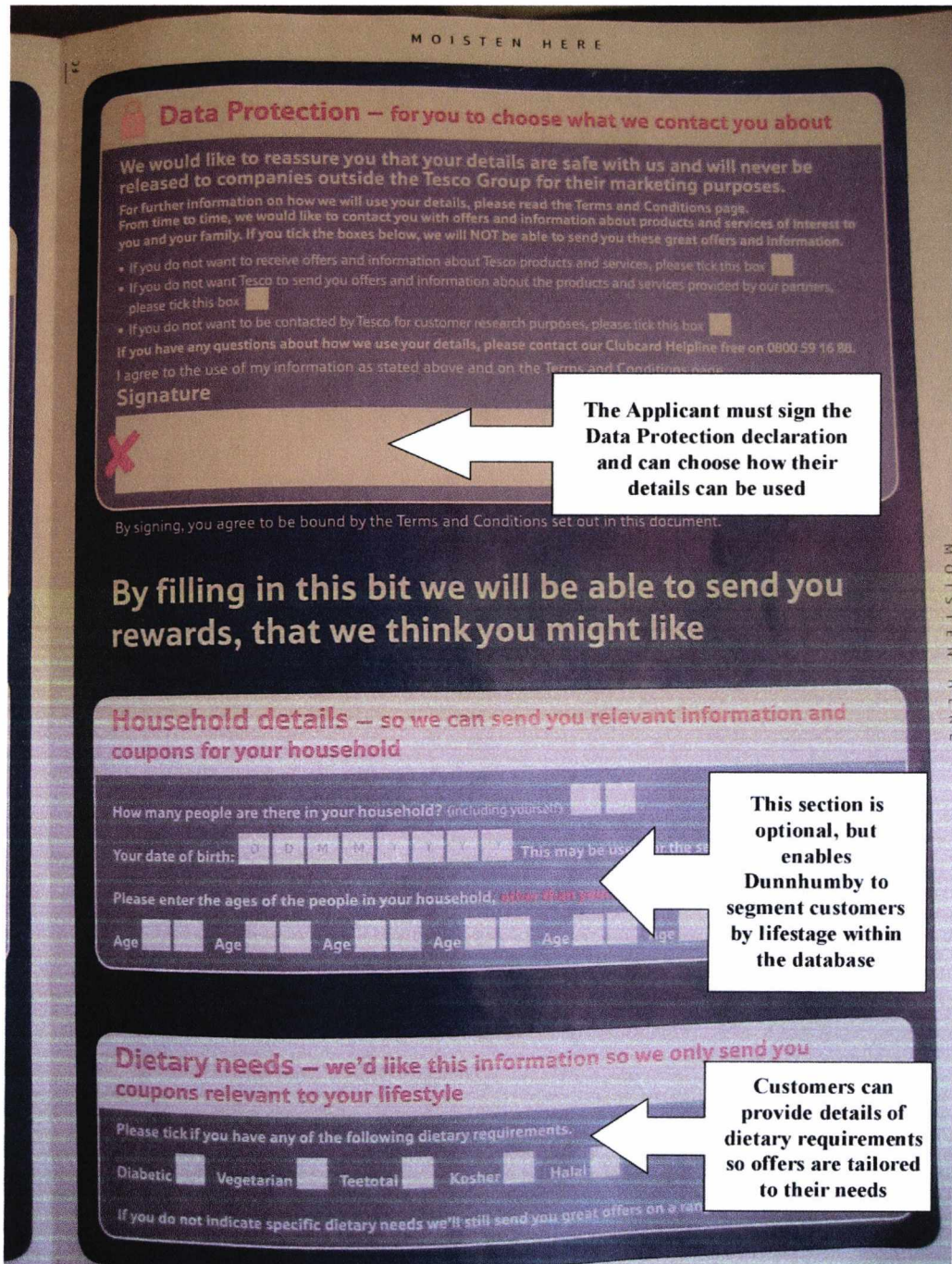
**Lost your card?**  
This form is only for customers applying for a Clubcard for the first time. If your card has been lost, stolen or damaged, please call us straightaway to request your replacement Clubcard on **0800 59 16 88**.

MOISTEN THE EDGES, FOLD, SEAL AND POST



### Appendix 3

#### Annotated Photograph of Page 2 of the Tesco Clubcard Application Form



## Appendix 4

### Composition of the Product Sub-Groups by Species, Cut and Tier

| Species | Cut      | Tier       | Products   |
|---------|----------|------------|--|
| Beef    | Roasting | Standard   | Fresh Beef TopSide/TopRump/SilverSide Joint<br>Fresh Beef Boneless Rolled Rib Roast Med<br>Fresh Beef Bone In Rib Roast<br>Fresh Beef Half Fillet<br>Fresh Beef Sirloin Joint<br>Fresh Brisket Slow Roast Medium             |
|         |          | Premium    | Finest Top Rump/TopSide/Silver Side Beef Joint Sml<br>Finest Top Rump/TopSide/Silver Side Beef Joint Med<br>Finest Boneless Rib Roast<br>Finest N/I Silverside Beef Joint<br>Finest Top Rump/TopSide/Silver Side Joint Large |
|         |          | Speciality | Trad Reared Beef Brisket Joint<br>Trad Reared Beef Topside Joint<br>Specially Selected Ribeye Joint<br>Trad Reared Bone In Rib<br>Specially Selected Boneless Rib Roast  |
|         |          | Organic    | Organic Beef Roasting Joint<br>Organic Beef Brisket Slow Roast   |
|         |          |            |  |
| Pork    | Roasting | Standard   | Pork Loin Joint<br>Pork Leg Joint  |



|             |                 |                 |  |
|-------------|-----------------|-----------------|--|
|             |                 |                 | <p>Pork Boneless Leg Joint</p> <p>Pork Shoulder Joint</p> <p>Pork Fillet</p>   |
|             |                 | <b>Premium</b>  | <p>Premium Pork Stuffed Shoulder</p> <p>Premium Pork Stuffed Belly</p> <p>Premium Pork Leg Joint</p> <p>Premium Pork Ribeye Joint</p> <p>Premium Pork Belly Roast</p> <p>Premium Pork Loin Joint</p>                                     |
|             |                 | <b>Organic</b>  | <p>Organic Pork Rolled Leg</p> <p>Organic Pork Fillet</p>  |
|             |                 | <b>Value</b>    | <p>Fresh Pork Value Hock Joint</p> <p>Pork Value Shoulder Joint</p> <p>Pork Value Bone In Leg Joint</p>  |
|             |                 |                 |  |
| <b>Lamb</b> | <b>Roasting</b> | <b>Standard</b> | <p>Fresh Lamb Braising Shanks</p> <p>Fresh Lamb Half Leg</p> <p>Fresh Lamb Whole Leg</p> <p>Fresh Lamb Whole Shoulder</p> <p>Fresh Lamb Half Shoulder</p> <p>Boneless Rolled Lamb Shoulder</p> <p>Rack Of Lamb</p> <p>Breast Of Lamb</p> |
|             |                 | <b>Premium</b>  | <p>Finest Hand Trimmed Rack Of Lamb</p> <p>Finest Lamb Boneless Rolled Loin Jnt</p> <p>Finest Lamb Half Leg</p> <p>Finest Lamb Boneless Rolled Shoulder</p>  |

|      |       |          |   |
|------|-------|----------|---|
|      |       | Organic  | Organic Roasting Lamb<br>Organic Lamb Half Leg<br>Organic Lamb Half Shoulder  |
| Beef | Mince | Standard | Beef Mince 500g<br>Beef Mince 1Kg   |
|      |       | Premium  | Finest Ground Beef Mince 500G<br>Scot Reared Premium Beef Mince 500G<br>Scot Reared Premium Beef Mince 800G<br>Finest Ground Steak Mince 340G |
|      |       | Organic  | Organic Beef Mince 500g<br>Organic Extra Lean Beef Mince 500g<br>Organic Steak Mince 500g   |
|      |       | Healthy  | H/L Steak Mince 500g  |
|      |       |          |   |
| Pork | Mince | Standard | Pork Mince 500G   |
|      |       | Premium  | Outdoor Bred Pork Steak Mince 500G  |
|      |       | Organic  | Organic Pork Mince 500G   |
|      |       | Healthy  | H/L Pork Mince 500G   |
|      |       |          |   |
| Lamb | Mince | Standard | Fresh Lamb Mince 500g   |
|      |       | Organic  | Organic Lamb Mince 500G   |
| Beef | Diced | Standard | Fresh Diced Beef<br>Fresh Stewing Beef<br>Fresh Casserole Steak<br>Fresh Lean Braising Steak  |

|      |              |            |  |
|------|--------------|------------|--|
|      |              | Premium    | Finest Lean Braising Steak   |
|      |              | Speciality | Trad Reared Diced Beef   |
|      |              | Organic    | Organic Lean Braising Steak<br>Organic Diced Beef<br>Organic Beef Stewing  |
|      |              | Value      | Value Diced Beef   |
|      |              |            |  |
| Pork | Diced        | Healthy    | H/L Diced Pork<br>H/L Pork Stirfry   |
|      |              |            |  |
| Lamb | Diced        | Healthy    | H/L Diced Lamb   |
|      |              |            |  |
| Beef | Fry/grilling | Standard   | Fresh Beef Rump Steak<br>Fresh Minute Beef Steak<br>Fresh Sirloin Steak<br>Fresh Thin Beef Steak<br>Fresh Fillet Beef Steak  |
|      |              | Premium    | Finest Ribeye Steak<br>Finest Fillet Steak<br>Finest Sirloin Steak<br>Finest Rump Steak<br>Finest Frying Steak<br>Finest Beef Olive Steak<br>Finest Beef Medallion Steak |
|      |              | Speciality | Trad Reared Beef Rump Steak<br>Trad Reared Beef Sirloin Steak  |

|      |              |          |  |
|------|--------------|----------|--|
|      |              |          | Trad Reared Beef Fillet Steak  |
|      |              | Organic  | Organic Beef Sirloin Steak<br>Organic Beef Rump Steak<br>Organic Beef Ribeye Steak<br>Organic Beef Fillet Steak  |
|      |              | Value    | Value Rump Steak<br>Value Frying Steak<br>Value Sirloin Steak  |
|      |              |          |  |
| Pork | Fry/grilling | Standard | Fresh Pork Chops<br>Fresh Pork SpareRib Chops<br>Fresh Pork Loin Steaks<br>Fresh Pork Shoulder Steaks<br>Fresh Pork Rump Steaks<br>Fresh Pork Medallions |
|      |              | Premium  | Premium Pork Chops<br>Premium Pork Loin Steaks<br>Premium Pork Fillet Medallions   |
|      |              | Value    | Value Pork Chops   |
|      |              | Organic  | Organic Pork Escalopes<br>Organic Pork Medallions<br>Organic Pork Shoulder Steaks<br>Organic Pork Loin Steaks  |
|      |              | Healthy  | H/L Pork Escalopes<br>H/L Pork Medallions  |
|      |              |          |  |
| Lamb | Fry/grilling | Standard | Fresh Lamb Chops   |

|  |  |                |  |
|--|--|----------------|--|
|  |  |                | <p>Fresh Lamb Loin Chops</p> <p>Fresh Lamb Leg Steaks</p> <p>Fresh Lamb Rump Steaks</p> <p>Fresh Lamb Gigot Chop</p> |
|  |  | <b>Organic</b> | <p>Organic Lamb Chops</p> <p>Organic Lamb Leg Steaks</p>   |
|  |  | <b>Premium</b> | <p>Finest Hand Cut Lamb Loin Chops</p>   |
|  |  | <b>Healthy</b> | <p>H/L Lamb Leg Steaks</p> <p>H/L Lamb Escalopes</p>   |
|  |  |                |  |
|  |  |                |  |
|  |  |                |  |