

The Lure of Supermarket Special Offers: A Healthy Choice for Shoppers?

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Inaugural Lecture

University of East Anglia

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Overview

- ❖ Special offers are big business for supermarkets, with over £50bn in sales and two-fifths of all spending
- ❖ Price promotions can offer great savings for consumers
- ❖ BUT...while the deals are good for our wallets, are they good for our waistlines and health?
 - Do supermarkets over promote unhealthy foods and encourage excessive consumption?
 - Are special offers fuelling the UK's obesity epidemic?
- ❖ This lecture examines these concerns and presents new evidence on the nature of supermarket price promotions

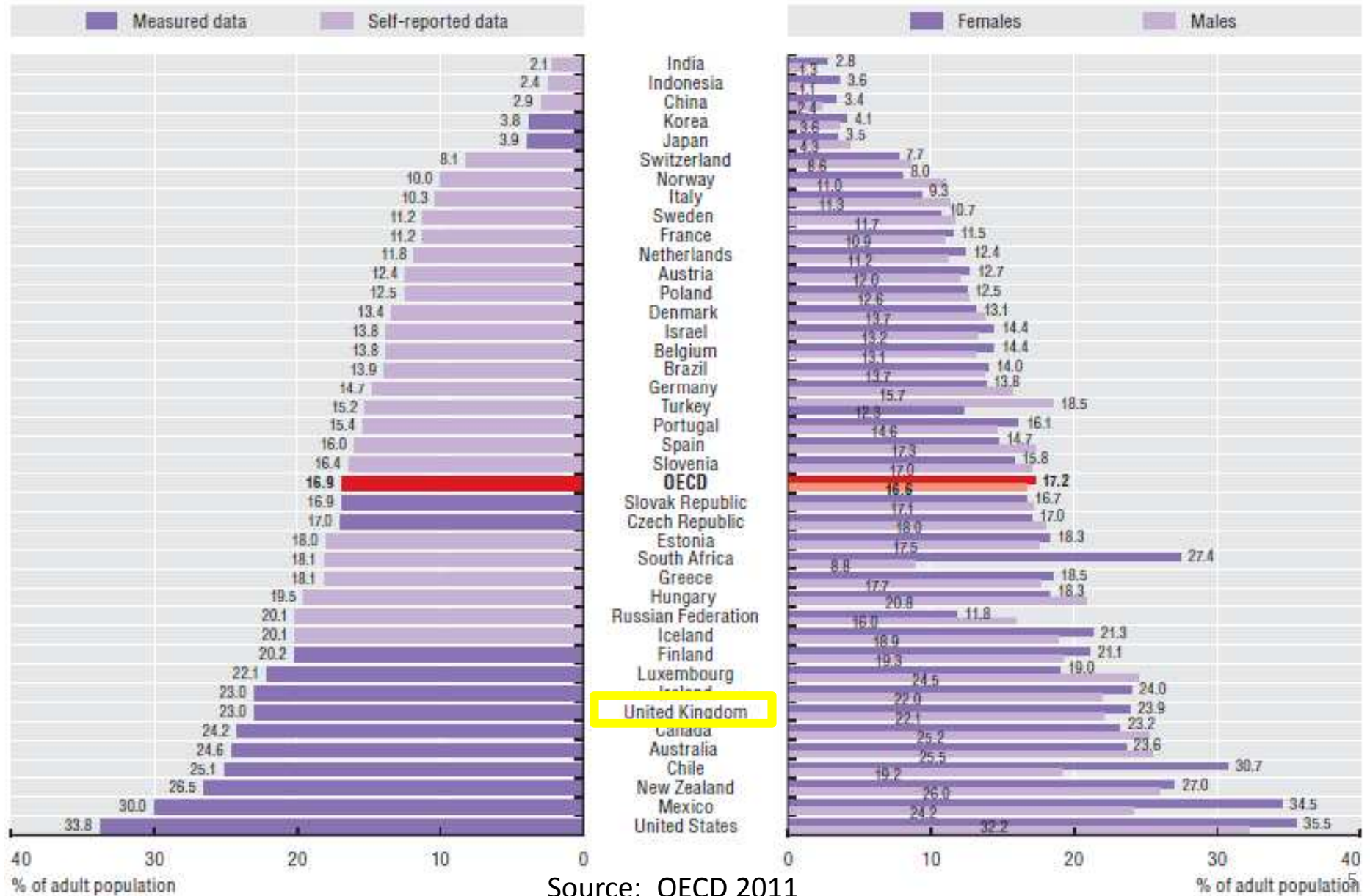
Lecture Outline

- ❖ The growing obesity problem and health problems from overeating and being overweight
- ❖ Food purchasing and consumption in the UK
- ❖ Concerns about supermarket price promotions
- ❖ Trends in price promotions and shopper behaviour
- ❖ New evidence on the healthiness of special offers
- ❖ Implications and conclusions

Global Obesity Epidemic

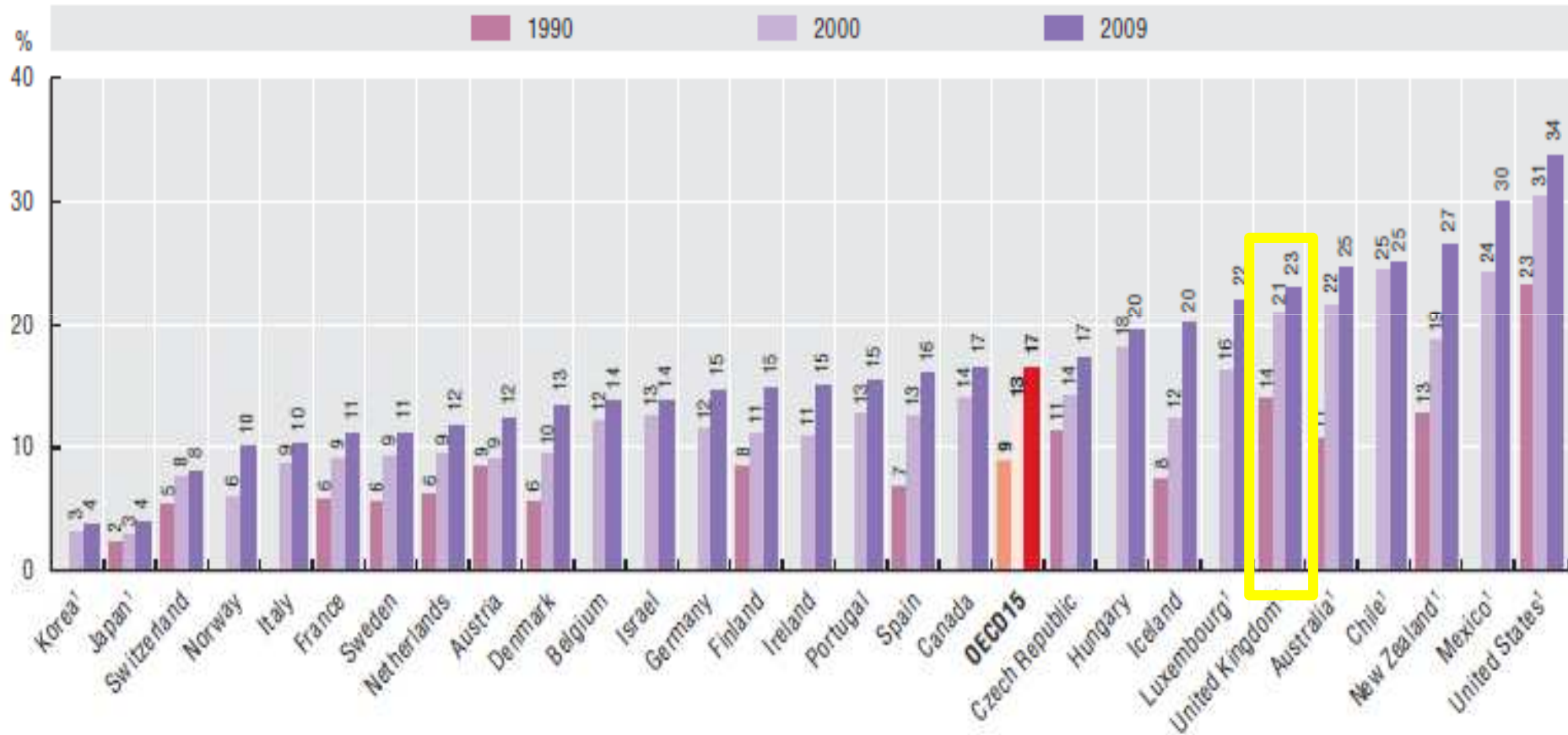
- Worldwide obesity has more than doubled since 1980
- In 2008, 1.5 billion adults were overweight and 500 million were obese
- USA has the highest prevalence at 34% of adult population amongst major countries
- Obesity rate in England up from 15% in 1993 to 24% in 2009
- By 2050, obesity predicted to affect 60% of adult men, 50% of adult women and 25% of children in England
- NHS attributable costs projected to reach £9.7bn by 2050, with wider costs to society to reach £50bn per year

Adult Obesity Prevalence Around the World



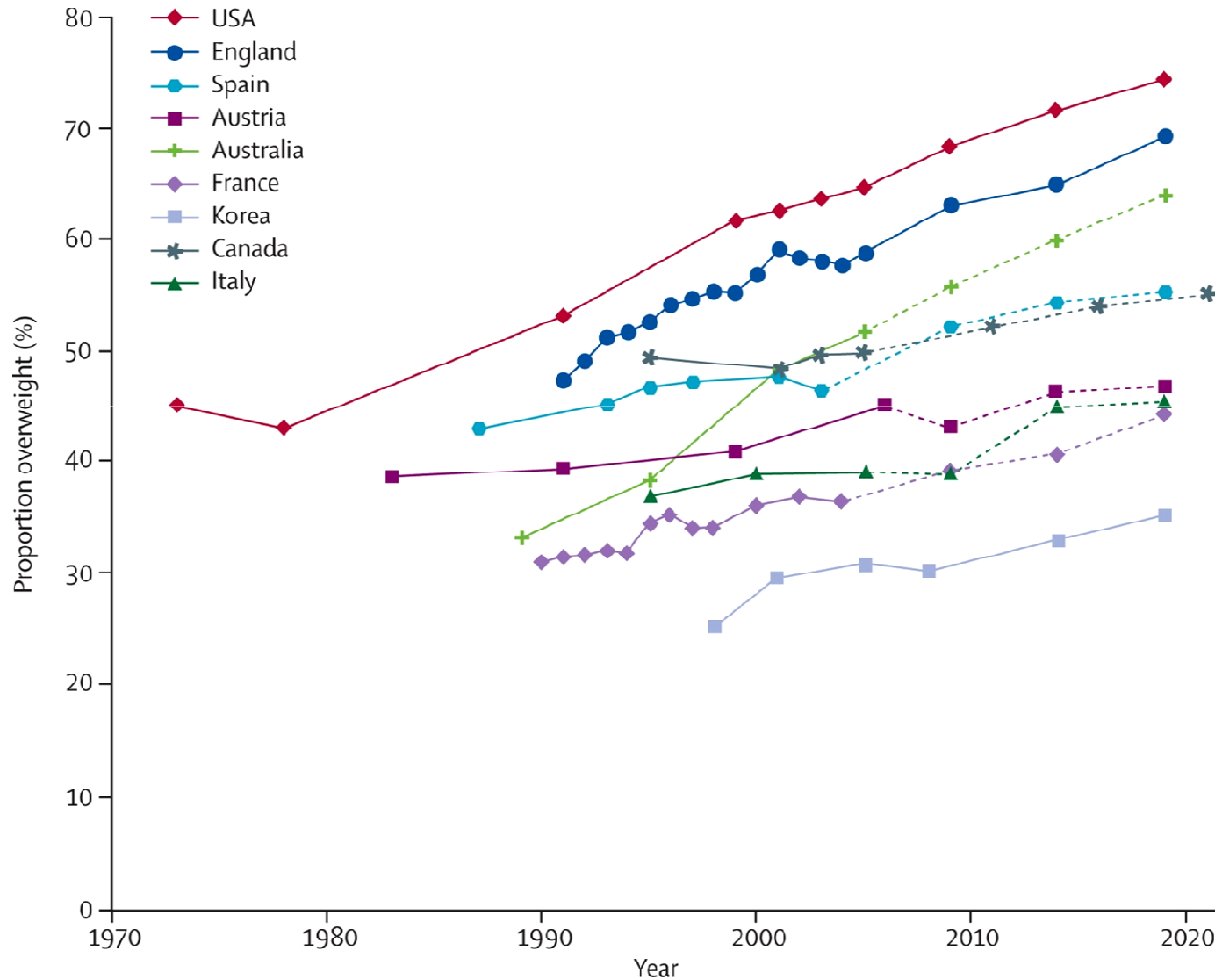
Source: OECD 2011

Increasing Obesity Rates in OECD Countries (1990, 2000, 2009)



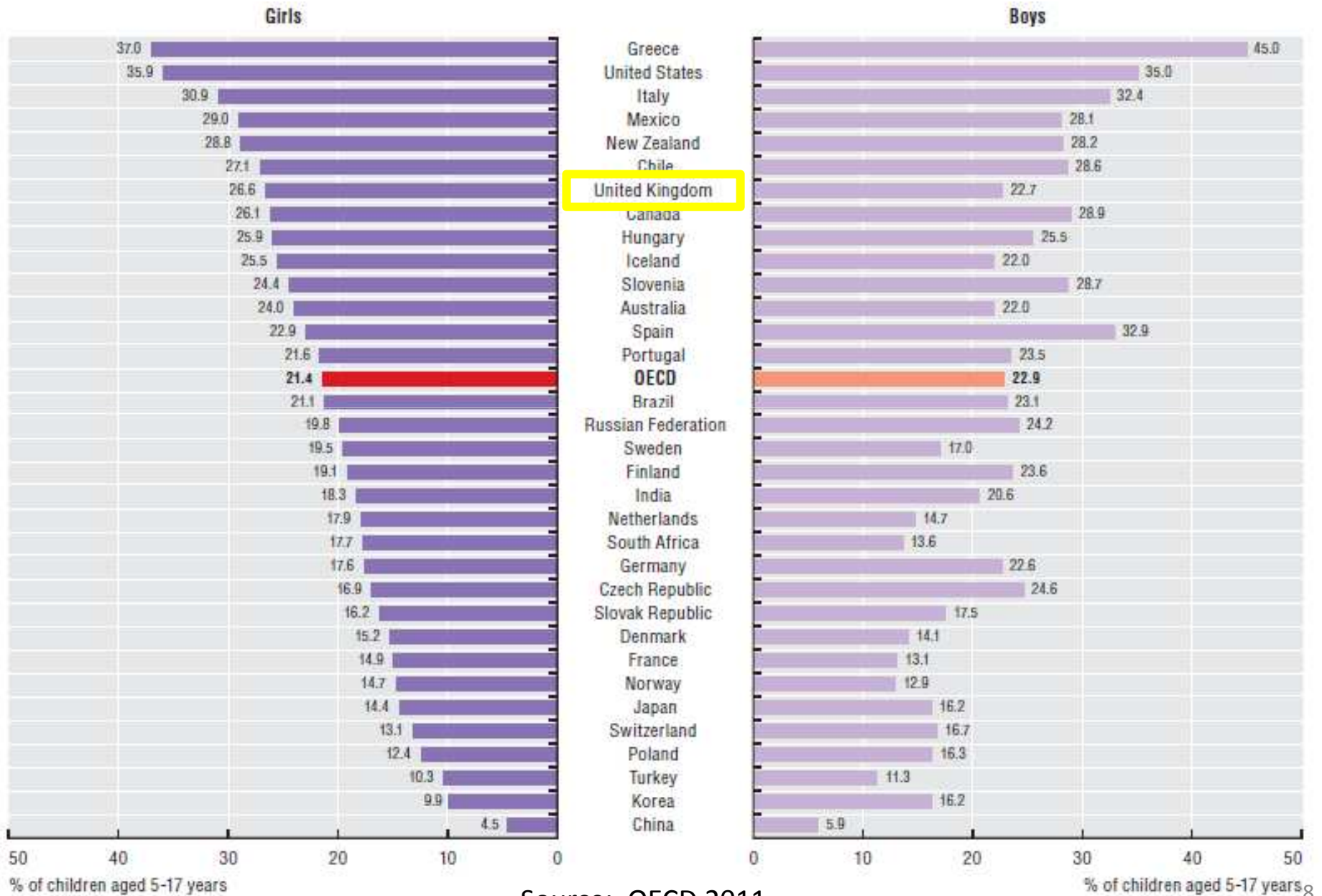
Source: OECD 2011

Overweight Projections in Various Countries



Source: OECD 2010

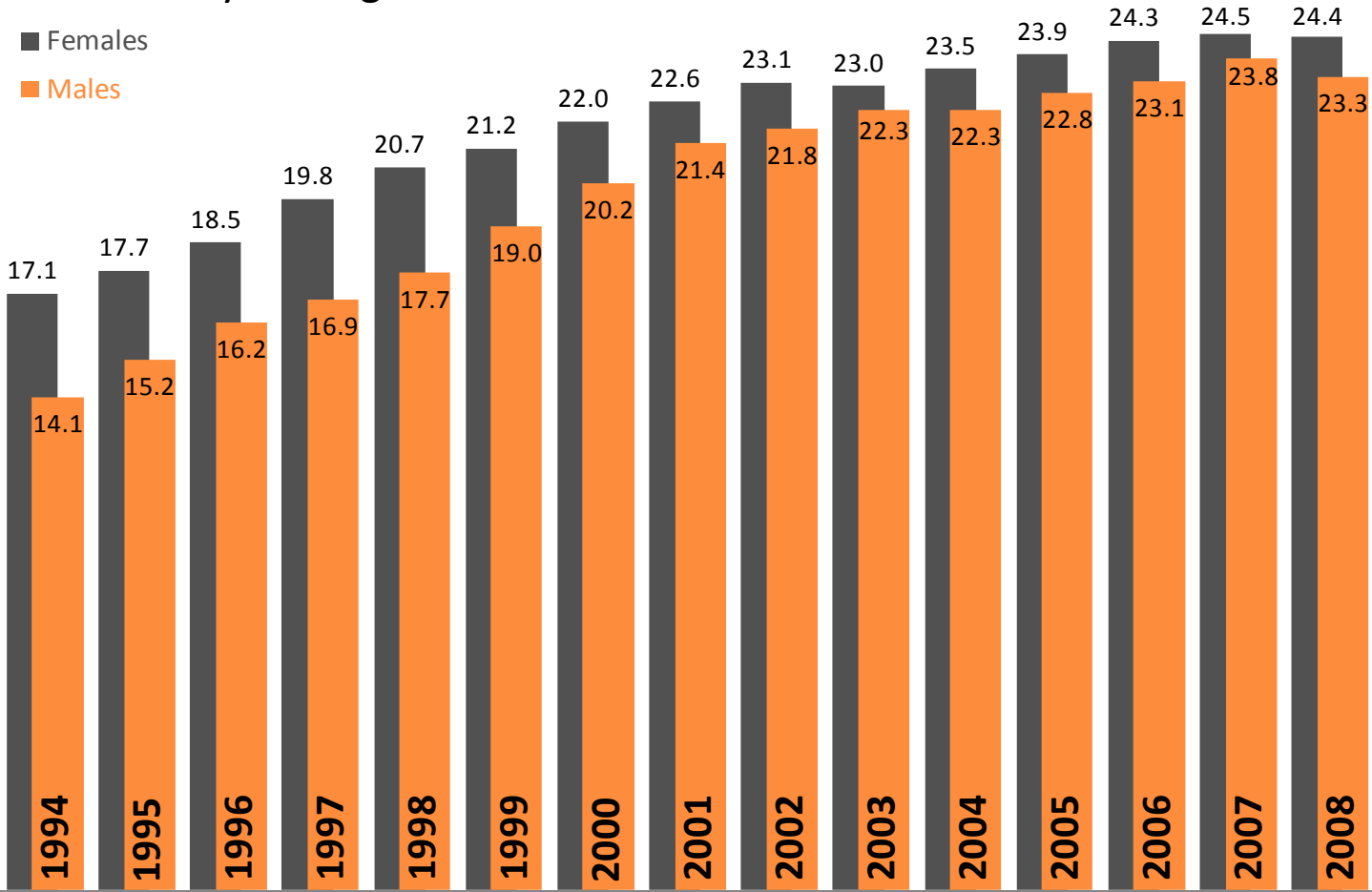
Overweight Prevalence Amongst Children Aged 5-17



Source: OECD 2011

Trend in Adult Obesity Prevalence in England

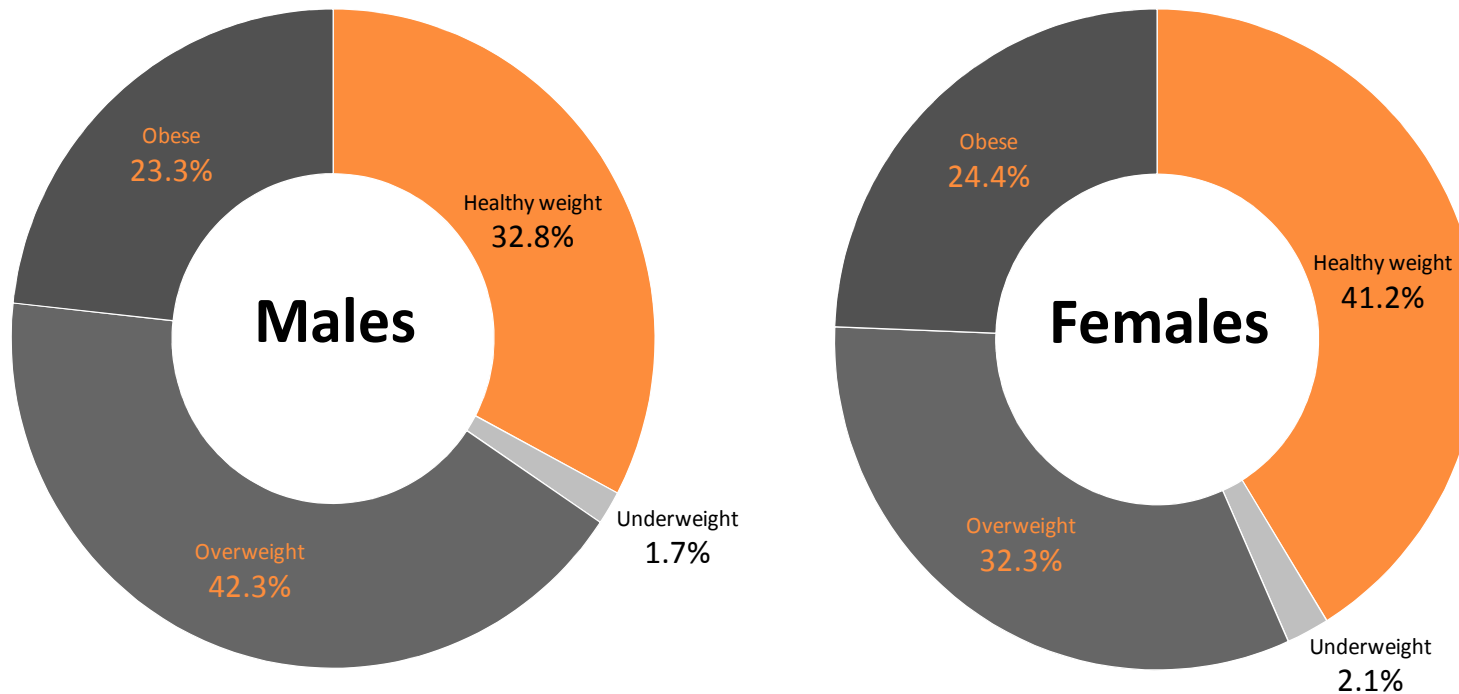
Health Survey for England 1993 to 2009



Three year averages shown, middle year displayed on chart
Adult (aged 16+) obesity: BMI \geq 30kg/m²

Source: National Obesity Observatory

Adult Prevalence by BMI Status in England



Adult (aged 16+) BMI thresholds

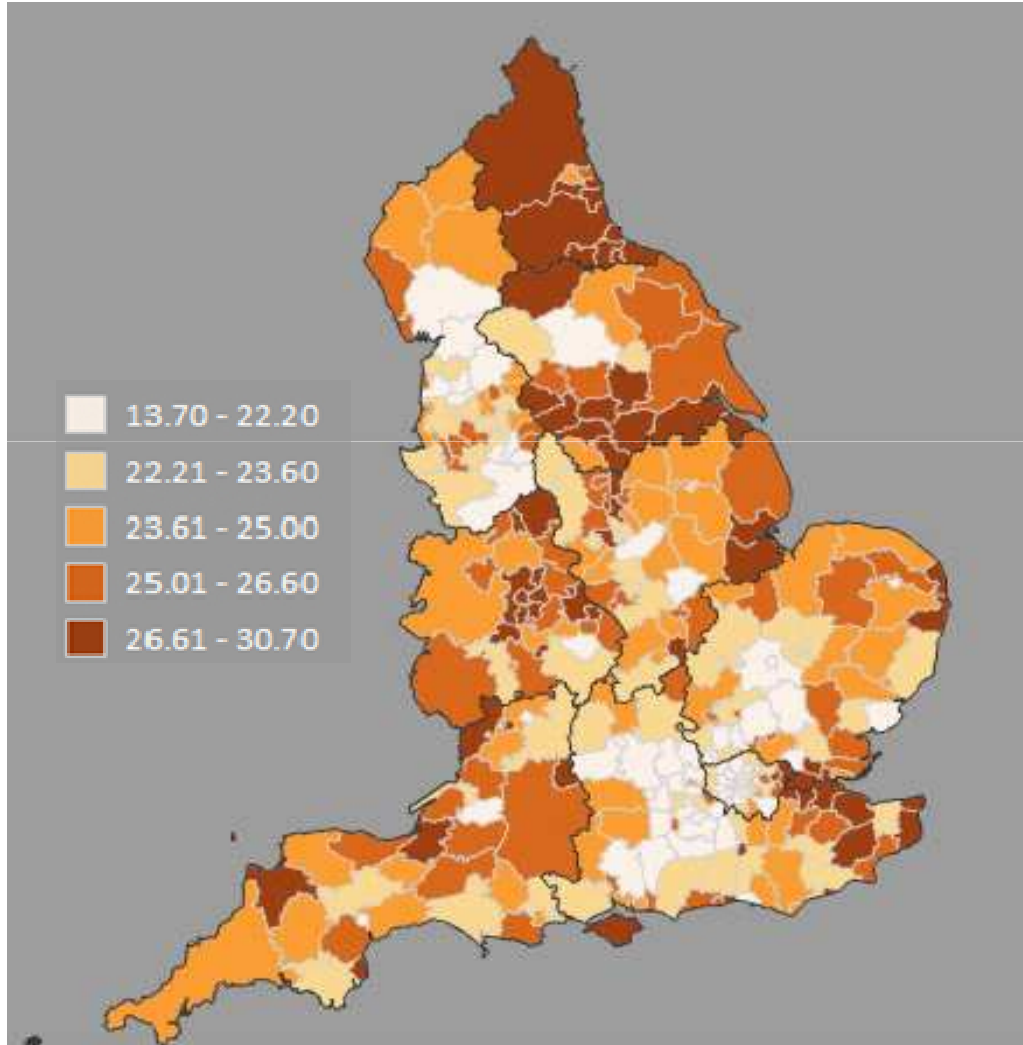
Underweight: $<18.5\text{kg/m}^2$

Healthy weight: 18.5 to $<25\text{kg/m}^2$

Overweight: 25 to $<30\text{kg/m}^2$

Obese: $\geq 30\text{kg/m}^2$

Adult Obesity Rates Across England



Average Obesity Rate

England 24.2

Highest Obesity Rates

Tamworth 30.7

Gateshead 30.7

Swale 30.2

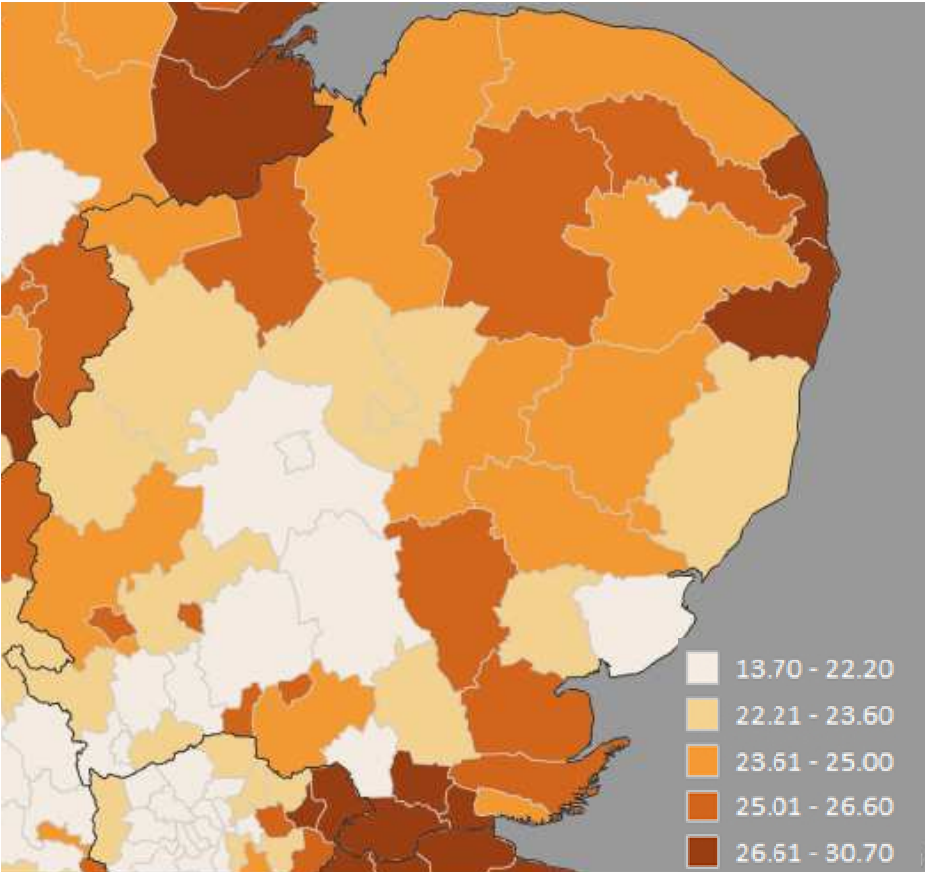
Lowest Obesity Rates

City of London 13.7

Kensington & Chelsea 13.9

Cambridge 14.4

Adult Obesity Rates Across East Anglia



Obesity Rates in Norfolk

Great Yarmouth	28.1
Waveney	27.0
Breckland	25.7
Broadland	25.1
King's Lynn & W. Norfolk	24.9
South Norfolk	24.5
North Norfolk	24.4
Norwich	21.7

Source: National Obesity Observatory

Health Implications of Obesity

- **Musculoskeletal system** – ↑ strain on body's joints, ↑ risk of osteoarthritis and low back pain
- **Circulatory system** – ↑ risk of hypertension, heart disease, strokes, deep vein thrombosis, pulmonary embolism
- **Metabolic and endocrine systems** – ↑ risk of Type 2 diabetes and heart disease (from blood glucose and high cholesterol levels)
- **Cancers** – ↑ risk of endometrial, breast and colon cancers
- **Reproductive and urological problems** – ↑ risk for women of stress incontinence, menstrual abnormalities, and infertility, risk for men of erectile dysfunction.
- **Respiratory problems** – ↑ risk of asthma and sleep interruptions from breathing difficulties
- **Gastrointestinal and liver disease** - ↑ risk of fatty liver disease, gastro-oesophageal reflux, and gall stones.
- **Psychological and social problems** – ↑ risk of stress, low self-esteem, social disadvantage, depression and reduced libido

Economic Burden of Obesity

Direct Costs of Health Treatment + Wider Costs to Society

Estimated costs of elevated BMI, 2001– 2050 (£billion per year)

	2001	2007	2015	2025	2050
Extra NHS costs of elevated BMI predicted by the micro-simulation model	0	2.2	4.1	6.3	7.7
% of all overweight who are obese	33%	40%	48%	52%	66%
Predicted extra NHS costs of obesity alone ¹	0	1.3	2.9	4.3	6.1
NHS costs of obesity alone	1.0	2.3	3.9	5.3	7.1
NHS costs of elevated BMI	2.0	4.2	6.4	8.3	9.7
Total wider costs of elevated BMI ²	7.0	15.8	27.0	37.2	49.9

Source: Tackling Obesities - Foresight Report, 2007

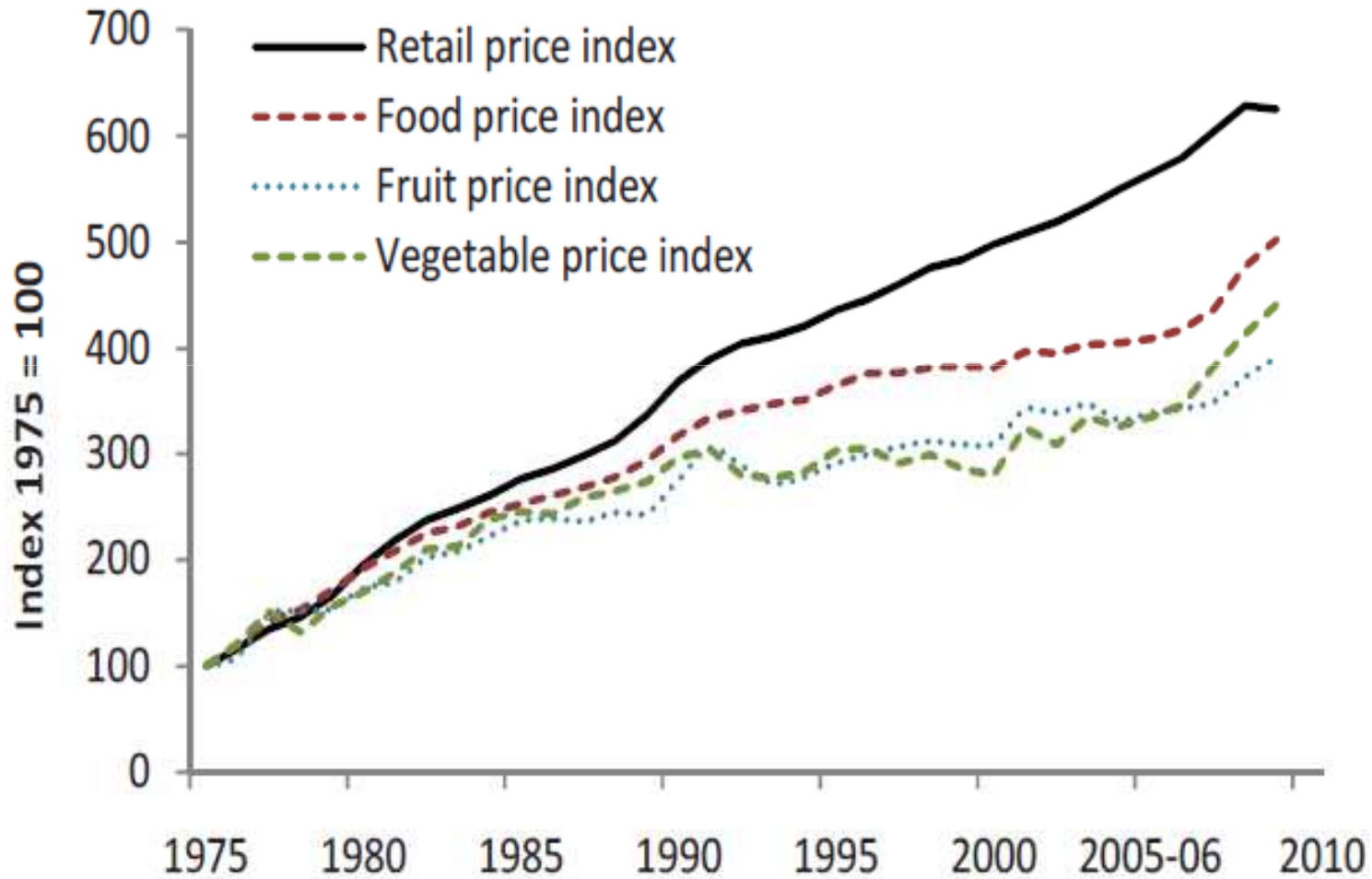
Causes of Obesity

- ❖ Energy imbalance between calories consumed and calories expended resulting in accumulation of excess body fat
- ❖ Two key trends working in tandem:
 - Increased intake of energy-dense foods high in fat, salt and sugars but low in vitamins, minerals and other micronutrients
 - Decrease in physical activity due to the increasingly sedentary nature of work and changing modes of transport
- ❖ Economic and social factors affecting the cost of food and the (implied) cost of exercise, as well as personal eating and exercise habits and public attitudes towards obesity

Spending on Food & Drink in UK

- Average household spent on all food and drink was £38.08 per person per week in 2009 (up by 3.7% from 2008)
- 74% of food and 48% of alcohol purchases consumed at home in 2009
- Total energy intake was 2303 Kcal per person per day in 2009 (up by 1.2% from 2008)
- Key components of calorie intake: bread 10.5%, other cereals 11.6%, meat 10.3%, milk related 8.7%, fats 8.5%, processed vegetables 6.3%, biscuits 5.5%, confectionery 4.1%

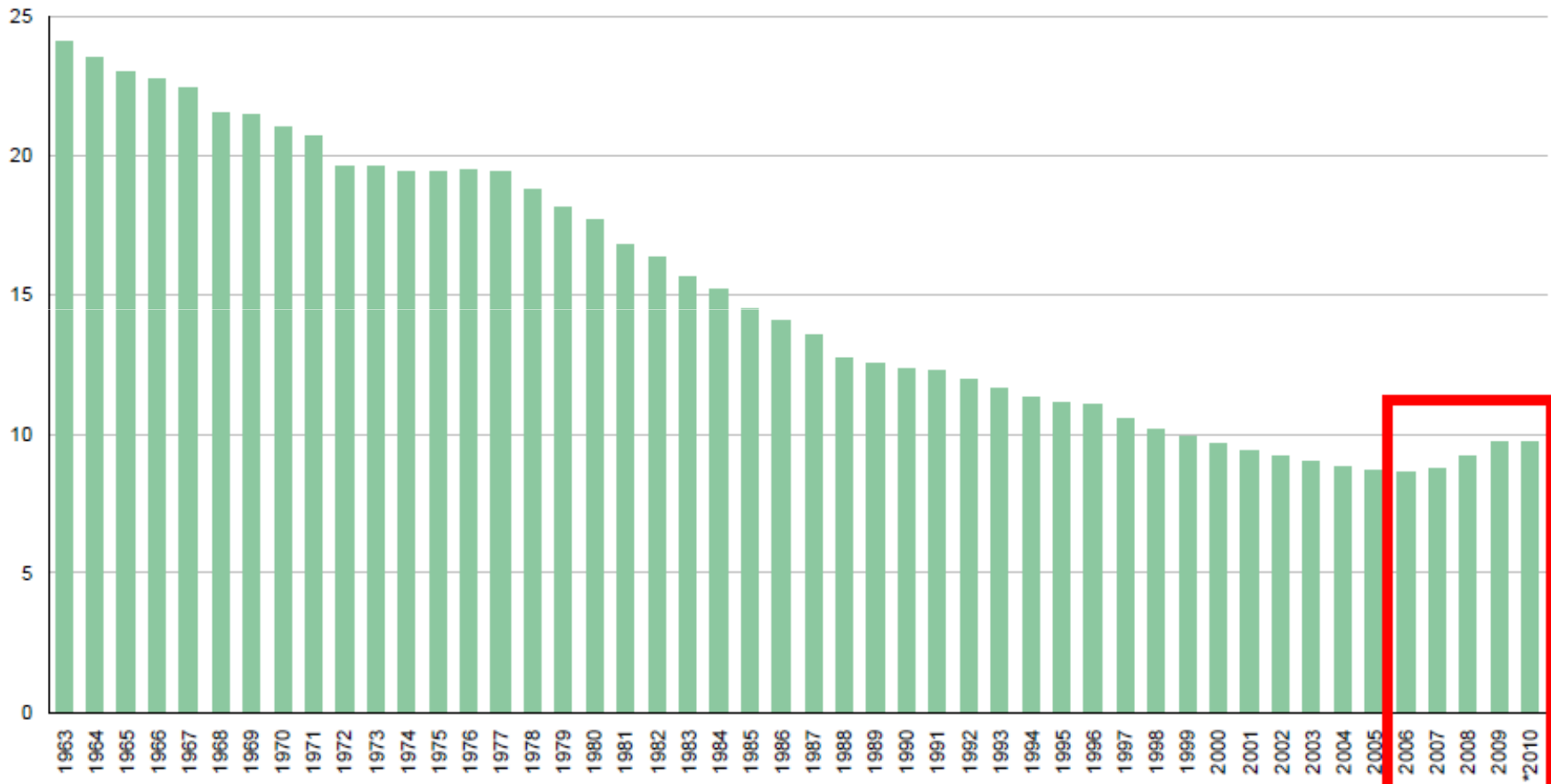
Historically Declining Real Food Prices



Source: DEFRA - Family Food 2009

Food Price Inflation Impact on Spending

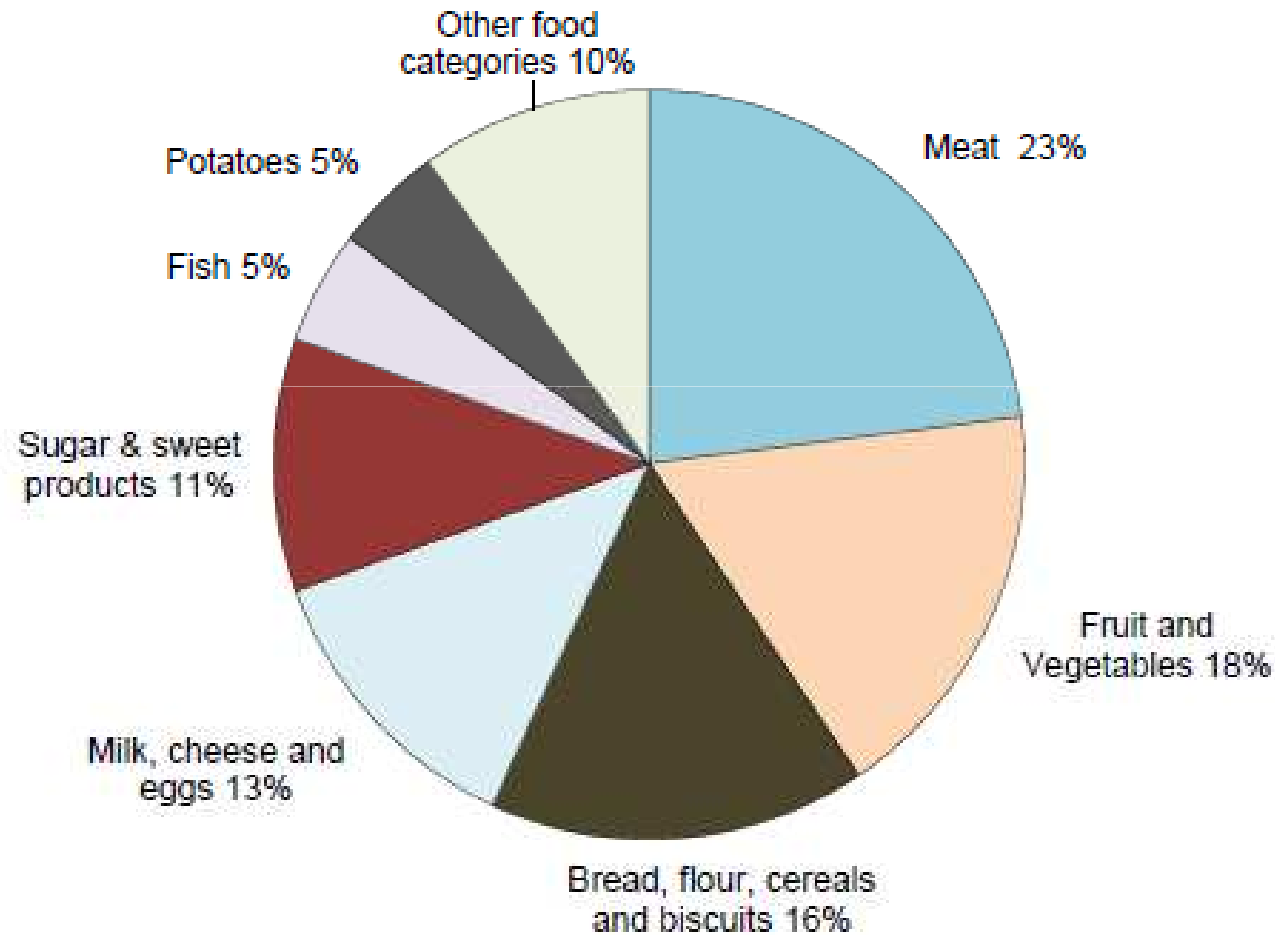
Food and Drink as a Proportion of UK Household Expenditure %



Source: ONS Series ABQI / ABZV

*MAY to September

Spend on Different Types of Food & Drink (UK Household Expenditure, 2009)



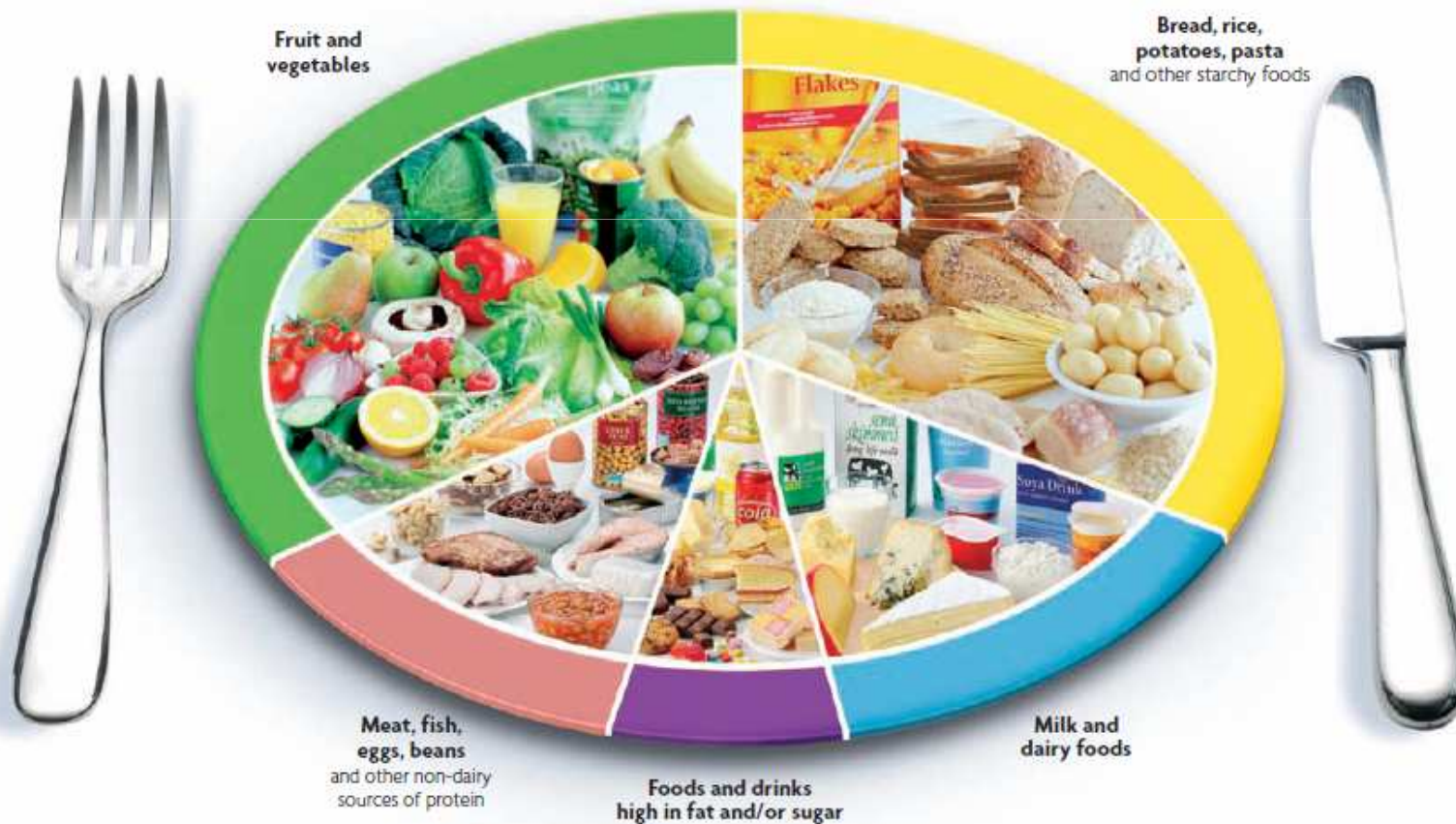
Source: DEFRA - Family Food 2009

What we should be eating...

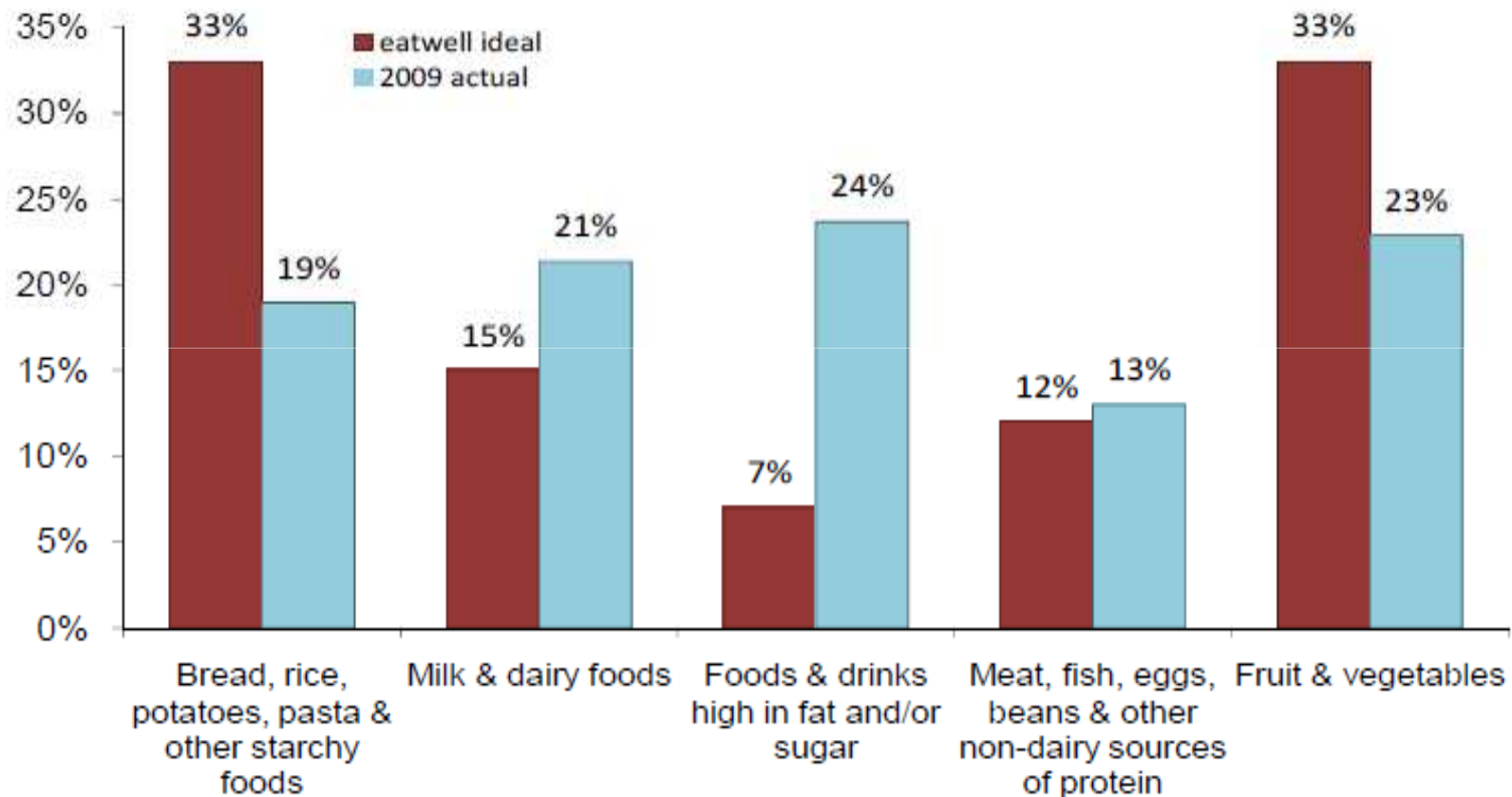
The eatwell plate



Use the eatwell plate to help you get the balance right. It shows how much of what you eat should come from each food group.



...instead, what we are eating...



Source: DEFRA - Food Statistics Handbook 2011

Why Overeat Unhealthy Food?

- ❖ Why do consumers overeat unhealthy food products high in fat and/or sugar?
 - ...Because they taste good and are convenient, readily available and relatively inexpensive...and we can't resist them!
- ❖ Are supermarket price promotions exacerbating the problem by focusing offers on unhealthy food?
 - How important are supermarket special offers in shaping our food purchases?
 - Do consumers face a healthy choice of supermarket offers?

Concerns About Supermarket Offers

❖ National Consumer Council (NCC)

- Concern about price promotions focused on unhealthy products high in fat and sugar

❖ Waste and Resources Action Programme (WRAP)

- Concern about BOGOFs and other multibuy price promotions leading to overbuying and exacerbating household food waste

❖ Office of Fair Trading (OFT)

- Concerns over complex pricing, baiting sales, reference pricing and other potential forms of misleading pricing

❖ Which? (Consumers' Association)

- Concerns about dubious offers, price establishing, quantity surcharges, offer items out of stock, and multibuy on fresh produce leading to food waste

Why Might Retailers Focus Offers on Unhealthy Foods?

- ❖ To sell higher value-added products
 - Pushing processed foods high in fat and/or sugar rather than healthier unprocessed foods
- ❖ To encourage bulk buying
 - Promote storable processed foods and drinks high in fat and/or sugar aimed at large households with storage capacity
- ❖ To segment consumers
 - Target price offers at price-conscious “tempted” consumers rather than health-conscious “disciplined” consumers
- ❖ To encourage repeat purchases and store loyalty
 - Purchasing unhealthy foods may lead to accelerated consumption and thereby more frequent store visits

NCC Findings and Industry Response

- ❖ NCC 2008 survey of supermarket offers
 - 54% of in-store promotions advertised sugary and fatty foods
 - Number of unhealthy food offers nearly double found in 2006
 - Morrisons reported as worst offender with 63% of offers on unhealthy foods, with Sainsbury's rated best out of 8 retailers
 - Only one in eight promotions featured fruit and vegetables

- ❖ British Retail Consortium (BRC) and retailers' response
 - Misleading snapshot in NCC surveys
 - Unfair comparisons between Easter 2008 and July 2006
 - Report "contains inaccuracies", "a largely subjective assessment" and "ill-informed"

The Truth About Supermarket Offers?

- What are the real facts about supermarket price promotions?
- Are price promotions skewed towards unhealthy food?
- What would a comprehensive study of price promotions over an entire year find?

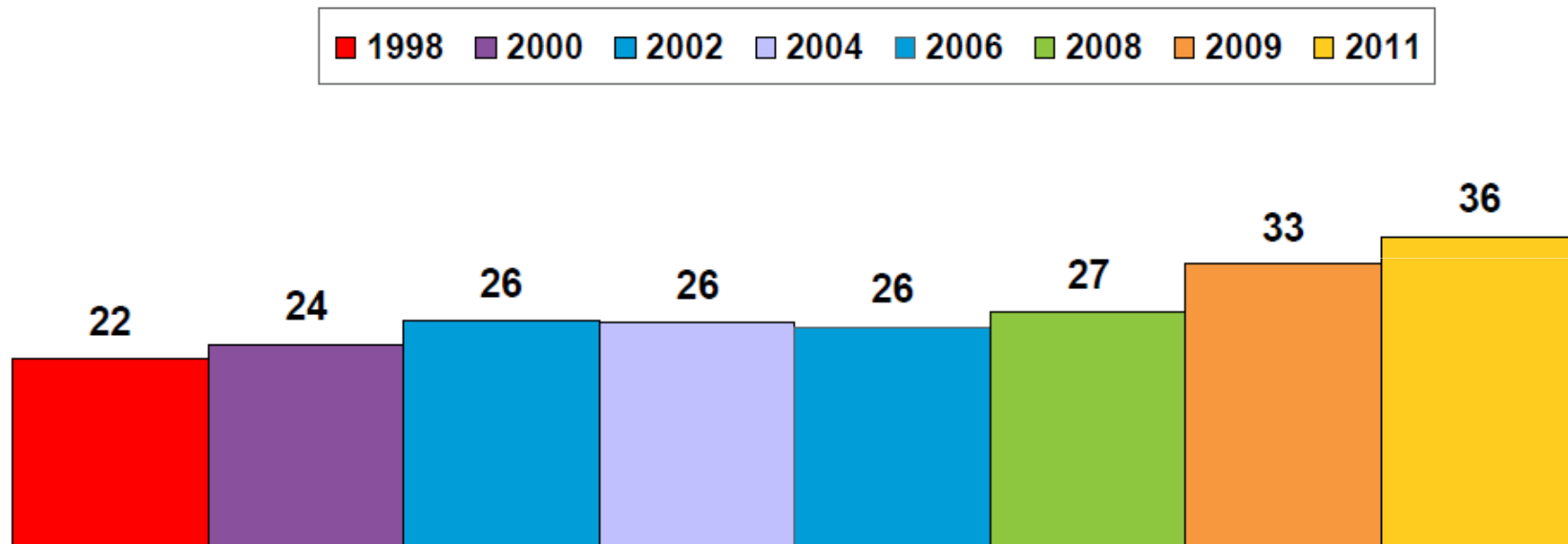
.....let's take a look and see

Consumer Spending on Supermarket Offers

- Price promotions are a key driver of grocery shopping behaviour and consumer spending
- Almost 40% of all supermarket spending is on offers
- Spending on supermarket offers is over £50bn per year
- More than half of all spending on offers is on multibuy deals (e.g. “buy one get one free”, “3 for 2”, “2 for £X”)
- Price promotions account for over half of all spending on alcohol and soft drinks
- Price promotions also extensively used on ready meals, confectionery, snacks, meat, sauces, and yoghurts

Consumer Expenditure on Offers

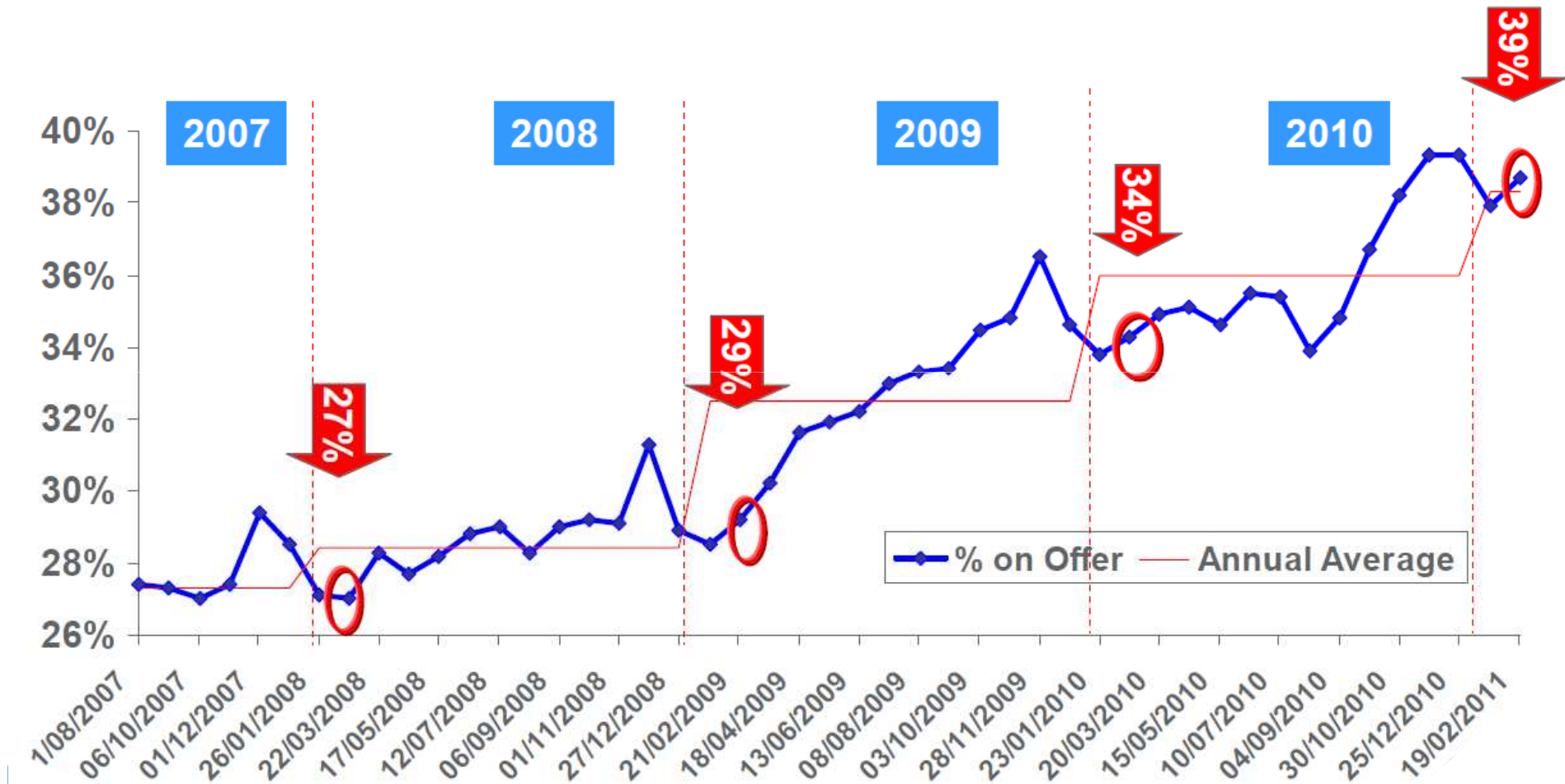
(% of Total Spend on Food and Drink)



Source: Nielsen - State of the Nation 2011 (GB)

Consumer Expenditure on Offers

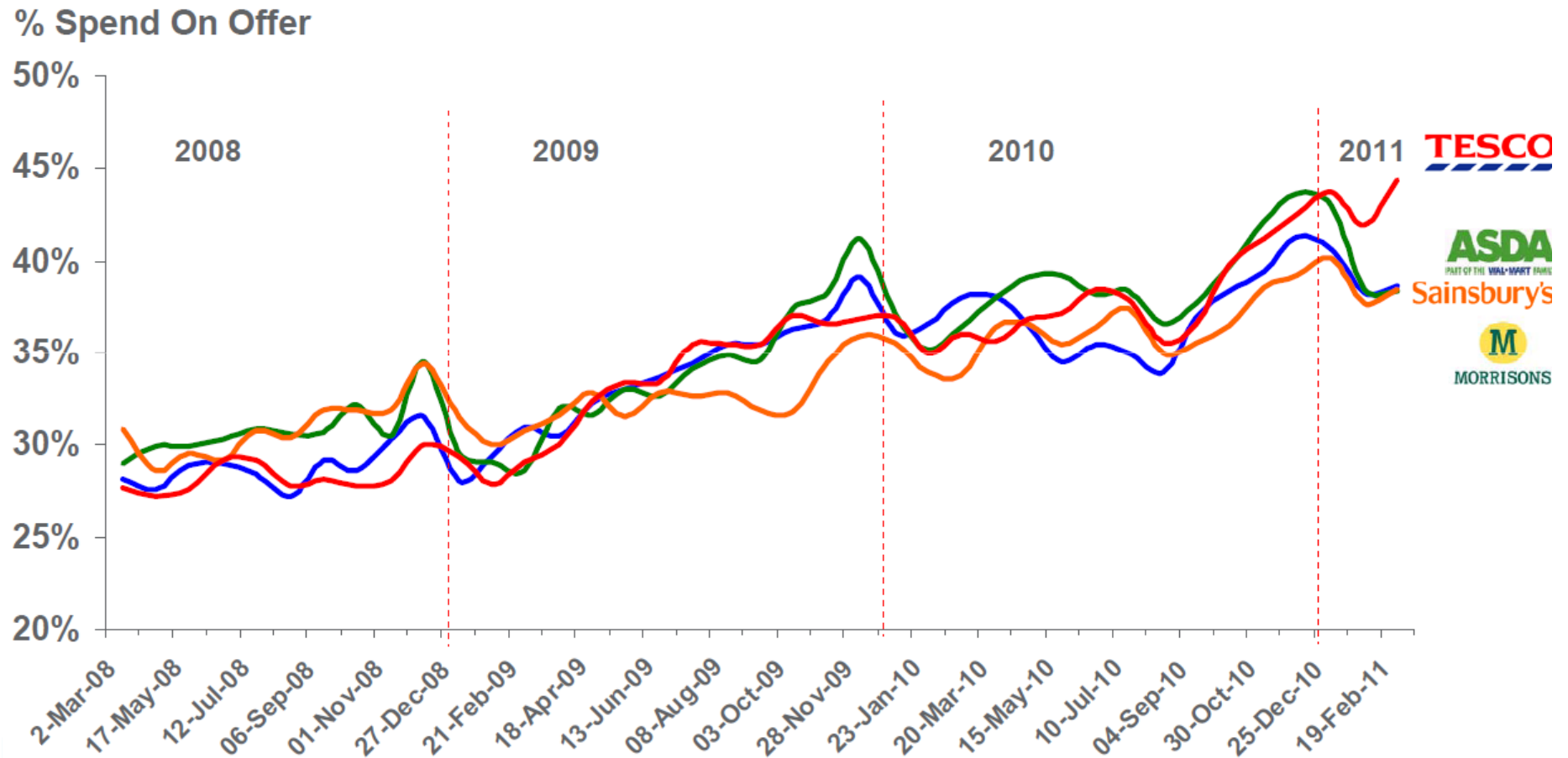
(% of Total Spend on FMCGs)



Source: Nielsen - State of the Nation 2011 (GB)

Consumer Expenditure on Offers at Top 4 Retailers

(% of Total Spend on FMCGs)

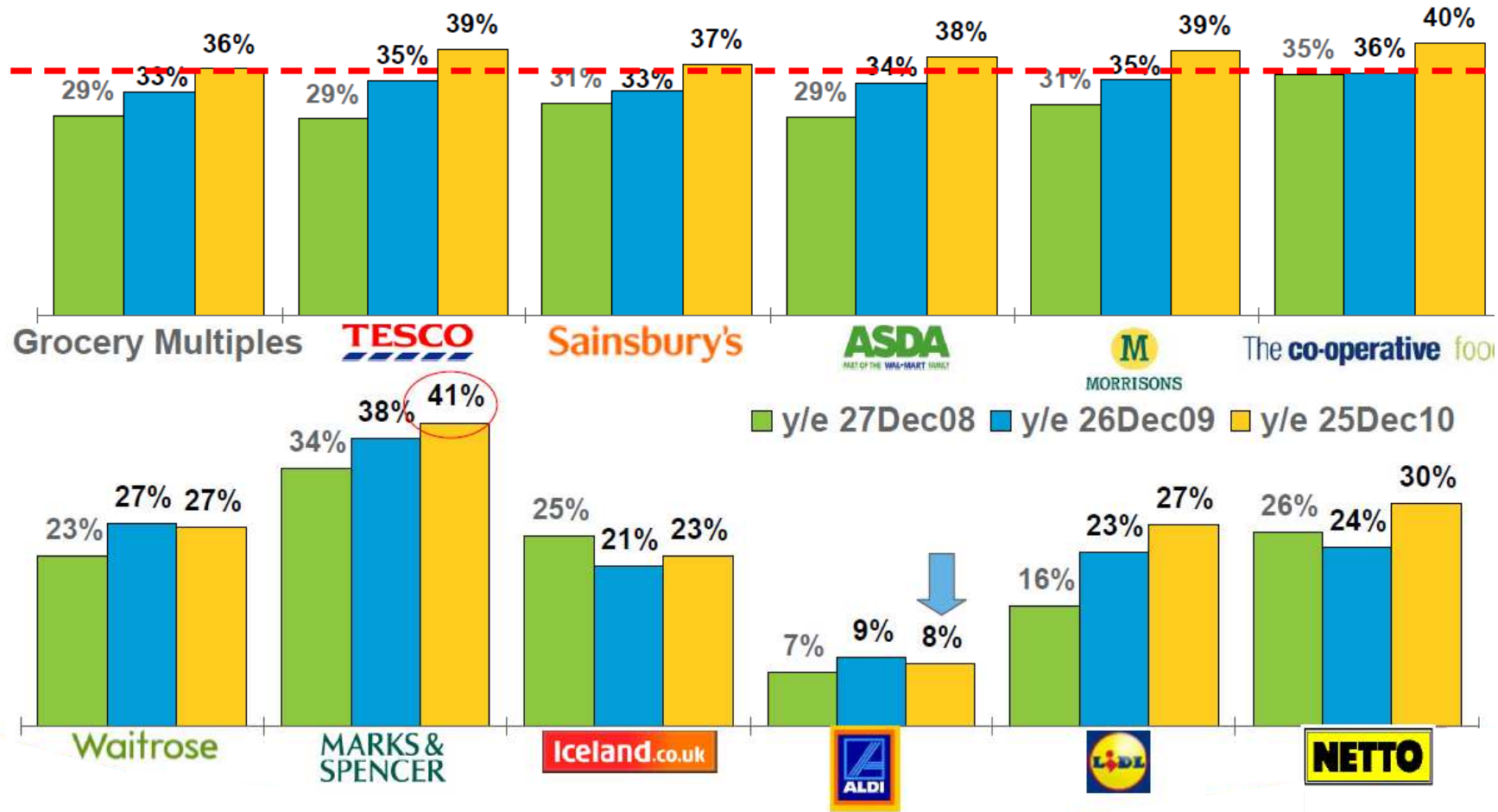


Source: Nielsen Homescan – Grocery Multiples (GB)

Consumer Expenditure on Offers at Grocery Multiples

(% of Total Spend on FMCGs – 2008, 2009, 2010)

% Spend on Offer



Source: Nielsen Homescan – Grocery Multiples (GB)

Shoppers' Addiction to Price Promotions

Key factors behind consumers' increasing reliance on price promotions:

- Saving money in difficult economic times
- Trying new or different products
- Stocking up through bulk buying
- Making shopping more interesting

...but with concerns about overbuying leading to food waste and a general suspicion about prices and whether deals are genuine

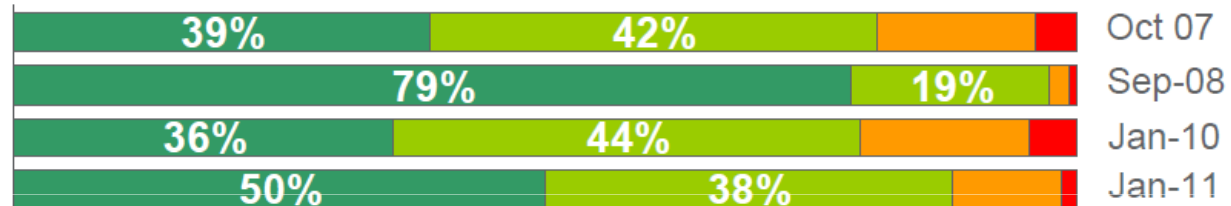
Consumers' Increasing Focus on Price and Promotions (Shoppers' Views, 2007-2011)

% Respondents

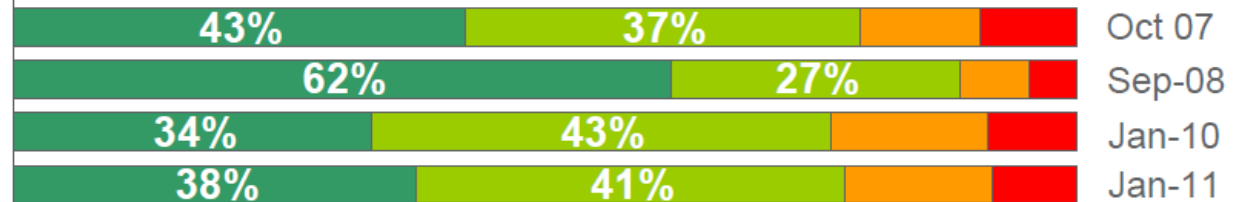
■ Agree Strongly
 ■ Agree Slightly
 ■ Neither Agree nor Disagree
 ■ Disagree



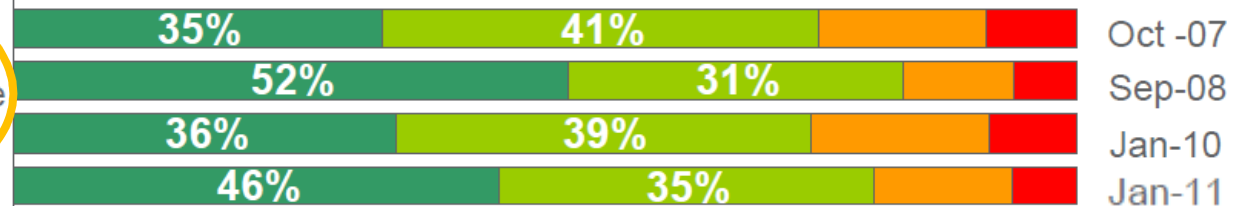
I feel prices in the grocery store have gone up recently



I am quick to notice when the price of a brand has gone up



When I am shopping in a particular store I am constantly looking for the best prices and promotions



Source: Nielsen Homescan Survey (GB)

Options for Economising on Grocery Shopping (Shoppers' Preferences, 2007-2011)

"To make savings on my grocery bills I am regularly ..."	Oct 2007	RANK			%Points Diff Jan 2011 v Oct 2007
		Sep 2008	Jan 2010	Jan 2011	
Trying to buy more products when they are on promotion	2	1	1	1	16%
Looking out more for price promotions	4	2	2	2	15%
Being more careful when I shop so that I waste less food	3	4	3	3	-9%
Comparing prices more carefully	5	6	5	4	2%
Buying less indulgent products/treats	1	3	4	5	-15%
Switching to more own label products	6	5	6	6	3%
Shopping around more	8	8	9	7	5%
Switching to cheaper brands	10	7	7	8	4%
Switching to more 'Value' product lines	11	9	10	9	0%
Not actively cutting down on my grocery shopping	7	10	8	10	-7%
Cutting down on expensive items like meat or wine	9	12	11	11	-4%
Switching to cheaper alternatives, (eg cheaper cuts of meat)	13	13	12	12	1%
Switching to a retailer that I think offers lower prices	12	11	13	13	0%
None of these	14	14	14	14	-5%

Source: Nielsen Homescan Survey (GB), Jan 2011

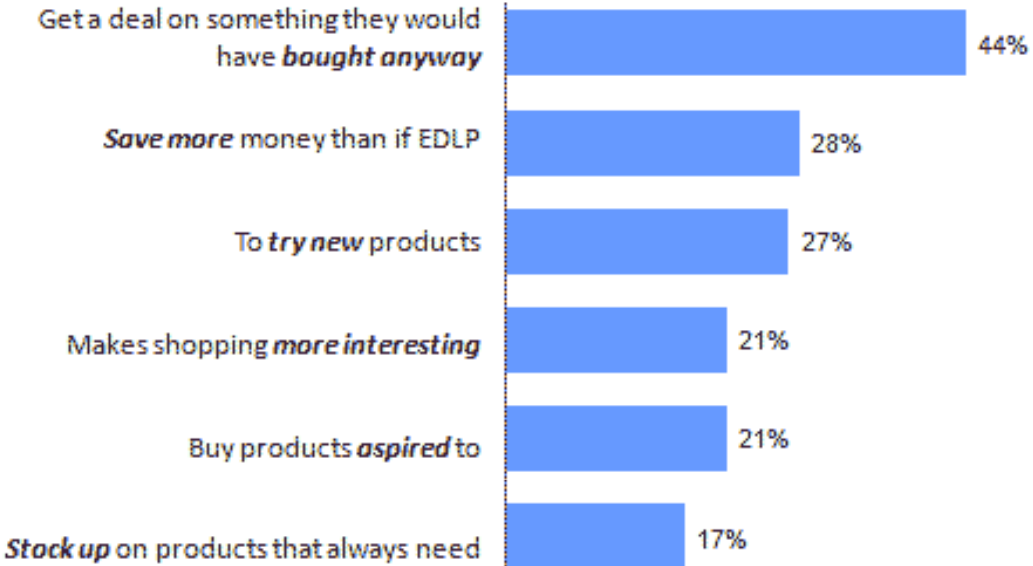
Promotions as a Primary Source of Saving Money

“To make savings on my grocery bills I am regularly...(pick up to three)”

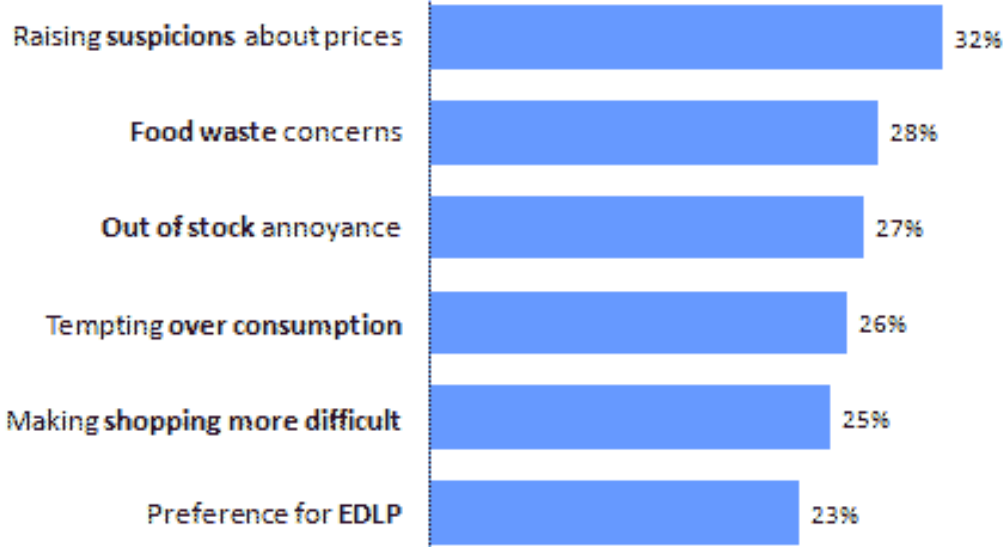


Consumers' Likes and Dislikes About Price Promotions

What do shoppers *like* about promotions?



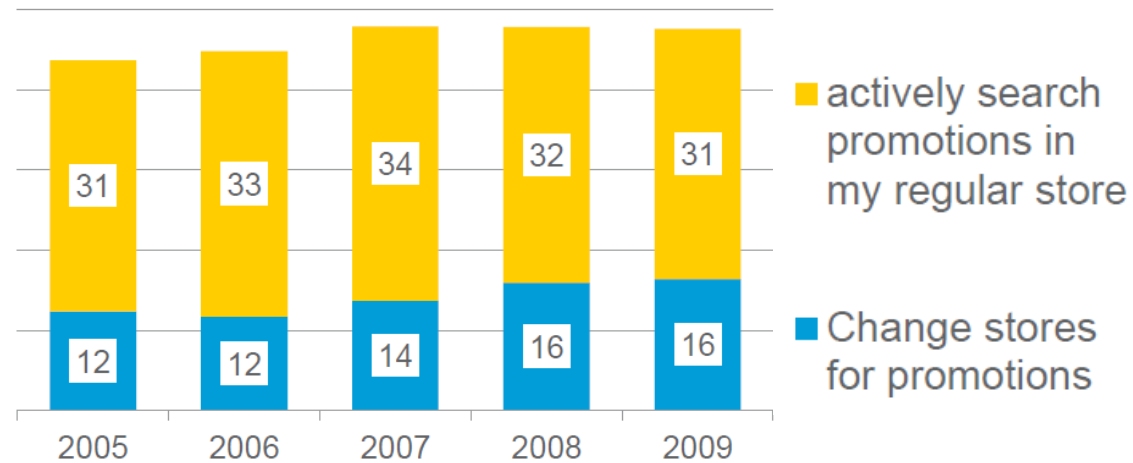
What do shoppers *dislike* about promotions?



Source: IGD Consumer Unit, 2009

Addiction to Offers: Rising Across Europe

**Promotion Sensitivity:
Average Across Europe
(% Shoppers Surveyed)**



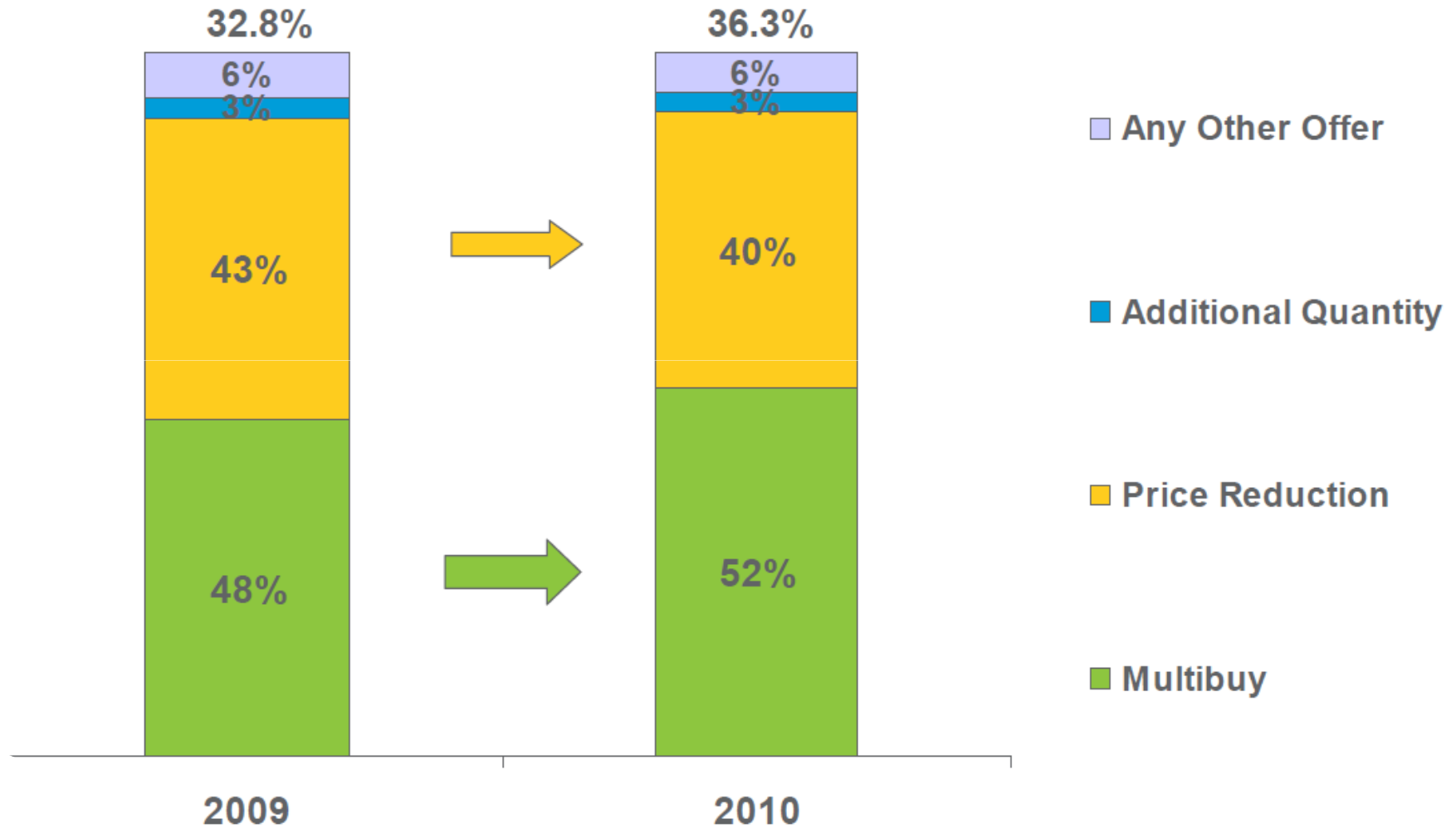
Source: Nielsen Company - The structural transformation drivers in FMCG, 2011

Types of Price Promotions

TYPE	DESCRIPTION & PURPOSE
Price reduction	Straight discount, e.g. “50p off” or “25% off” to stimulate sales and encourage switching to higher margin products
Multibuy / Multisave	Discount conditioned on number of items purchased, e.g. “3 for 2”, “BOGOF”, “B1G1HP”, “2 for £X” to drive volume sales
Extra Free	Additional quantity in the pack, e.g. “33% extra free” to reward loyalty and encourage trial
Link Promotion	Cross-product discount, e.g. “Buy a sandwich and a drink for £x” to encourage cross category purchase and drive basket spend
Banded pack / free product inside	Linked sale with free item included, e.g. “free mug with teabags” to encourage trial
On pack offers	Collect points or vouchers, e.g. “swap vouchers for sport kit” to encourage loyalty and repeat purchasing
Sampling	Trial size products to encourage purchase of new products or encourage switching to higher price/higher margin products

Expenditure on Offers by Type of Price Promotion

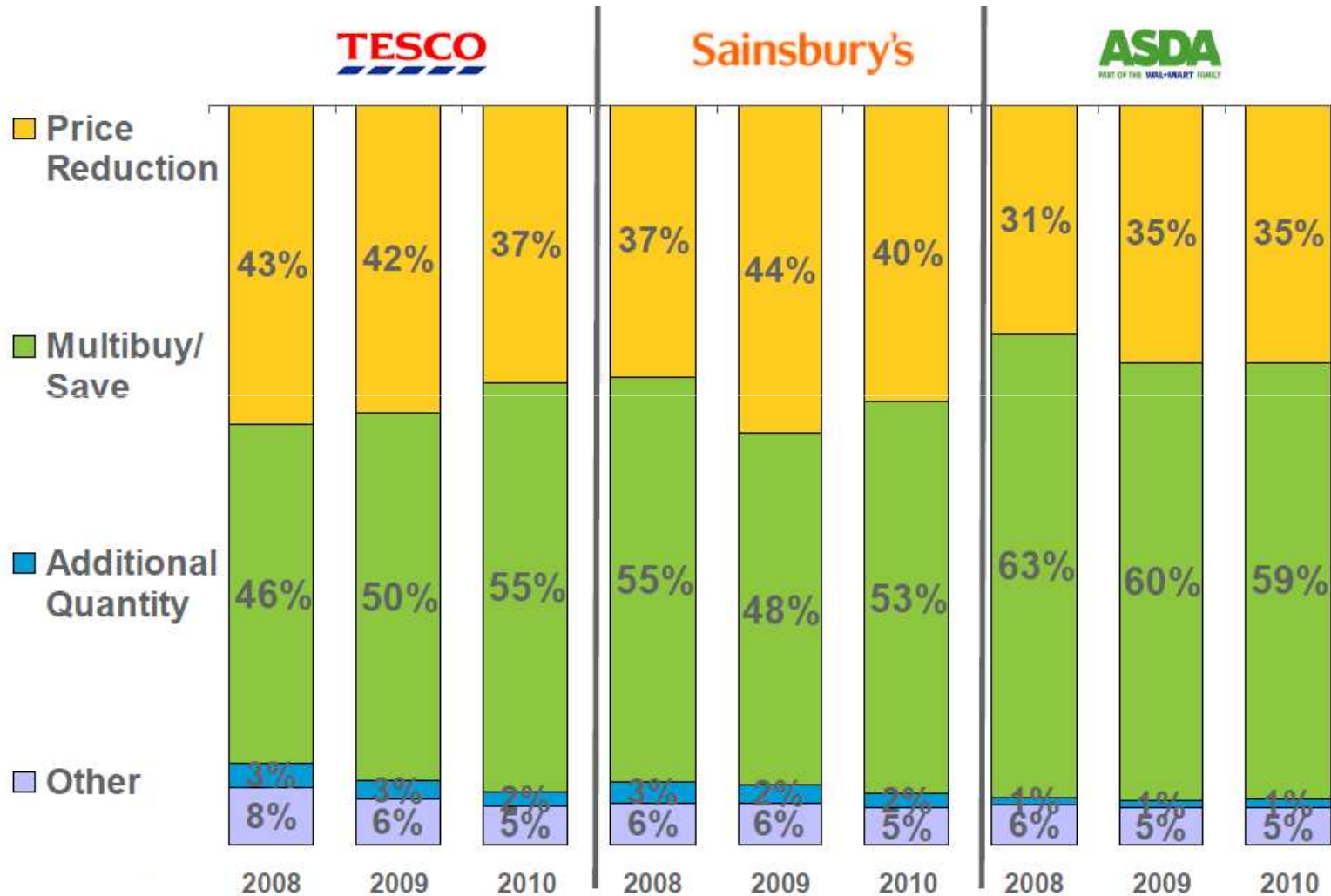
(% of Total Spend on Offer of FMCGs)



Source: Nielsen Homescan – Grocery Multiples (GB)

Spend on Offers by Offer Type in Top 3 Retailers

(% of Total Spend on Offer of FMCGs)



Source: Nielsen Homescan – Grocery Multiples (GB)

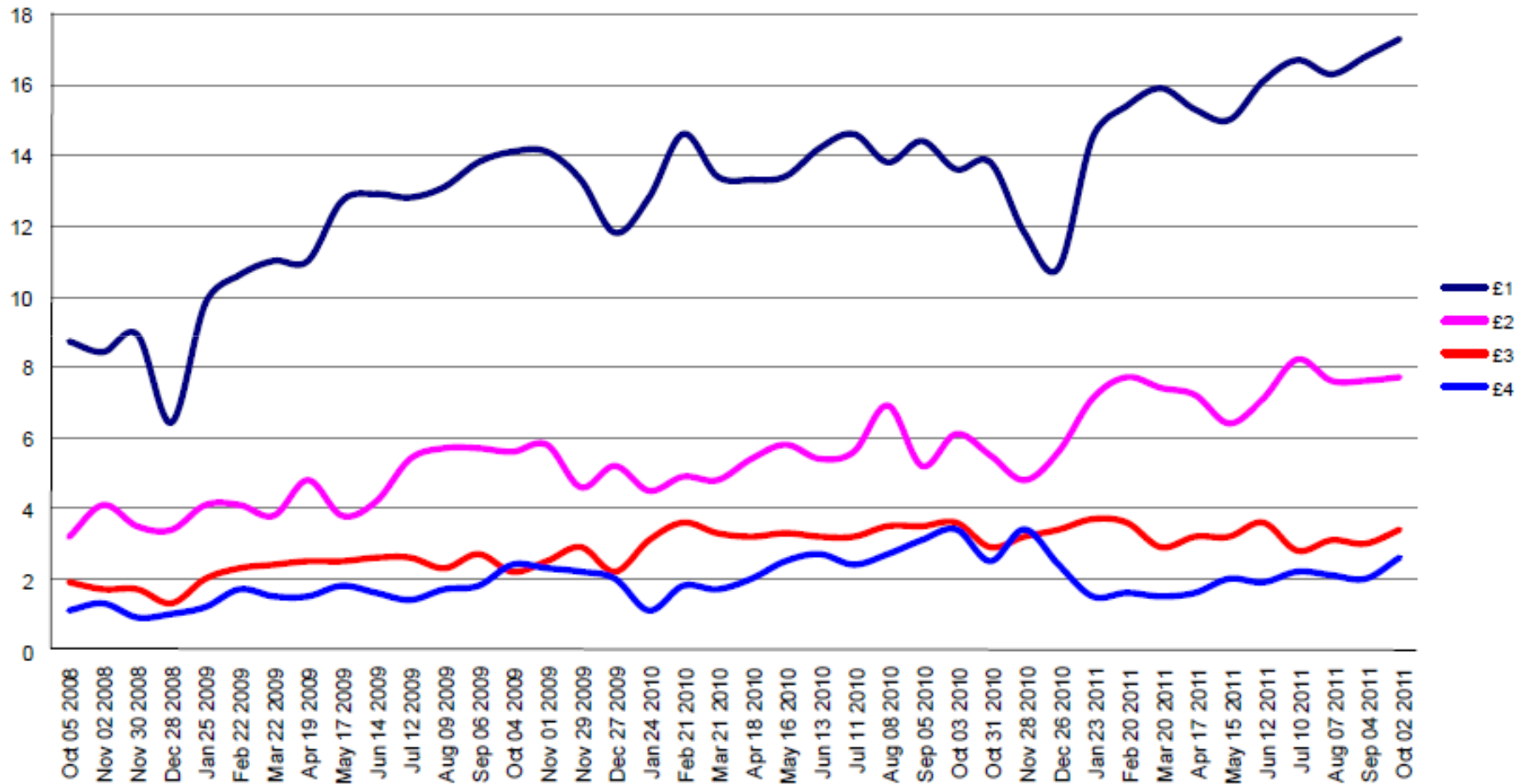
Recent Developments in Price Promotions

- Round Pound deals (£1, £2, £3, etc)
- Buy one get two free (B1G2F)
- Buy one get one free later (BOGOFL)
- Better than half price
- Meal deals
- Bulk pack deals



Consumer Spend on Round Pound Offers at Asda

(% of Total Spend on Groceries, Oct 2008 to Oct 2011)



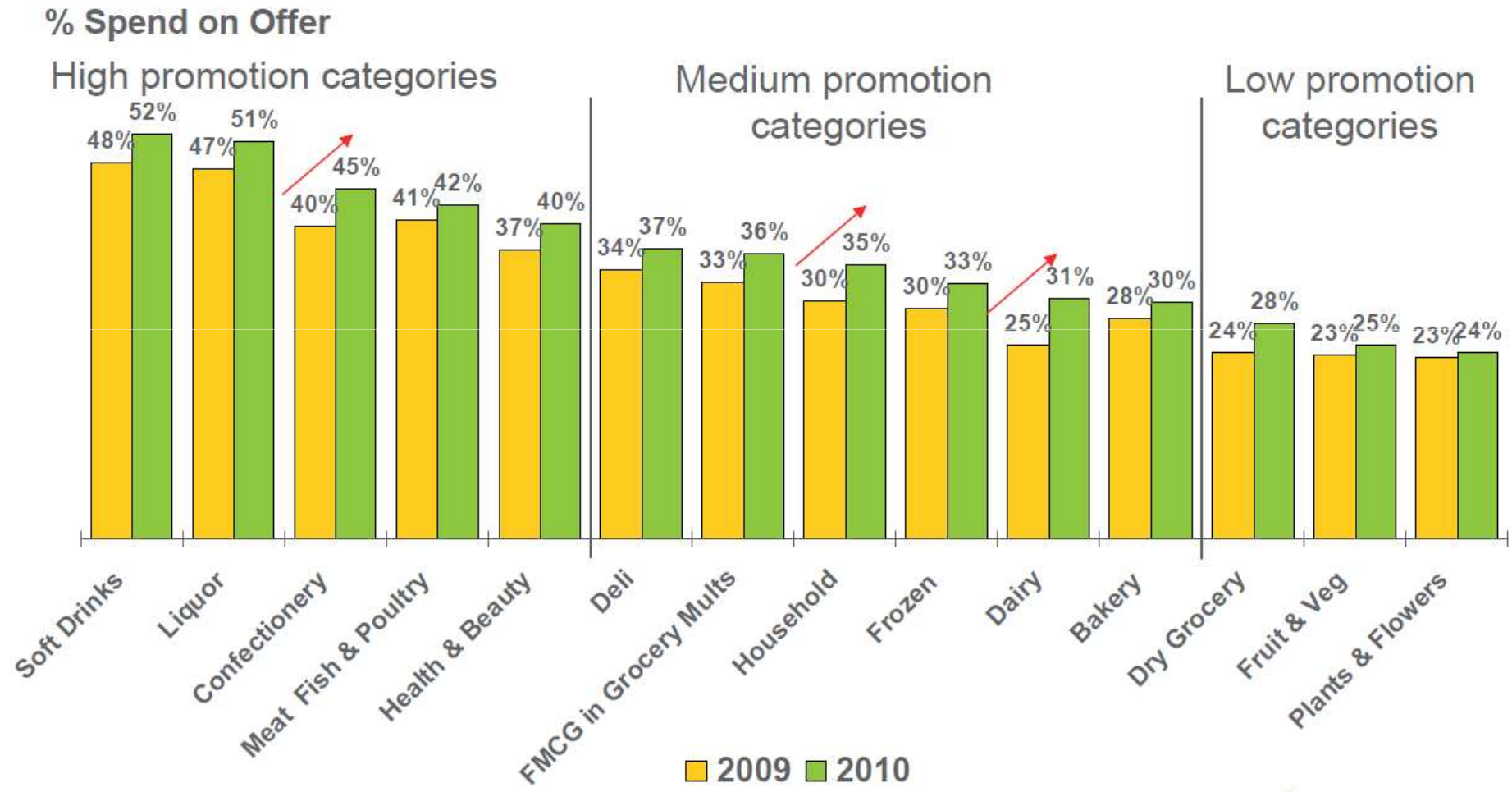
Source: Kantar Worldpanel

Differences Across Food Categories

- High promotion product categories are soft drinks, alcohol, confectionery and meat/poultry/fish
- Low promotion product categories are fruit & vegetables and dry grocery
- Soft drinks, dairy, deli and bakery products heavily promoted by multibuy deals
- Fruit & vegetables and alcohol use an almost even mix of price cuts and multibuys

Expenditure on Offers by Product Category

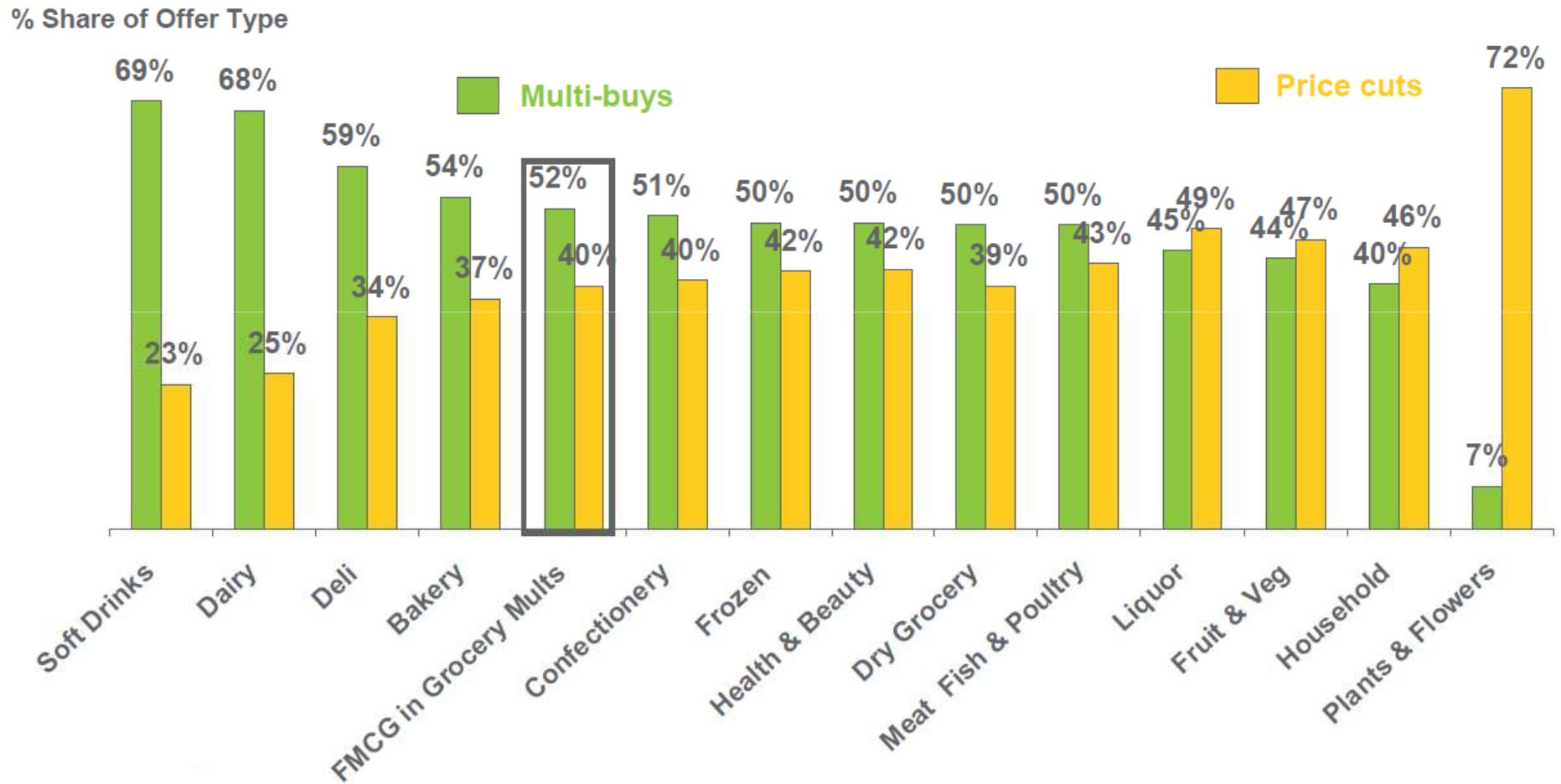
(% of Total Product Category Spend on Offer in Grocery Multiples)



Source: Nielsen Homescan – Grocery Multiples (GB)

Category Expenditure on Offers by Offer Type

(% of Total Product Category Spend on Offer in Grocery Multiples)



Source: Nielsen Homescan – Grocery Multiples (GB)

Healthiness of Supermarket Offers

- ESRC-sponsored project: “The Impact of Retail Pricing on Overeating and Food Waste” (RES-000-22-3524)
- Collaboration with Eitan Gerstner (Technion) and Jonathan Seaton (Loughborough)
- Price and nutrition data on goods sold in leading UK supermarkets
- Examine (un)healthiness of products in respect of “traffic lights”
- Categorising levels of fat, saturated fat, sugar and salt by low (green), medium (amber) and high (red)

Traffic Lights Definition

Check how much fat, sugar and salt is in your food



Remember that the amount you eat of a particular food affects how much sugars, fat, saturates and salt you will get from it.

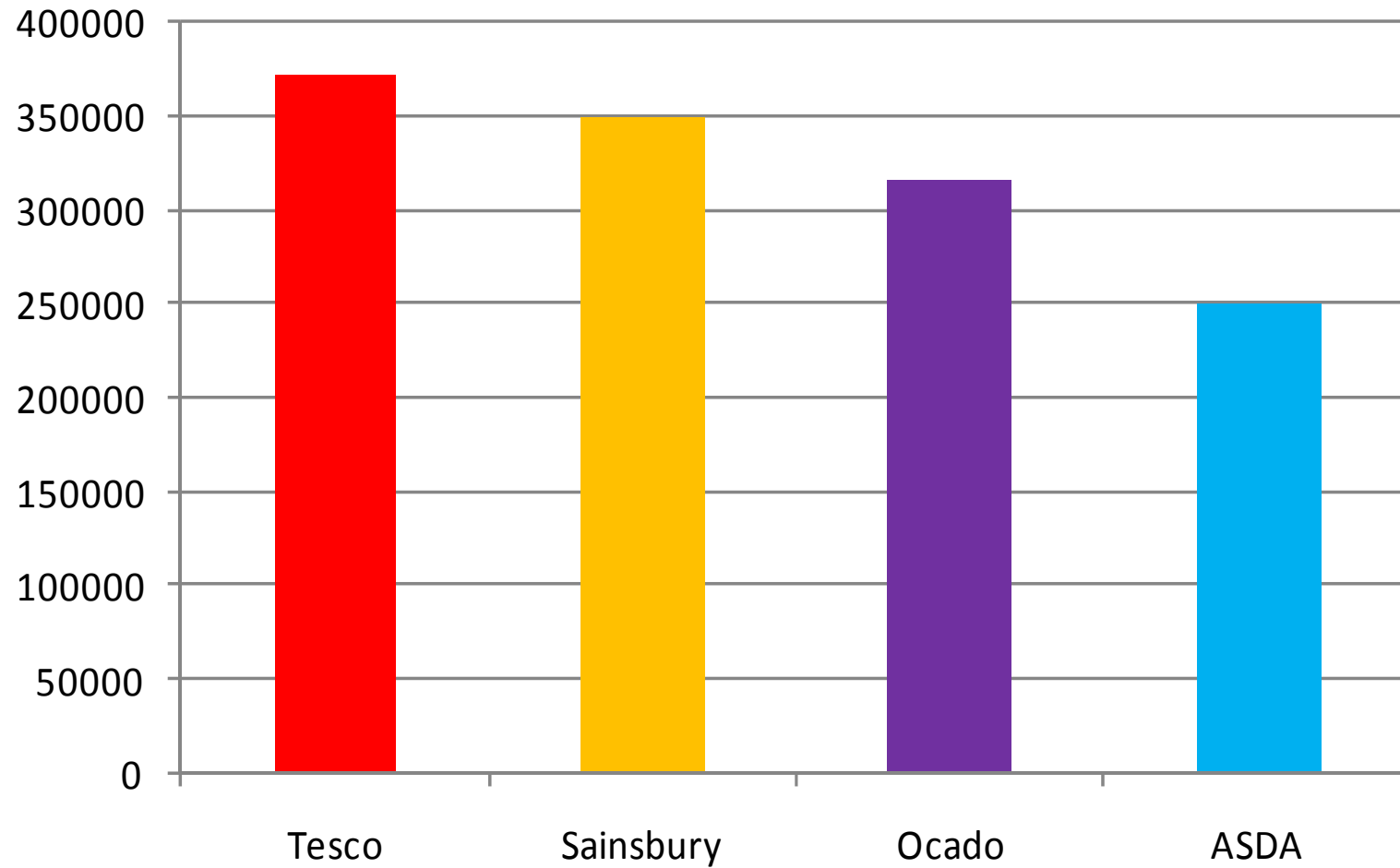
Food Shopping Card

	Sugars	Fat	Saturates	Salt
What is HIGH per100g	Over 15g	Over 20g	Over 5g	Over 1.5g
What is MEDIUM per100g	Between 5g and 15g	Between 3g and 20g	Between 1.5g and 5g	Between 0.3g and 1.5g
What is LOW per100g	5g and below	3g and below	1.5g and below	0.3g and below

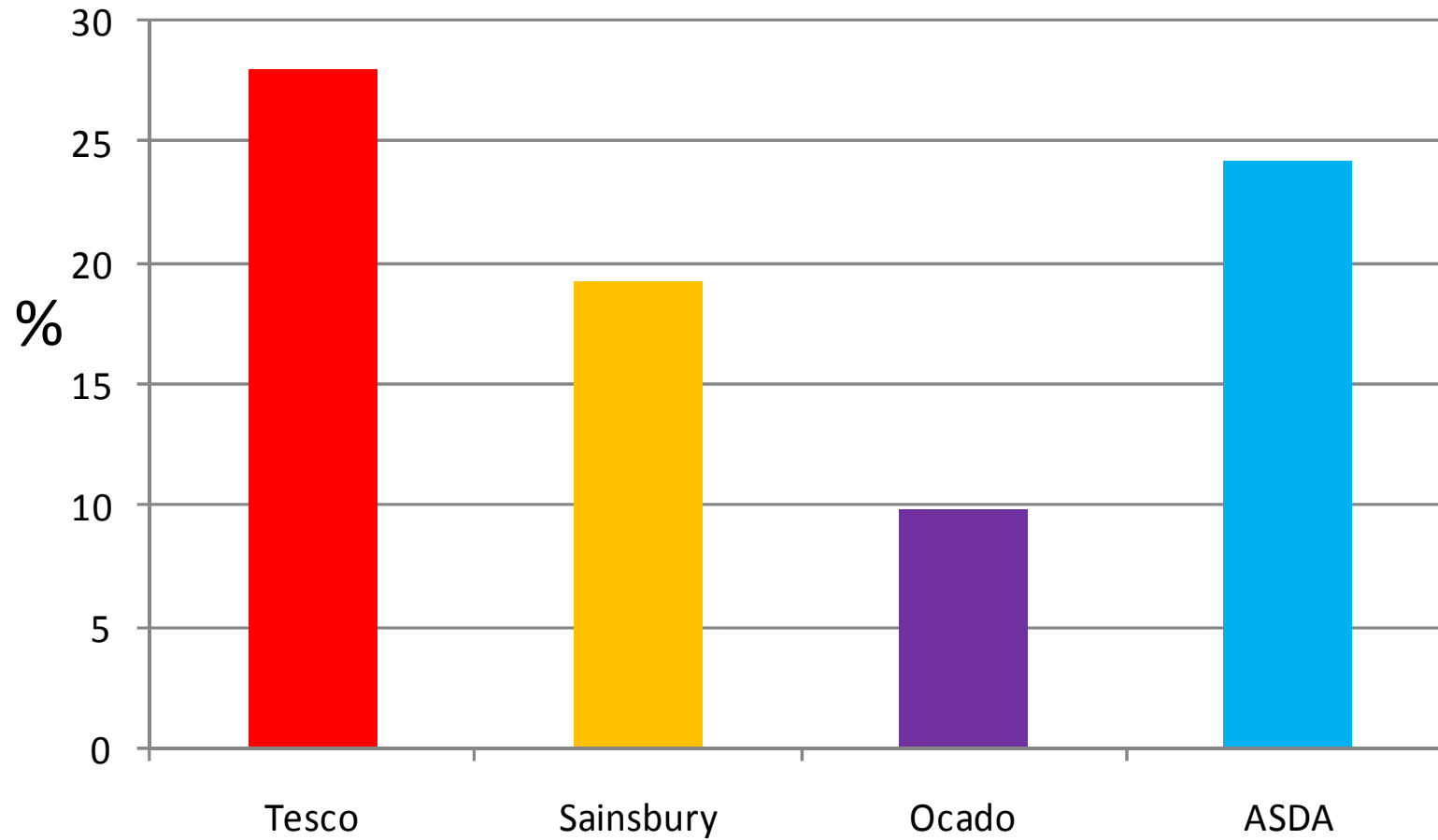
Price Promotions Data Sample

- Four retailers: Tesco, Sainsbury's, Ocado, Asda
- Weekly collected price data over a full year (from 4/8/2010 to 3/8/2011)
- 1.3 million (1,287,714) data (item-price-date) points in the sample
- On average just over six thousand food items sampled from each week with nutrition data

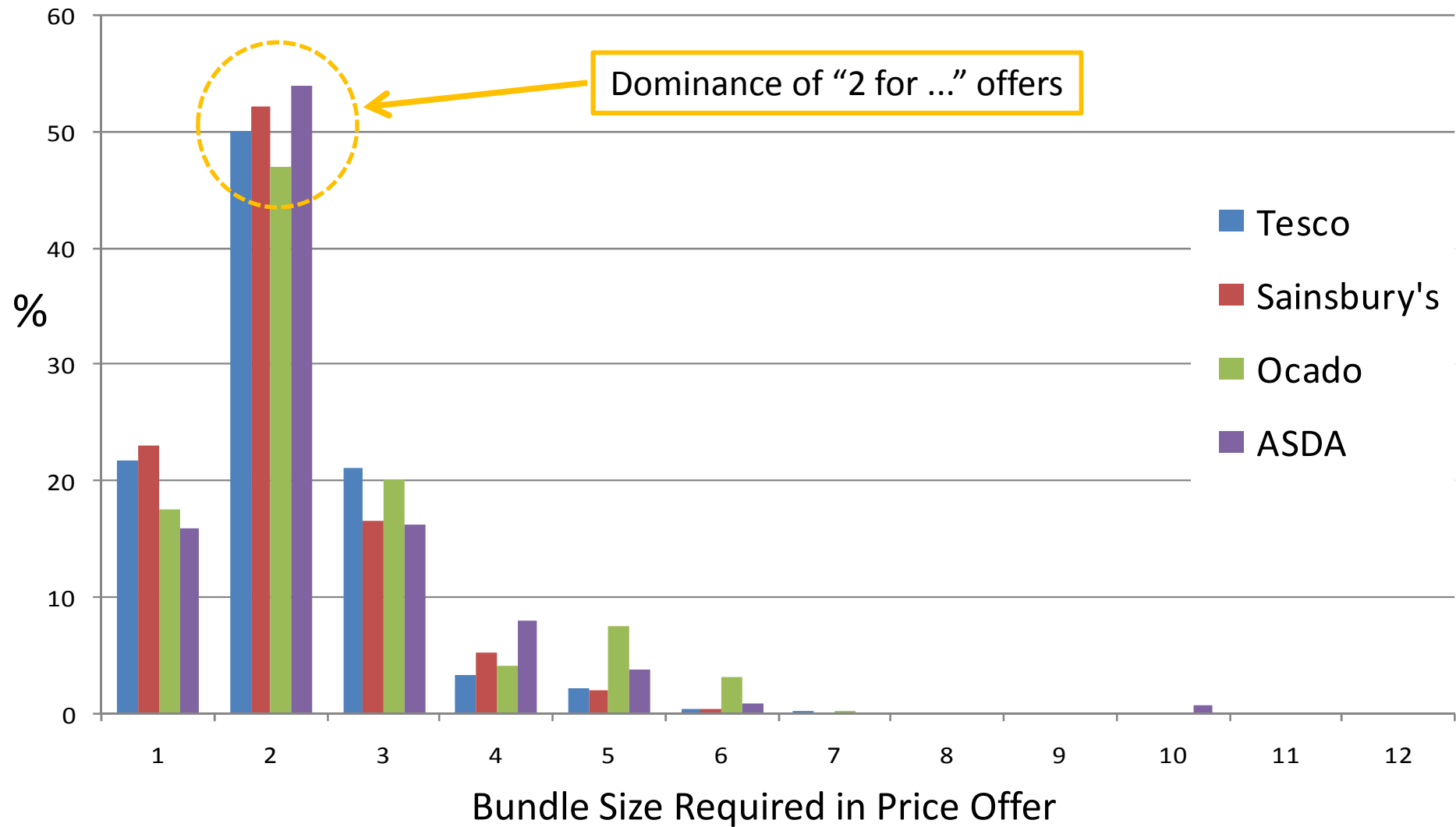
Total Number of Data Points For Each Retailer



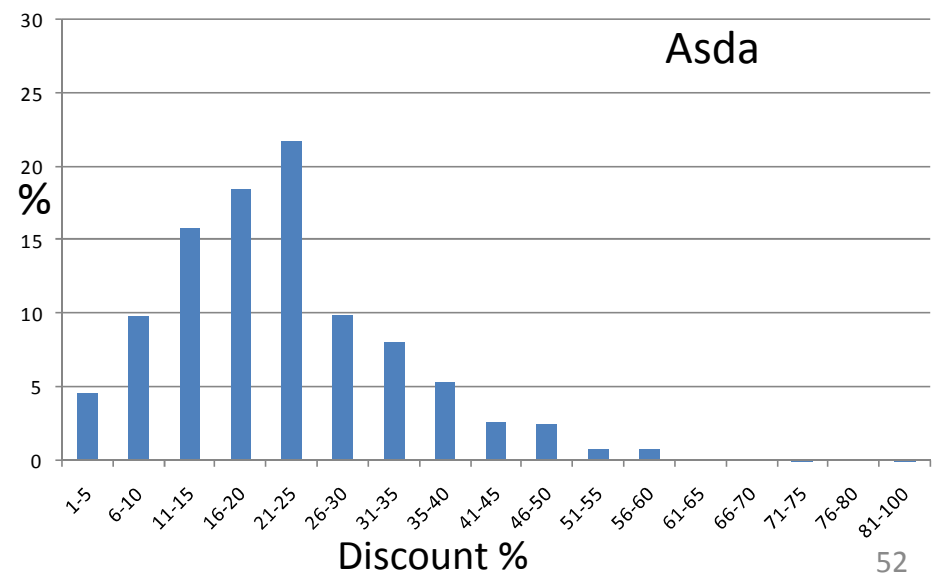
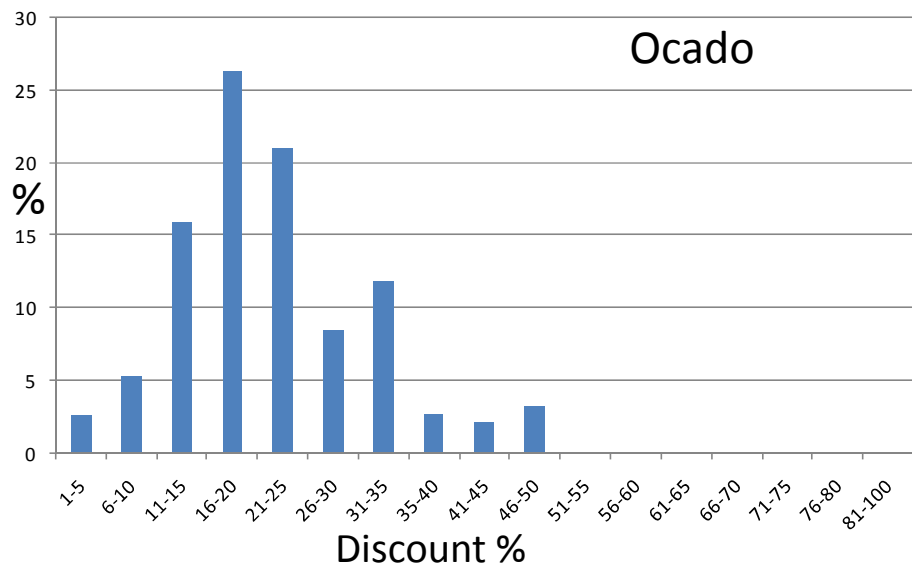
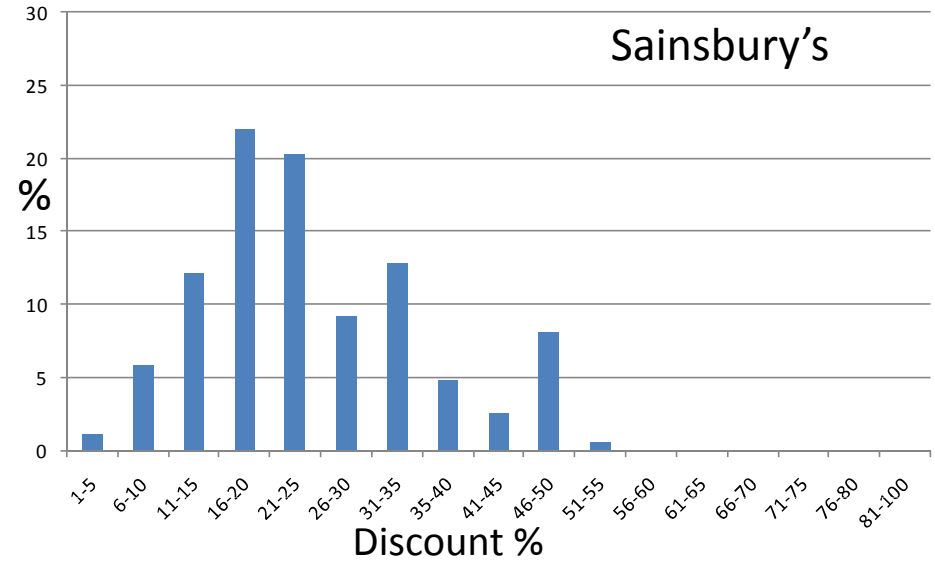
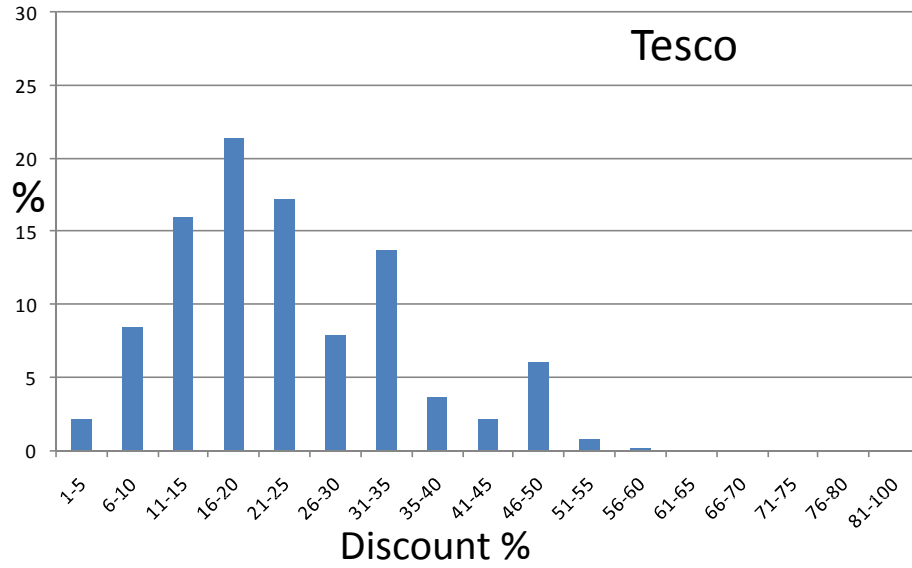
Percentage of Items on Promotion



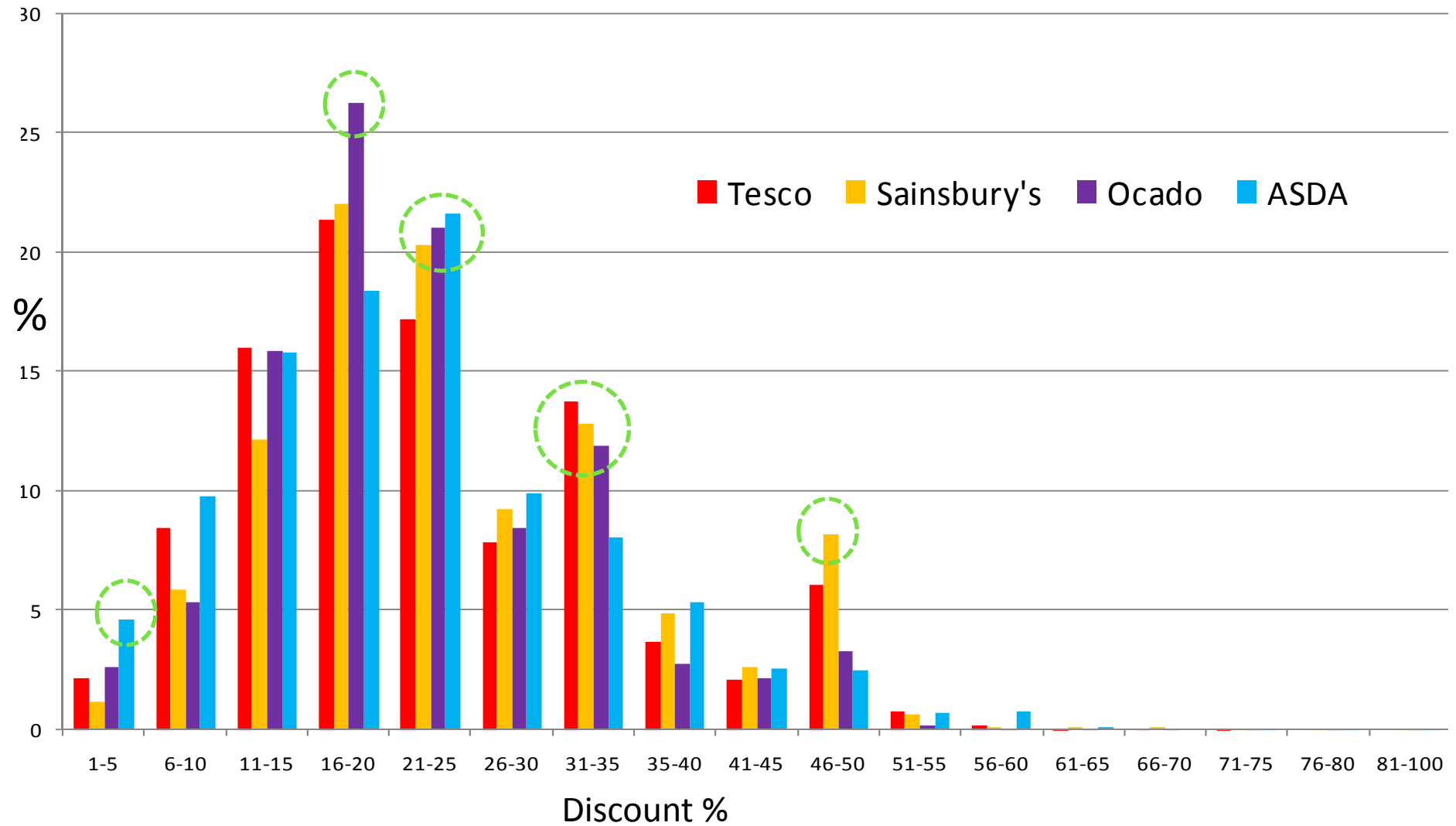
Percentage of Promotions by Bundle Size



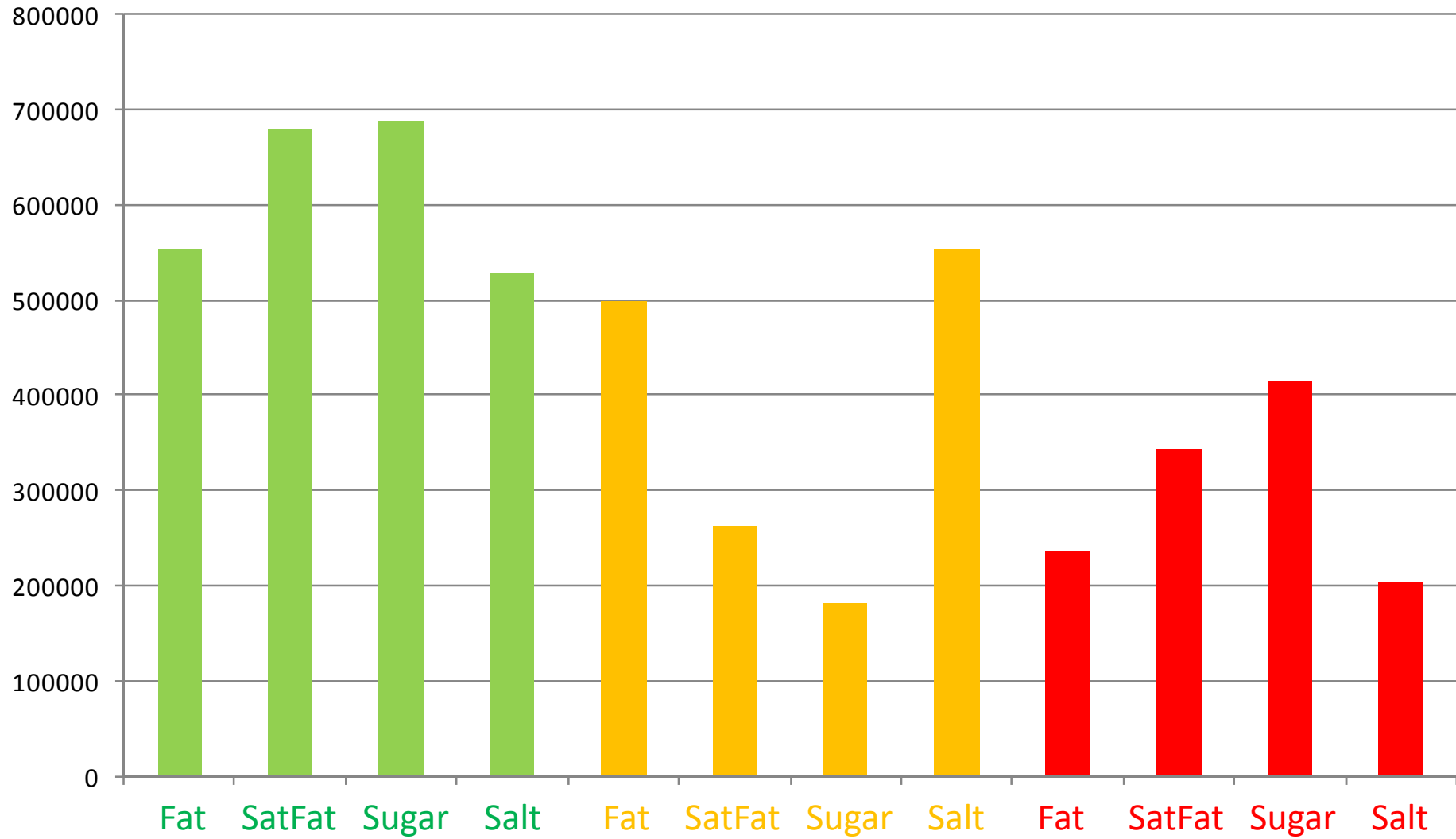
Distribution of Discounts on Promoted Items



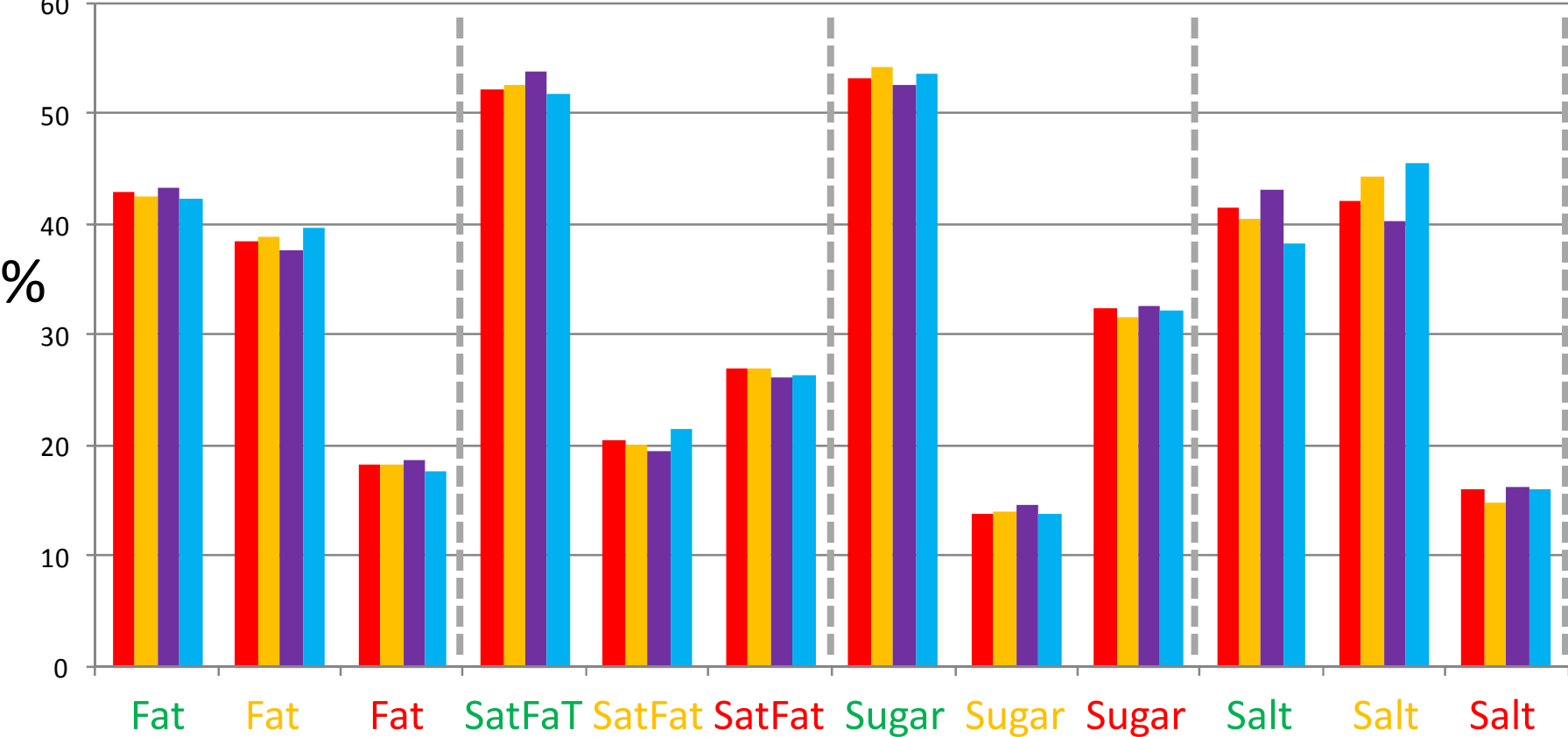
Distribution of Discounts on Promoted Items



Distribution of Traffic Lights Across Sample



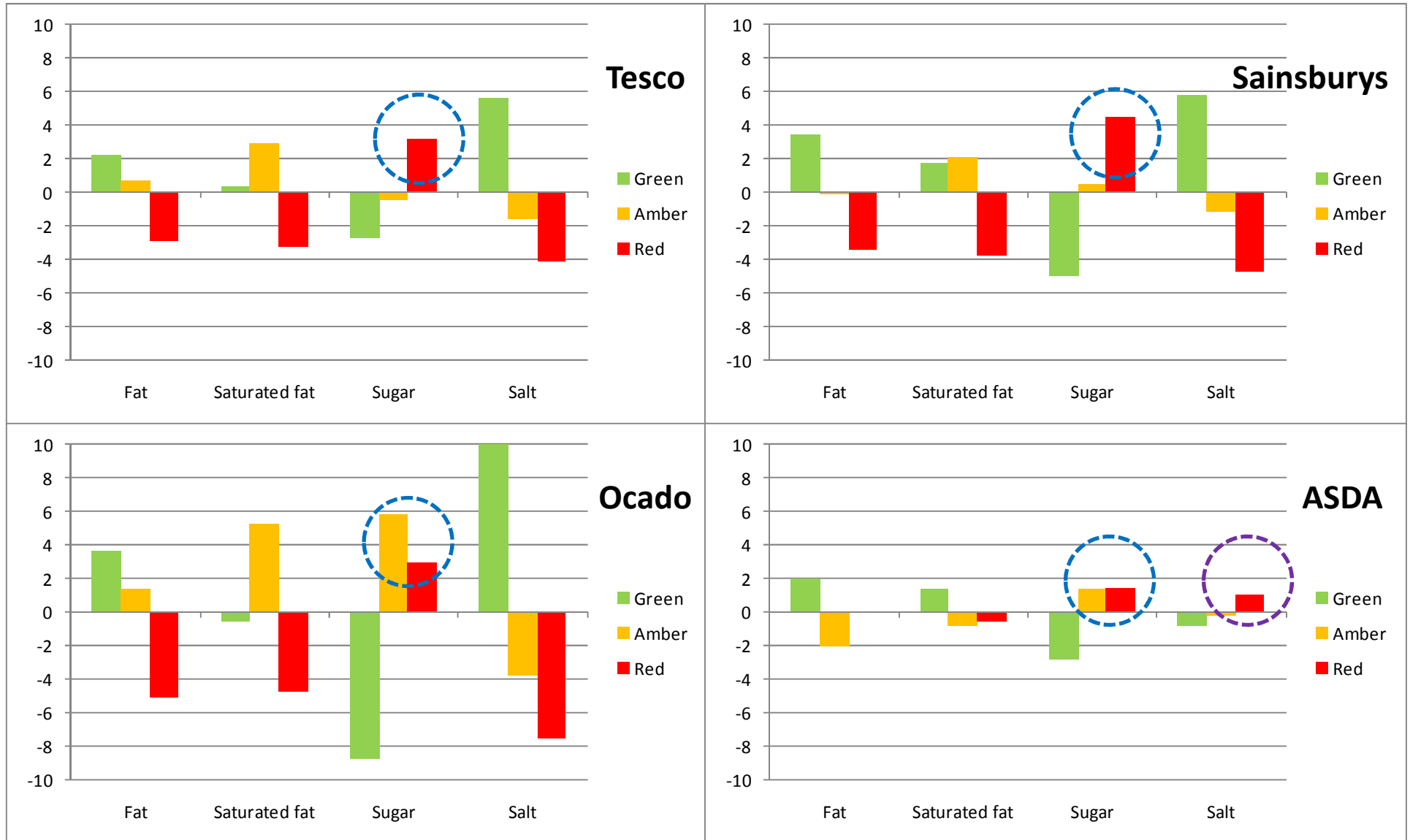
Distribution of Traffic Lights by Retailer



Comparing Different Offer Types

1. Offers vs. Non-Offers
2. Single Offers vs. Non-Offers
3. Multibuy Offers vs. Single Offers
4. BOGOFs (2 for 1s) vs. Other Multibuys
5. High Discount vs. No Discount

1. Difference in Percentages of Offers vs. Non-offers (Positive: Offers > Non-Offers)

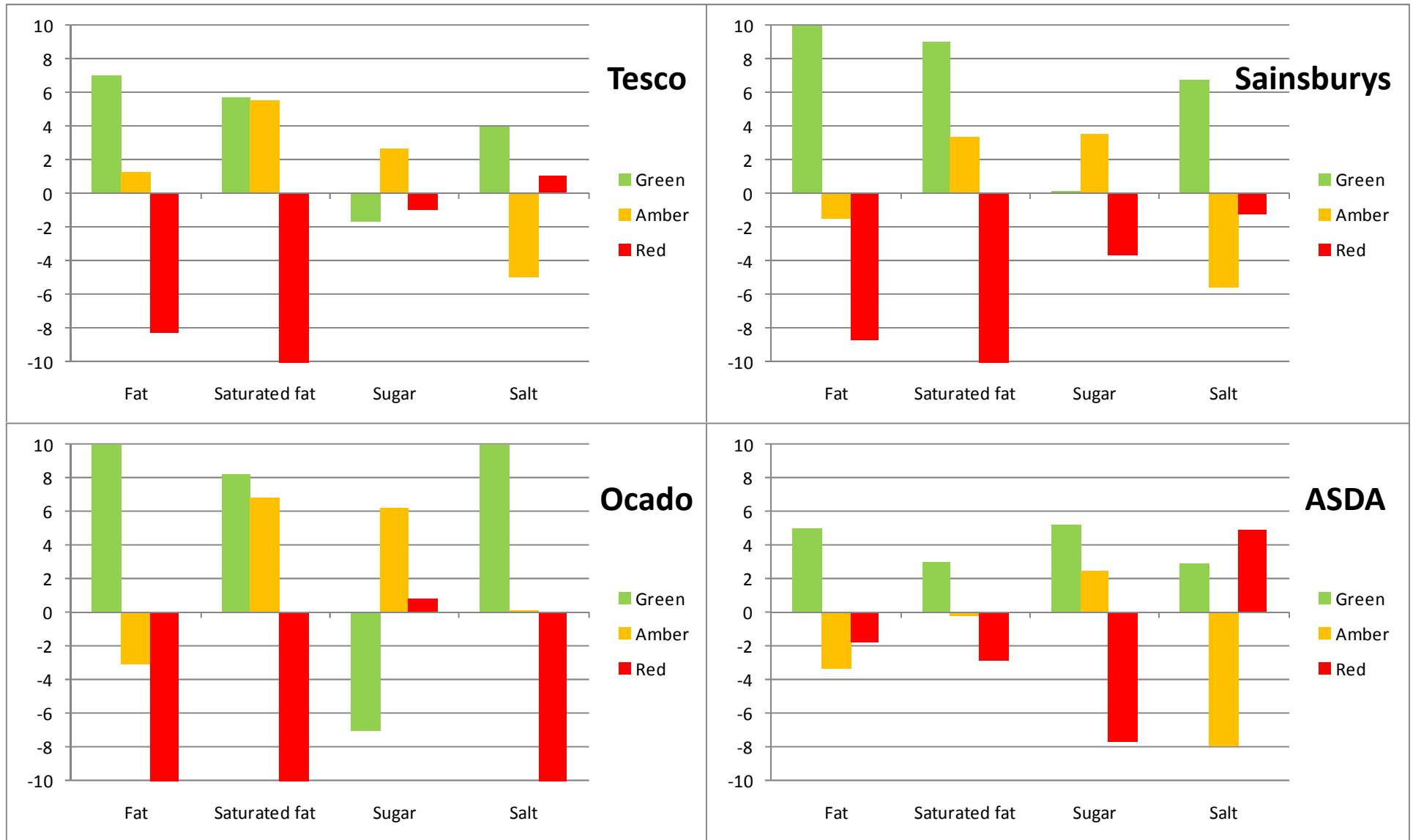


2. Single Offers vs. Non-Offers

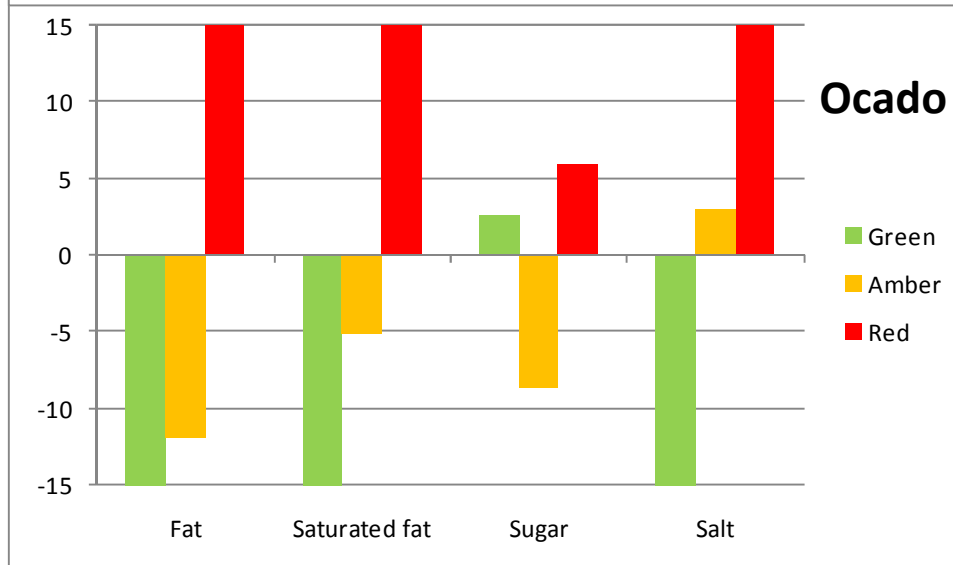
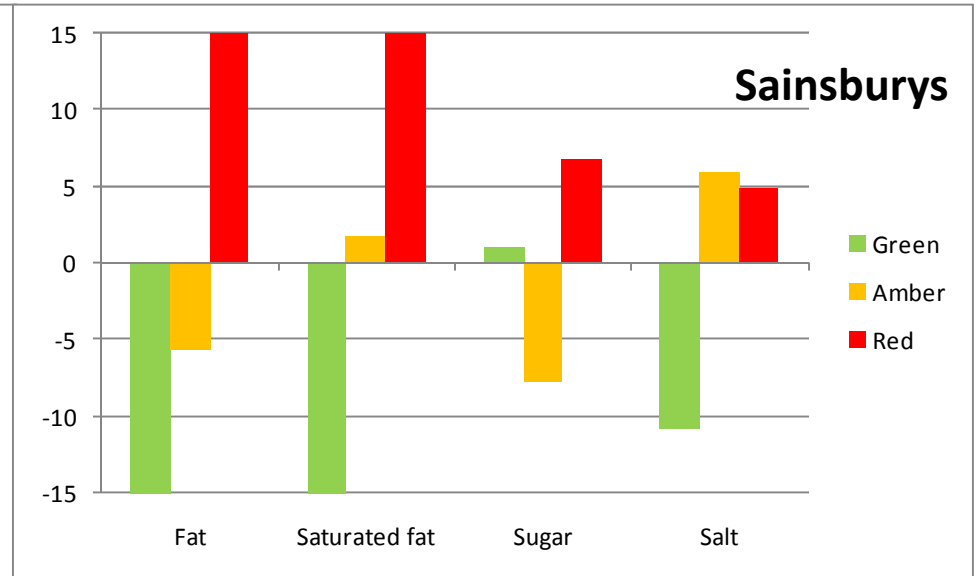
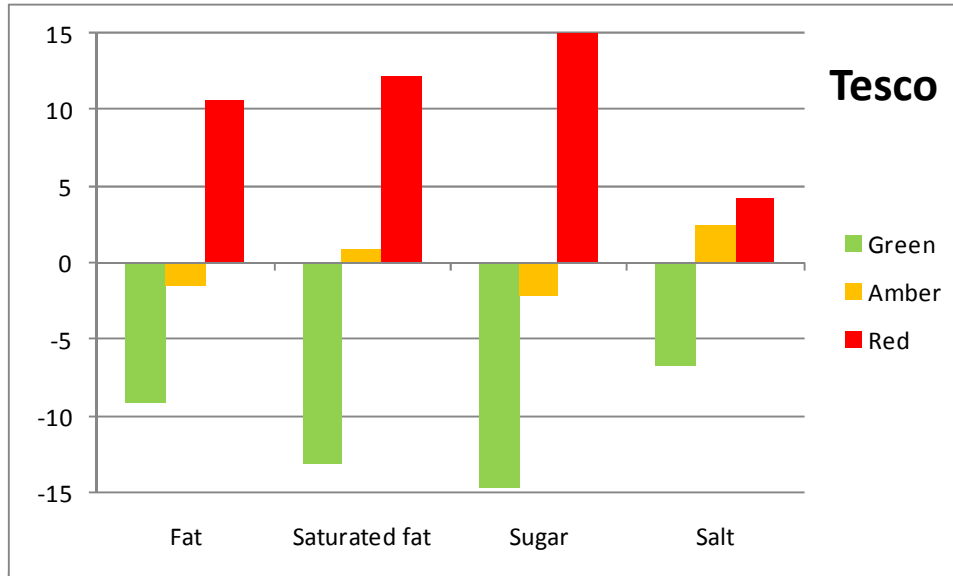
(Positive: Singles > Non-Offers; z-tests 95% significant at +/- 2)



3. Difference in Percentages of Multibuys vs. Singles (Positive: Multibuys > Singles; capped at 10% points)



4. Difference in Percentages of BOGOFs vs. Multibuys (Positive: BOGOFs > Other Multibuys; capped at 15% points)



ASDA did not use BOGOFs during this period

5. High Discount Offers (>25% off) vs. No Discounts (Positive: high > no discount; z-tests 95% significant at +/- 2)



Summary of Findings

- Wide of range of special offers, differing by bundle size and discount amount
- Offers not on average more unhealthy than non-offers, except for sugar levels
- Straight discounts on average more skewed towards unhealthy items
- Multibuys on average more skewed towards healthier items
- BOGOFs skewed towards red traffic lights

Conclusions

- ❖ Price promotions are extensively used by all major retailers and for all product categories
- ❖ There is a healthy choice of supermarket offers available
- ❖ But, consumers need to shop carefully and avoid overbuying unhealthy food
- ❖ This particularly applies for very prominent offers, which can appear very tempting

Implications for Consumers

- ❖ Consumers can be active in regulating food retailers and producers through what they buy
- ❖ Shop smart: hunt for bargains but check ingredients and fill basket for a balanced diet
- ❖ Buy only what is needed and beware beckoning red-and-yellow offer signs
- ❖ Plan meals in advance, go armed with a shopping list, and don't give in to temptation!

Implications for Industry

- ❖ The food industry can play a significant role in promoting healthy diets by:
 - reducing the fat, sugar and salt content of processed foods
 - ensuring that healthy and nutritious choices are available and affordable to all consumers
 - practicing responsible marketing
 - ensuring the availability of healthy food choices
- ❖ Responsibility lies with both retailers and producers ...otherwise regulation might be needed

....and finally, a real bargain...



...mmm!

...and with only two
amber traffic lights!

...Sadly now 22p!



Thank You!



1. Non-technical summary

This project focuses on two great concerns for modern society regarding consumer behaviour towards food: overeating and food waste. These problems impose substantial costs on society through the high healthcare costs associated with treating diseases linked with obesity and also high costs associated with disposing the food thrown away by consumers.

The research centres on addressing two relevant questions concerning the role of food sellers in these great societal problems. (1) How might retail pricing contribute to the excessive consumption of unhealthy food that causes obesity? (2) How might retail pricing contribute to the large amounts of household food waste? Specifically, the research examines the use of pricing techniques that might tempt consumers to over-buy, leading to overeating or throwing away food. Such pricing techniques include offers couched in terms of bargain prices for buying more food. For example, restaurants offer customers larger food portions for little extra cost, free refills on soft drinks, two meals for the price of one, and all-you-can-eat buffets for a set price. Similarly, supermarkets make extensive use of multiple-unit pricing offers such as "three for the price of two" and "buy one get one free" ("BOGOF").

The research examines whether and to what extent such offers are beneficial or harmful from an economic and social perspective, and what is the appropriate business and public policy in tackling any harmful effects while maintaining or promoting beneficial effects. The research provides important theoretical analysis and empirical evidence based on promotional pricing in UK supermarkets.

2. Project overview

a) Objectives

Please state the aims and objectives of your project as outlined in your proposal to the us. [*Max 200 words*]

The broad objective is to provide novel, high-impact, value-for-money research with a substantial public interest, engaging with and appealing to a range of academic and non-academic users (including policymakers, consumer-interest groups, and the business community), in examining how the pricing practices of food vendors may contribute to the economic and social problems resulting from consumers overeating or wasting food.

Through analytical modelling, the objective is to determine how food vendors' pricing practices that involve offering substantial quantity discounts on additional units purchased, contribute to overeating and household food waste, as well as how price promotion practices may steer consumers towards buying unhealthy food (high in calories, fat, sugar, and salt).

With empirical analysis of these issues, the objective is to develop a dataset of UK supermarket price promotions and product healthiness characteristics in order to undertake econometric research on price promotions involving unhealthy food products, to quantify the extent of key factors influencing the nature of such promotions.

Through theoretical and empirical modelling, the objective is to provide research output, disseminated through conference presentations and published papers that will add significantly to the academic literature in marketing and economics on the economic and social welfare implications of retail pricing practices.

b) Project Changes

Please describe any changes made to the original aims and objectives, and confirm that these were agreed with us. Please also detail any changes to the grant holder's institutional affiliation, project staffing or funding. *[Max 200 words]*

The three investigators were originally based at Loughborough University. However, with the departure of Professor Gerstner to move the Technion (the Israel Institute of Technology) in mid-2009 (but continuing as a Visiting Professor at Loughborough), Professor Dobson took over as Principal Investigator (as agreed with the ESRC). After a year into the project, though, Professor Dobson then left Loughborough University in July 2010 to join the University of East Anglia, and the project was relocated with him. The three investigators continued to collaborate on the project. However, Professor Dobson's position in taking over as Head of Norwich Business School and the administrative and management responsibilities tied to that position led to the project being extended by nine months (on a no cost basis and as agreed with the ESRC) to allow for more time to work on the theoretical and empirical analysis required for the project.

c) Methodology

Please describe the methodology that you employed in the project. Please also note any ethical issues that arose during the course of the work, the effects of this and any action taken. *[Max 500 words]*

Through a combination of game-theoretic modelling and empirical analysis, the research focuses on food sellers (rather than food producers, as more often the focus of food policy) and how they may profitably use pricing strategies that encourage consumers to overbuy and whether public policy intervention may then be required. The research provides a deep insight into the nature and incidence of "special offers" in supermarkets and the pricing of portion sizes in restaurants, explaining why consumers are often steered towards buying excessive amounts of unhealthy food that can fuel obesity and excessive amounts of highly perishable produce that is uneaten and simply wasted. The research contributes to the public policy debate with policy proposals to moderate food consumption and reduce food waste.

The research makes an important methodological contribution by extending the existing economic modelling paradigm that equates consumer purchases with (subsequent) consumption in terms of actions and derived utility - assumptions that are clearly violated when consumers are tempted and then regret the consumption of too much food, or when they end up throwing away purchased items.

The theoretical research models personal actions (purchasing goods) that may have knock-on effects for others (environmental/social externality costs) as well as personal costs (e.g. wasted money or regret). In particular, the project has addressed how food sellers may profitably use pricing strategies that encourage consumers to overbuy and whether public policy intervention may then be required (to reduce personal and/or social harm).

The key focus of interest is on how food vendors' pricing practices that involve offering substantial quantity discounts on additional units purchased, through tactics like "supersizing" (offering to increase portion sizes for little extra cost) and "multiple-unit pricing" (like "buy one get one free" and "three for the price of two" offers), contribute to overeating (through steering consumers towards buying unhealthy food) and also increase household food waste (when used

on highly perishable products). The theoretical analysis of this issue is undertaken in the context of food sellers using pricing offers to encourage consumers to self-select by their type and preferences for the amount of food they wish to purchase, as a form of second-degree price discrimination. This is developed both in a monopoly and oligopoly seller context, i.e. where consumers have the choice of respectively one or a few food vendors. The analysis examines optimal pricing decisions in this situation, to examine the optimal pricing strategies for firms, and then show the implications on consumer welfare and for society more generally. The framework is applied to consideration of overbuying leading to overeating or food waste.

The empirical study part of the project examine the extent to which supermarket price promotions in the UK are focused on unhealthy foods (measured in an objective way using nutritional information on each product in respect of its fat, sugar and salt content). The approach taken is to see whether there is any bias in supermarket price promotions towards unhealthy foods, and whether different forms and extents of price offers matters in this regard.

d) Project Findings

Please summarise the findings of the project, referring where appropriate to outputs recorded on the ESRC website. Any future research plans should also be identified. *[Max 500 words]*

The research project has focused on three areas to make a contribution to aid our understanding of retail price strategies and their impact on overeating and food waste.

The first area is around the pricing of different portion sizes served in restaurants. Healthcare experts believe that increases in portion sizes served by food vendors contribute to the obesity epidemic. A key finding of our theoretical work is to show that food vendors can profit handsomely by using “supersizing” strategies where regular portion sizes are priced sufficiently high to discourage price-conscious consumers from selecting them, and the prices for enlarging food portions are set so low that these customers are tempted to order the larger portion sizes and overeat. Setting aside the impact of obesity on health-care costs, we show that using supersizing to steer customers toward consuming excessive amounts of food can destroy value from a social perspective; providing another justification for pressuring food vendors to reduce supersizing for unhealthy food. As a public policy response, we consider how “moderating policies” may counter these effects through measures designed specifically to encourage eating in moderation by applying supersizing bans, taxes, and warnings.

The second area is around the use of multi-unit pricing in supermarkets and whether this leads to overbuying by shoppers on non-storable items with a short shelf life (e.g. perishable items) that ultimately leads to excess purchases being thrown away as household waste. Food waste is a huge problem in the UK, with households estimated to throw away food worth a staggering £10 billion per year, costing £1 billion a year to dispose in landfill sites (WRAP 2008). Our theoretical analysis shows that while multiple-unit pricing might encourage such waste, it can still benefit consumers with overall better value. This finding follows from the implicit nature of multiple-unit pricing offering greater size choices that can better suit different sizes of households, by its “virtual packaging” nature, where one size effectively becomes multiple sizes without the need to separately package and price different sized items. Even so, if the costs of disposing of the waste are high, then this can negate the advantage of higher consumer welfare and reduce overall societal welfare.

The third area is on empirical findings regarding supermarket price promotions and whether these are biased in favour of unhealthy food products high in fat, sugar and/or salt. Our

analysis of weekly data on a full year (August 2010 to August 2011) for four UK supermarket retailers (Tesco, Asda, Sainsburys and Ocado) shows that there is a modest bias towards sugary products for price promotions, but no discernible bias towards fatty or salty foods. However, straight price discounts tend to be on relatively more unhealthy products than multibuy deals. Even so, highly prominent deals, notably “buy one get one free” offers, tend to be on relatively unhealthy products. The advice to shoppers is to check carefully what they buy, hunt for bargains but check ingredients and fill baskets for a balanced diet, and buy only what is needed.

e) Contributions to wider ESRC initiatives (eg Research Programmes or Networks)

If your project was part of a wider ESRC initiative, please describe your contributions to the initiative’s objectives and activities and note any effect on your project resulting from participation. [Max. 200 words]

Not applicable.

3. Early and anticipated impacts

a) Summary of Impacts to date

Please summarise any impacts of the project to date, referring where appropriate to associated outputs recorded on the Research Outcomes System (ROS). This should include both scientific impacts (relevant to the academic community) and economic and societal impacts (relevant to broader society). The impact can be relevant to any organisation, community or individual. [Max. 400 words]

Scientific impact has been sought through publishing papers in top international journals, presenting at international conferences, and delivering seminars at international institutions:

Journal Papers

Dobson, P.W. and E. Gerstner, “For a Few Cents More: Why Supersize Unhealthy Food?” *Marketing Science*, July 2010.

Fruchter, G., E. Gerstner and P.W. Dobson, “Fee or Free? How Much to Add on for an Add-on”, *Marketing Letters*, March 2011.

Conference Presentations

“Wasteful Pricing”, INFORMS Marketing Science Conference, Cologne, 16-19/6/2010.

“For a Few Cents More: Why Supersize Unhealthy Food?” INFORMS Marketing Science Conference, Cologne, 16-19/6/2010.

“Dangerous Pricing: Impact on Obesity and Food Waste”, German-French-Austrian Conference on Marketing, Vienna, 16-18/9/2010; and 4th International Conference on Corporate Social Responsibility, Berlin, 22-24/9/2010.

Research Seminar Presentations

“Dangerous Pricing in Food Retailing: Threats and Cures”, Bar Ilan University, Israel, 11/9/2009; and Hebrew University, Israel, 15/11/2009; and Universidad Carlos III, Madrid, 9/4/2010.

Additionally, dissemination of research findings to reach out to the general public has been undertaken through media commentary and a public lecture:

Public Lecture

“The Lure of Supermarket Special Offers: A Healthy Choice for Shoppers?” presented by Professor Dobson, at University of East Anglia, 29/11/2011.

Media Commentary (quoted commentary by Professor Dobson)

Newspapers

Alex Renton, “Can you feed a family for fifty quid a week? *The Times*, 19/5/2011.

Laura Powell, “Why those supermarket ‘bargains’ end up costing you more”, *Daily Mail*, 5/3/2010.

Felicity Lawrence, “Every little helps? Supermarkets accused of ‘cynical manipulation’ over 1p cuts”. *The Guardian*, 22/2/2010.

Television

ITV Tonight Programme – “Supermarkets' Super Profits”, ITV1 (1/4/2010).

BBC Breakfast – “supermarket special offers”, BBC1 (27/11/2010).

Other Commentary for Non-Academic Users

Consumers Association, “Supermarket Price Tricks Exposed”, *Which?* October 2010 (www.which.co.uk/documents/pdf/p60-63_supermarkets_r3-231242.pdf).

Furthermore, engagement with non-academic users has been through advising the media and meeting with industry and consumer body representatives including:

- Advising BBC Panorama for “The Truth About Supermarket Price Wars” (broadcast on BBC1 on 5/12/2011).
- Meeting with representatives of *Which?* (the Consumers Association) at UEA on 18/8/2011 to discuss the research findings, followed up by participating at the *Which?* roundtable on “Rising Food Prices – Understanding the Causes” held in London on 6/9/2011 (attended by representatives of the farming, food manufacturing, and supermarket retailing sectors).
- Chairing a CEO Roundtable organised by British Brands Group (www.britishbrandsgroup.org.uk), held in London on 6/12/2010, with senior industry manufacturer and retailer representatives discussing how to grow grocery categories in view of retailers’ increasing reliance on promotional pricing and deals to drive sales.

b) Anticipated/Potential Future Impacts

Please outline any anticipated or potential impacts (scientific or economic and societal) that you believe your project might have in future. [Max. 200 words]

For scientific impact, a number of papers are currently being developed for submission to top international journals:

Current papers (work in progress)

Dobson, P.W., E. Gerstner, and J.S. Seaton, “Fattening Competition”, being prepared for submission to *American Economic Review*.

Dobson, P.W. and E. Gerstner, “Pricing and Chronic Food Waste”, being prepared for submission to *Marketing Science*.

Seaton, J.S., P.W. Dobson and E. Gerstner, “The Lure of Supermarket Special Offers: A Healthy Choice for Shoppers?” being prepared for submission to *Economic Journal*.

Additionally, seminar presentations are currently being organised at a number of academic institutions.

For economic and social impact, it is hoped that the media will continue to take an interest in the research findings coming out of the project serving to disseminate the results to the general public. In addition, it is hoped that there will be further collaboration with *Which?* on supermarket pricing practices to help give guidance to the public on shopping in supermarkets to allow consumers to make more informed purchasing decisions. A further possible development currently under discussion with the Office of Fair Trading is to examine supermarket price deals and price promises to see if these are intensifying or dampening price competition.

You will be asked to complete an ESRC Impact Report 12 months after the end date of your award. The Impact Report will ask for details of any impacts that have arisen since the completion of the End of Award Report.

4. Declarations

Please ensure that sections A, B and C below are completed and signed by the appropriate individuals. The End of Award Report will not be accepted unless all sections are signed. Please note hard copies are **not** required; electronic signatures are accepted and should be used.

A: To be completed by Grant Holder

Please read the following statements. Tick **one** statement under ii) and iii), then sign with an electronic signature at the end of the section (this should be an image of your actual signature).

i) The Project

This Report is an accurate overview of the project, its findings and impacts. All co-investigators named in the proposal to ESRC or appointed subsequently have seen and approved the Report.

ii) Submissions to the Research Outcomes System (ROS)