

The role of packaging imagery on consumer preferences for experience goods

A consumer behavioural experiment

Prepared by



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Abstract

Packaging imagery is one source of information in markets that helps consumers to differentiate between alternative product attributes and qualities. In an online behavioural experiment conducted with 3,000 consumers resident in the United Kingdom across a range of products, and segmented according to whether the product brands were premium, medium or low-range brands, we tested the effect of a set of product signals, including price, product information, advertising or market share information, brand name and packaging imagery on consumers' preferences.

We found that compared to the baseline scenario (where all product signals are available to consumers), when packaging imagery is removed from cigarettes, consumer preferences moved away from premium brands (and mid range brands) towards lower range, cheaper brands.

If consumer preferences shift away from premium and mid-range cigarettes towards low-range cigarettes, the analysis suggests that there will be a reduction in the average expenditure per unit in the marketplace. We believe that the removal of packaging imagery from cigarettes reduces the willingness of consumers to pay for premium cigarette brands (and mid range brands to a lesser extent) and results in an erosion of premium brands' value. Given this brand erosion and reduction in the associated willingness to pay, if competition in such an environment focuses more on pricing strategies, there could be a decline in prices in the market place.

If greater price competition were to occur (and given the importance of price signals in the marketplace), there may be a possible increase in the level of consumption, especially amongst those individuals with fewer financial resources. There are also a number of impacts for the Exchequer. Specifically, if there is a reduction in the average price paid in the marketplace, Exchequer receipts from the taxation of cigarettes will also decline even in the absence of any consumption decline, as less tax is collected on low-priced products.

1 Introduction

Background to the analysis

The analysis presented in this paper is aimed at improving our understanding of the role of *signalling*¹ in markets that are characterised by *experience goods*². Specifically, in markets where consumers can only determine the attributes of different products after purchase, market signals, such as warranties, reputation, branding, and packaging provide consumers with information about different products, and reduce the difference in the level of information possessed by producers and consumers of the product (*asymmetric information*³). When these types of information signals are removed from the market, consumers may be unable to assess product differences and the economic theory suggests that markets can move towards the supply of only low quality products (Akerlof, 1970).

The existing literature on the potential impact of the removal of a range of signalling options from cigarette producers indicates the following:

- The experience good framework suggests that plain packaging will reduce the signals tobacco producers have available to them to differentiate their brands. This will limit the information consumers have to select between alternatives in the tobacco market. When information in markets decreases, price can become the main focus of competition. If price becomes the only signal of the differences between products, both price and quality may decline and 'pool' to the price associated with cheaper lower quality products.
- The available research on consumer behavioural response is predominately based on self-reported statements. As many previous researchers have highlighted, statements of intention are not the same as observed behaviour. Therefore, as with any potential policy across the public sector, caution should be exercised in interpreting the results from self-reported surveys and focus groups.
- There are some significant methodological flaws in some of the early research (relating to the impact of advertising on consumer behaviour). In particular, rather than isolating the impact of advertising signals on consumer behaviour, a number of other factors (such as health awareness campaigns, improvements in attitudes towards health in general and increases in taxation that occurred in parallel) were not disentangled adequately from the potential impact of advertising bans.
- There are a small number of experiments designed to observe actual behaviour that overcome some of the problems associated with stated behaviour studies. To date, these

¹ Markets over time have found ways of *signalling* product and service quality. For example, free trials prior to purchase, money back guarantees, feedback mechanisms such as "trip-advisor" or "eBay" seller ratings, and the reference process for employment. These are all methods for reducing information imbalances in the market for experience goods and services. Brand name and product packaging are also mechanisms for reducing these information imbalances. These mechanisms help consumers to differentiate between alternatives and to match product attributes to their own private preferences.

² Goods where consumers can only determine the qualities or attributes of different products after purchase are known as experience goods. Alcohol, toothpaste, chocolate, ice cream might all be considered experience goods. Experience goods are fundamentally different from *search* goods. Specifically, for search goods, consumers can, at a reasonable cost and effort, inspect and determine the qualities and attributes of the product before purchase. Furniture displayed on a store floor is an example of a search good.

³ When the consumer cannot determine the attributes of a product prior to purchase, there is an *imbalance* of information between the producer of the product and the consumer. This is referred to as *asymmetric* information. The supplier has more information than the purchaser about the true quality and attributes of the product.

have used unrepresentative or very small sample pools, limiting the robustness of the results and associated policy conclusions.

- These behavioural experiments have nevertheless observed a *decrease* in the price smokers are willing to pay for plain packet cigarettes as compared to fully branded alternatives. Changes in willingness to pay illustrate a decrease in individual valuations for cigarettes, although this does not imply that smoking will decrease as a result. However, if producers respond to reduced consumer willingness to pay through price competition, prices might be driven down resulting in an increase in consumption.

Policy context

In November 2010, the UK Department of Health released a White Paper ‘*Healthy Lives, Healthy People*⁴. Setting out the government’s strategy for public health in England, the White Paper discusses a wide range of measures for promoting public health. Among the measures under consideration is the requirement that all tobacco products are presented in “plain packaging”. According to the White Paper, “*the Government will look at whether the plain packaging of tobacco products could be an effective way to reduce the number of young people taking up smoking and to help those who are trying to quit smoking.*” (p. 37)

The White Paper highlighted potential problems with generic packaging, noting that the government “*will clearly need to make sure that there is good evidence to demonstrate that plain packaging would have a public health benefit, as well as carefully exploring the competition, trade and legal implications of the policy.*” (p. 37).

The previous UK government found that there was no existing evidence that plain packaging will reduce smoking rates. The then UK Minister of State (for Public Health) observed in 2009 that “*no studies have been undertaken to show that plain packaging of tobacco would cut smoking uptake among young people or enable those who want to quit to do so*”⁵.

Terms of Reference

To fill this evidence gap, London Economics were commissioned by Philip Morris International to study the impact of removing pack imagery and information on consumer behaviour. Specifically, as we report in this paper, we interacted with 3,000 UK respondents in order to isolate the relative effect of different product signals, including brand name, packaging imagery, product content information, price and advertising (or a factual statement about market share in the UK) on consumer preferences for six leading United Kingdom brands across a set of common experience goods⁶. In addition to examining the impact on cigarette brand preferences, we also examined the impact of removing different product signals from other experience goods, including bottled water, beer, crisps, ice cream, toothpaste, and chocolate, in order to see whether similar behaviours were observed. The experiment was designed to systematically test the effect of the removal of product imagery signals on consumer preferences for premium, mid-range and low-range brands.

⁴ http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_127424.pdf. Accessed 14/11/2011.

⁵ UK Minister for State for Public Health, Public Bill Committee Debate, Column 305, 25 June 2009 ([here](#)). Accessed 14/11/2011.

⁶ Our experiment design is inspired by previous experimental economic studies of signalling and product quality. These studies include, Netusil and Hauptert, (1995), Miller and Plott (1985), Holt and Sherman (1990) and Tsao et. al. (2006).

2 Methodological approach and experimental design

The purpose of this paper is to provide some detailed empirical evidence to isolate and understand the relative effect of different product signals, including brand name, packaging imagery, product content information, price and advertising (or a factual statement about market share in the UK) on consumer preferences for six leading United Kingdom brands across a set of consumption experience goods. The goods included in the experiment are bottled water, beer, crisps, ice cream, toothpaste, chocolate and cigarettes. The experiment was designed to systematically test the effect of the removal of product signals on preferences for premium, mid-range and low-range brands. The experiment compares the effect on consumer preferences of five different information scenarios relative to a baseline scenario. This baseline includes all information signals that consumers currently have in the market. The baseline allows a comparison between the current policy environment and alternative information scenarios including the removal of all packaging imagery.

2.1 Construction of the products and brands

2.1.1 Tobacco products

Given the range of cigarette products available in the marketplace, and the need to ensure that the brands chosen covered a reasonable range of consumers' current preferences, especially given the fact that they may vary depending on the consumers observable characteristics (i.e. males versus females), we segmented tobacco products into four sub-categories by flavour: full flavour (10mg); medium flavour (5-9 mg); low flavour (1-5mg); and menthol flavour. The 24 cigarette brands chosen have the largest market share in the UK for each flavour category within the premium, medium and low-range segments⁷. The brands included in the experiment are shown in Table 1⁸.

Product type	Low-range	Mid-range	Premium
Full-flavour Cigarettes	Sterling (Red/Silver) Windsor (Dark Blue)	Mayfair (Dark/Blue) Richmond (Dark Blue)	Benson and Hedges Gold Lambert and Butler (grey/White)
Medium-flavour Cigarettes	Sterling (Blue/Silver) Pall Mall (Blue)	Mayfair (Light Blue) JPS Silver	Benson and Hedges Silver Marlboro Gold
Low-flavour Cigarettes	Mayfair (White) Pall Mall (Pink)	Lambert and Butler (Gold) Superkings White/Gold	Silk Cut (Purple) Marlboro Silver
Menthol Cigarettes	JPS Silver Menthol Sterling Menthol	Mayfair Menthol Windsor Blue Menthol	Richmond Menthol Berkeley Menthol

Source: London Economics

⁷ Based on information provided by Philip Morris International from AC Nielsen published price lists. Categorisation of brands by quality segment for the experiment was undertaken by London Economics.

⁸ Illicit (counterfeit or smuggled) alternatives were also initially included in the experiment for cigarettes, where we replaced one of the low-range brands with a premium brand counterfeit alternative. However, we did not include the illicit brand in our final analysis and instead focused on the legal market, in part because it proved difficult to differentiate between illicit tobacco products and licit ones.

2.1.2 Non-tobacco products

We included non-tobacco experience goods in the experiment because they form an additional point of comparison. Namely, does the removal of packaging imagery and other product signals have a similar impact on non-tobacco products as it does on cigarettes? The six non-tobacco products were selected because they are commonly purchased by consumers in the market-place (and potentially on multiple occasions); are relatively affordable (to exclude items like cars); and are purchased with varying frequency. In terms of market structure, these products also provide a varying degree of product differentiation; a varying degree of market concentration (independent of product differentiation); varying degrees of market maturity; and potentially provide a varying degree of price responsiveness to the various information signals under consideration.

In each of the six product markets, we selected six particular brands. These brands were selected on the basis of being relatively common within those products categories. The key point in terms of the selection of these brands was that they were selected and classified as being either 'low-range', 'mid-range' or 'premium' (two brands per range). In the case of the 'low-range' brands, we included for each non-tobacco product a supermarket own-brand. The rationale for undertaking this approach was to ensure that consumers were provided with an adequate and realistic choice set. The respondents were not provided with any information on whether the brands were considered 'low-range', 'mid-range' or 'premium'. The six non tobacco products, as well as their classification to different ranges, are presented in Table 2.

Table 2: Non tobacco products and categorisation by class

Product type	Low-range	Mid-range	Premium
Bottled water	Isklar Supermarket brand	Buxton Volvic	Highland Spring Evian
Beer	Carlsberg Supermarket brand	Fosters Carling	Kronenbourg Stella
Crisps	Walkers Supermarket brand	Sensations Red Sky	Tyrells Kettle Chips
Ice cream	Kellys Cornish Supermarket brand	New Forest Wall's Carte D'Or	Green & Blacks Haagen Das
Toothpaste	Macleans Supermarket brand	Colgate Aqua Fresh	Sensodyne Euthymol
Chocolate	Yorkie Supermarket brand	Areo Dairy Milk	Twirl Galaxy

Source: London Economics

2.2 Construction of the treatments

The experimental approach to understanding the impact of alternative forms of signalling on consumer behaviour involved the use of a range of *treatments* or scenarios, under which consumers were asked to rank their preferences over the six brands displayed. Preferences were ranked on a scale of '1' to '6' with '1' corresponding to the most preferred option and '6' corresponding to the least preferred option

The *treatments*, or alternative scenarios, varied the range of signals available to consumers. Specifically, the treatments and the respective signals implemented in the experiment are shown

in Figure 1. A 'Y' indicates that the respective signal was shown to respondents, and a 'N' indicates that the signal was 'turned off'.

Treatment 1 is the baseline treatment, where all signals or information elements were presented to consumers, and from which changes in behaviour are measured. Treatment 1 captures the main features of the information signals that are available to consumers in markets today, and includes the provision of information on the name of the brand, the physical display of the product pack and packaging imagery, product information, price per standard unit, and an advertising slogan. In the case of the last item, for non-tobacco products, this consisted of a recent advertising slogan, while in the case of tobacco products, where there is no advertising, this signal consisted of a simple factual statement about market share (e.g. '4th best selling full flavour cigarette in the United Kingdom').

Figure 1: Behavioural experiment treatments

	Name	Branding	Product information	Price	Advertising or Recommendation (tobacco)
Treatment 1	Y	Y	Y	Y	Y
Treatment 2	Y	Y	Y	Y	N
Treatment 3	Y	N*	Y	Y	N
Treatment 4	Y	N*	N	Y	N
Treatment 5	Y	Y	N	N	N
Treatment 6	N	N	N	Y	N

Source: London Economics: Note: N* occurs when consumers are presented with a physical representation of a particular product or brand but all packaging imagery has been removed

Relative to the Baseline treatment (Treatment 1), **Treatment 2** ('No advertising or no market share information') switches-off the 'advertising' or 'market share' signal. The comparison of consumer preferences with the Baseline treatment allows for the assessment of the impact of the removal of the advertising signal on consumer preferences. Again, given that tobacco advertising is prohibited in the UK, we removed information about each brand's market share among similar products in each flavour category.

In addition to the removal of the advertising or market share signal, **Treatment 3** ('No advertising or market share information, no imagery') removes the packaging imagery and replaces it with plain packaged representations of the products. In the case of non-tobacco products, this consists

of uniform sized products with green packaging and the name of the brand in a standard type font. The comparison of consumer preferences between Treatment 2 and Treatment 3 demonstrates the impact of the removal of packaging imagery signal when there is no advertising or market share signal available in the marketplace.

In **Treatment 4**, the brand name of the product and the price are displayed while packaging imagery is removed. **Treatment 5** includes brand name and packaging imagery with all other information removed. Finally, for **Treatment 6**, price is the only signal available to consumers.

In summary, the treatments were as follows:




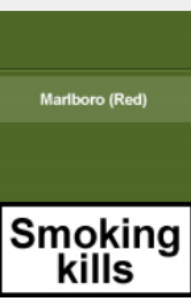
- **Treatment 1** ('Baseline' treatment): All information signals are provided.
- **Treatment 2** ('No advertising or market share'): Removal of advertising signal information. For cigarettes market share information was removed.
- **Treatment 3** ('No advertising or market share, no imagery'): Removal of advertising signal (market share information for cigarettes) and packaging imagery (though physical representation remains).
- **Treatment 4** ('Brand name and price'): Removal of advertising or market share signal, packaging imagery signal (though physical representation remains) and product information leaving brand name and price only.
- **Treatment 5** ('Brand name and packaging imagery only'): Removal of advertising or market share signal, product information and price signal, leaving brand name and packaging imagery only.
- **Treatment 6** ('Price only'): Removal of advertising or market share signal, packaging imagery (and physical representation), product information and brand name, leaving price only.

To illustrate how this operated in practice, the screenshots associated with the online experiment corresponding to each of the six treatments (for cigarettes and chocolate) are presented in Annex 3. For cigarettes, the plain packaging representation was selected based on recent Australian proposals⁹. The representations of the different treatments with respect to one cigarette brand are shown in Figure 2¹⁰.

⁹<http://www.yourhealth.gov.au/internet/yourhealth/publishing.nsf/Content/plainpack-tobacco>. Website accessed 04/11/2011.

¹⁰ The example provides the example of Marlboro. In the actual experiments (see Annex 3), the 6 most popular brands were provided to consumers, alongside their own preferred brand if not already in one of the six.

Figure 2: Representation of the 6 treatments for one cigarette brand

<p>Treatment 1</p>  <p><i>Content</i> <i>Tar: 10</i> <i>Nicotine: 0.8</i> <i>Price: £6.83</i></p> <p>14th best selling full flavour cigarette in the United Kingdom</p>	<p>Treatment 4</p>  <p><i>Price: £6.83</i></p>
<p>Treatment 2</p>  <p><i>Content</i> <i>Tar: 10</i> <i>Nicotine: 0.8</i> <i>Price: £6.83</i></p>	<p>Treatment 5</p> 
<p>Treatment 3</p>  <p><i>Content</i> <i>Tar: 10</i> <i>Nicotine: 0.8</i> <i>Price: £6.83</i></p>	<p>Treatment 6</p> <p>Brand F <i>Price: £6.83</i></p>

Source: London Economics

2.3 Sample construction

The experiment was conducted online during July and August 2011 with 3,000 nationally representative consumers over the age of 18 who are resident in the United Kingdom. One thousand consumers were non-smokers and 2,000 consumers were smokers¹¹. All participants had to have purchased at least five of the six non-tobacco products in the last three months to qualify for the experiment. Non-smokers only saw the non-tobacco products, and smokers saw five of the non-tobacco products (randomly assigned) and the cigarettes.

¹¹ There was no minimum consumption level placed on smokers.

For non-smokers, there were 6 products and 6 treatments. Each respondent was presented with a randomly assigned product and treatment and asked to provide their preferences over the brands offered. This was repeated until all treatments across all products had been investigated. In other words, respondent A may have been shown Treatment 1 ('Baseline') for chocolate brands (and asked to rank their preferences); Treatment 2 ('no advertising or market share information') for beer (and asked to rank their preferences); Treatment 3 ('no advertising or market share information, no packaging imagery') for toothpaste etc. For smokers, respondents were asked to rank their preferences across the 6 products in the exact same way as non-smokers, with one of the products and treatments always relating to cigarettes.

In the case of tobacco, to ensure that the survey was in some degree personalised (and to also control for the fact that cigarette smoking is associated with a high degree of brand loyalty), we asked consumers for their preferred brand. If this brand was already within the 6 selected brands, then the consumer ranked their preferences within these 6 brands. If their preferred brand was not within the 6 selected brands, then the consumer ranked their preferences within 7 brands (preferred brand and 6 originally selected brands)¹². This additional information on pre-existing brand preferences also ensured smokers ranked brands within their preferred flavour category.

2.3.1 Other information collected

In addition to the information on consumer preferences collected, the survey also collected some information on the personal characteristics of respondents. For both smokers and non-smokers, this included the following:

- Whether the respondent likes to vary their brand
- Whether the respondent would travel to another outlet to find their preferred brand if their preferred brand was unavailable
- Gender
- Age
- Education
- Region of residence

In addition, for individuals declaring themselves as smokers, the following information was collected:

- Length of time they have smoked
- How often they smoke
- If they had recently changed their brand

¹² In the case of a seventh brand being included, the rank for the seventh brand was set to zero and the remaining six brands were ranked in order of preference for the data analysis.

3 Overall effect of product signals on consumer preferences

We analyse consumer preferences in two ways. First, we investigate the general relationship between the product signals and consumer preferences for premium, medium and low-range brands (measured by the average ranking of brands). We then undertake a detailed econometric analysis to establish the *causal* relationship between the various information signals and consumer preferences. We analyse the results for all seven products across 5 treatments (**Treatments 2–6**) relative to the Baseline (**Treatment 1**). In Annex 1 we provide detailed analysis for each of the products.

Our overall observations from the experiment are:

- The removal of the advertising or market share signal has only a small effect on consumer preferences.
- The removal of brand imagery from packaging shifts consumer preferences away from premium brand products towards low-range cheaper brands.
- When brand imagery and brand name are the only information signals in the market, consumer preferences tend to shift towards premium range brands.
- When price is the only signal in the market consumer preferences shift towards low-range cheaper brands.

3.1 The removal of advertising or market share information (Treatment 2)

Looking at the basic descriptive statistics, the removal of the advertising signal (market share information in the case of cigarettes) has a small effect on average consumer preferences across all the products considered. In the case of cigarettes, the removal of market share information has the effect of *increasing* the average ranking of premium and low-range brands (by 0.04 and 0.27 points respectively¹³), while mid-range brands see a reduction in the average ranking achieved (by approximately 0.21 points). More generally, we observe that consumer preferences shift away from the premium brands towards medium and low-range brands (bottled water, beer¹⁴, chocolate, ice cream¹⁵, and crisps¹⁶)¹⁷.

The econometric analysis presents a similar pattern, and overall the estimates from the regressions are statistically insignificant, again indicating that removal of advertising or market share information has a limited impact on preferences¹⁸. For cigarettes, the probability of a premium brand receiving a first preference *decreases* by 1.3 percentage points; however, this

¹³ The metric considered here is the average ranking across consumers, which ranges between '1' (most preferred) and '6' (least preferred). When considering changes in average rankings, a reduction in average rankings of 0.26 points (for example) implies that the average ranking of a brand has fallen from 2.50 to 2.76.

¹⁴ The effect on consumer preferences is very small for bottled water and beer.

¹⁵ The effect of removing advertising appears to have more influential effect on ice cream than for other non tobacco products.

¹⁶ The analysis illustrates that there is a small reduction in average preference rankings of premium brands and low range brands for chocolate and crisps.

¹⁷ A fundamentally different pattern emerges for toothpaste, with a shift in consumer preferences *towards* premium brands. This in part reflects that the toothpaste premium range brands are niche products that are marketed as having more medicinal properties than the other brands in the UK, and do not have wide market appeal with consumers.

¹⁸ The ranking when advertising is removed is not different from the baseline treatment in a statistical sense.

effect is again statistically insignificant. For low-range cigarette brands there is an increase in the probability that these brands are ranked first, however this effect is only significant at the 5% level of confidence.

For chocolate, crisps, ice cream and bottled water, the probability of a premium brand receiving a first preference decreases when advertising is removed. This pattern is the same across smokers and non-smokers, although the exception is crisps, where there is a very small *increase* in the probability that non-smokers rank the premium brands as first preference (however this effect is not statistically significant). In the case of beer brands, we see a small decrease in the probability of a premium brand being ranked as first preference amongst non-smokers (3 percentage points but this estimate is not significant). Toothpaste again shows the opposite pattern however again these effects are statistically insignificant.

In general, the removal of the advertising or market share information signal has a very small effect on consumer preferences for both smokers and non-smokers across all products and these effects are generally statistically insignificant. This finding in relation to consumer preferences is further confirmed in the academic literature, where advertising bans have been shown to have no effect on (alcohol) consumption patterns¹⁹.

3.2 The removal of packaging imagery (Treatment 3)

When brand imagery is removed from packaging and a plain green packet is displayed to consumers, we observe a shift in consumer preferences away from premium brands towards low-range cheaper brands for all products except toothpaste²⁰.

For cigarettes, average rankings for premium brands decrease by 0.42 points and medium range brands by 0.29 points, while there is an increase in preference rankings for cheaper low-range cigarette brands by 0.45 points. In the case of bottled water and ice cream, there is also a decrease in preferences for both premium and medium range brands. Consumers' average rankings for premium brands *and* medium brands of bottled water decrease by 0.14 points. In the case of ice cream the effect is larger, with a decrease in preferences for premium and medium range brands of 0.25 and 0.19 points respectively, while preferences for cheaper low-range brands increase by 0.44 points. For beer and crisps there is a very small increase in consumer preferences for medium range brands (0.02 and 0.04 points respectively), while consumer preferences for low-range brands increase by 0.05 and 0.15 points respectively. Premium brands for these products experience a decrease in average preferences by 0.06 points for beer and 0.19 points for crisps. In the case of chocolate, medium range brands receive a marginally stronger shift in consumer preferences compared to low-range brands (0.08 and 0.06 respectively), while premium brand preferences decrease by 0.14 points.

The econometric analysis illustrates the same pattern, namely that the probability of premium brands receiving high consumer preference decreases when packaging imagery is removed. The

¹⁹ See Nelson (2010)

²⁰ As mentioned previously the difference in the pattern of preference rankings for toothpaste is due to the niche premium brands included in the experiment.

effect is similar for smokers and non-smokers for chocolate²¹, crisps²², ice cream²³ and bottled water²⁴. In the case of cigarettes we observe a *decrease* in the probability that premium brands receive a first preference by 5.4 percentage points, which is statistically significant at the 1% confidence level. The probability that a low-range brand receives a first preference rank *increases* by 5.0 percentage points and this estimate is also significant at the 1% level.

In summary, the removal of packaging imagery *decreases* consumers' preference rankings for premium brand products across the majority of products for both smokers and non-smokers²⁵. The removal of brand imagery (combined with the removal of advertising or market share information) reduces consumers' willingness to pay for more expensive premium brand products and shifts preferences towards cheaper low-range brands.

3.3 Removal of packaging imagery and product information (Treatment 4)

The removal of product information in addition to the removal of advertising (market share statement) and packaging imagery generates a very similar preference ranking to **Treatment 3** in which product information was shown alongside plain green packets. The effect is slightly larger than in **Treatment 3** for the premium brands for some products; beer (non-smokers), chocolate (smokers), crisps (smokers), ice cream and bottled water (smokers and non-smokers). In the case of premium brand cigarettes, the probability of a premium brand being ranked first is again 5.4 percentage points lower in **Treatment 4** compared to the baseline case (and is statistically significant). The probability that cheaper low-range brands are ranked as a first preference increases by 3.4 per percentage points and is statistically significant at the 1% level.

When both packaging imagery and product information are removed consumers preferences shift away from premium brands towards lower-range cheaper brands.

3.4 Brand name and packaging imagery only (Treatment 5)

When the only information signals provided to consumers consist of the fully branded packet and brand name, the analysis demonstrates that there is a movement of consumer preferences towards premium brands for *all* products except chocolate²⁶. When we consider the econometric analysis, the probability that premium beer brands receive a first preference rank increases by 4.3 percentage points for smokers (significant at 5% level). For crisps there is a small increase in the probability that premium brands receive a first preference rank; however, this effect is found not to be statistically significant for either smokers or non-smokers. For ice cream brands, there is a small increase in smokers' preferences towards premium range brands and a decrease for non-smokers; however, both these effects are insignificant. The impact on consumers' preferences for

²¹ In the case of chocolate the decrease in non-smokers' preferences for premium brands are statistically significant at the 5% confidence level while the effect (in the same direction) is not statistically significant for smokers.

²² Smokers change in preference rankings for crisps are statistically significant at 1% confidence level while the change in non-smokers preferences is not statistically significant.

²³ The effect is statistically significant for both smokers and non-smokers.

²⁴ The effect is not significant for either group.

²⁵ The exception is toothpaste.

²⁶ In the case of chocolate, the average ranking for premium brands *decreases* by 0.1 percentage point relative to the baseline, and medium brand rankings increases by 0.2 percentage points.

bottled water are large and statistically significant for both smokers and non-smokers at the 1% level (6.4 and 7.3 percentage points respectively).

When we consider cigarettes, showing packaging imagery and brand name only *increases* the probability that a premium brand will receive a first preference by 4.7 percentage points (significant at 5% level of confidence) and decreases the probability that a low-range cheaper brand will receive a first preference rank by 1.1 percentage points, however the change in preferences for low range brands in this case is not significant.

In general, the removal of price, advertising (or market share information) and product information such that consumers only receive the brand name of the product and packaging imagery signals moves consumer preferences towards premium brands and away from low-range cheaper brands.

3.5 Price only (Treatment 6)

The effect of showing price only on consumer preferences is large and statistically significant for most products (with the exception of ice cream and toothpaste²⁷). Showing price only *decreases* the probability that premium brands of beer will receive a first preference rank by 9.4 points for smokers and 12.7 points for non-smokers. For chocolate, the analysis indicates that there is a decrease in the probability of achieving a first preference rank for premium brands of 11.9 percentage points for smokers and 8.5 points for non-smokers. In the case of crisps, the removal of all information signals except price results in a 10.9 percentage points lower probability of achieving a top ranking amongst smokers (12.4 percentage points for non-smokers), and a decrease of 13.4 and 12.2 percentage points for smokers and non-smokers respectively when considering bottled water. Similarly, for cigarettes showing price only decreases the probability that a premium brand will receive a first preference rank by 15.0 percentage points while the probability of a low-range brand receiving a top preference increases by 16.1 percentage points.

If price is the only information signal in the market, consumers' preferences tend to shift towards the lower range cheaper brands and the effect on preferences is large and statistically significant.

²⁷ In the case of ice cream there is a slight increase in average preference ranking for premium range brands, however in the regression analysis the effect is insignificant. For toothpaste, price does seem to provide a *quality* signal.

4 Summary findings and conclusions

Policy context

It is clear that cigarette consumption has significant public health impacts. In light of this, there has been a concerted move in the UK and numerous other jurisdictions to adopt fiscal, regulatory and other policy measures to reduce cigarette consumption in both the short term and longer term by influencing consumer incentives and preferences. As discussed above, one measure being considered is a requirement to remove all brand imagery and information from tobacco product packaging, so that cigarettes are only available for purchase in plain packaging similar to that used in Treatments 3 and 4.

Rationale

In 2009, the UK government noted that “no studies have been undertaken to show that plain packaging of tobacco would cut smoking uptake among young people or enable those who want to quit to do so”. The rationale for undertaking this extensive analysis was to fill some of these evidence gaps in order to better understand the role of different information signals on determining consumer preferences. The information signals considered included advertising (or market share information), packaging imagery, brand name, product information, and price.

Findings

Using a large online survey with a nationally representative sample of smokers and non-smokers, we applied a rigorous behavioural experiment covering a range of cigarette and non-cigarette products. The analysis demonstrated a number of key results. Specifically, our analysis demonstrated that packaging imagery has a significant impact on consumer preferences across a number of products²⁸. In the case of premium brand cigarettes, the impact of the removal of packaging imagery results in a *decline* in consumer preferences or rankings for these brands²⁹. The effect on consumer preferences is qualitatively equivalent for the majority of non-tobacco products for both smokers and non-smokers alike³⁰. A similar effect is also demonstrated for mid-range cigarette brands. In contrast, the removal of packaging imagery has a positive effect on consumer preferences for low-range, cheaper cigarette brands.

Table 3: Impact of absence of packaging imagery on consumer preferences for cigarettes (Treatment 3)

	Rank=1 st	Rank=2 nd	Rank=3 rd	Rank=4 th	Rank=5 th	Rank=6 th
Premium	-5.4*	-3.2	-0.9	0.3*	2.4*	6.8
Mid-range	-2.8*	-3.1*	-2.1*	0.4*	3.6*	4.1*
Low-range	5.0*	5.7*	1.9*	-2.4*	-5.0*	-5.2*

Note: The figures indicate the percentage point change in the probability that a different brand cigarette will receive the ranking shown in the top row of the table under each treatment relative to the situation under Treatment 1. Figures in shaded cells are statistically significant at the 10% level; bold figures are statistically significant at the 5% level; ‘*’ indicates statistical significance at the 1% level.

²⁸ The role of advertising was also demonstrated to have a very limited impact in determining consumer preferences across brands.

²⁹ For instance, the analysis indicates that the removal of all packaging imagery results in a 5.4pp decline in the probability of consumers selecting a premium brand as their first preference.

³⁰ The exception is toothpaste.

The analysis also demonstrates that when price is the only signal of brand differences in the market, there is a large shift in consumers' preferences away from premium brands to low-range cheaper brands for almost all products. For cigarettes, the probability that a premium brand will receive a 1st preference is 15.0 percentage points lower than when only price is shown. The probability that a low-range cheaper brand will receive a 1st preference ranking is 16.1 percentage points higher than under the baseline case.

Table 4: Impact of removing all market signals except for price on consumer preferences for cigarettes (Treatment 6)

	Rank=1 st	Rank=2 nd	Rank=3 rd	Rank=4 th	Rank=5 th	Rank=6 th
Premium	-15.0*	-10.4*	-4.3*	-1.0	5.2*	25.5*
Mid-range	0.0	0.0	0.0	0.0	0.0	0.0
Low-range	16.1*	13.7*	1.4*	-7.7*	-12.0*	-11.5*

Note: The figures indicate the percentage point change in the probability that a different brand cigarette will receive the ranking shown in the top row of the table under each treatment relative to the situation under Treatment 1. Figures in shaded cells are statistically significant at the 10% level; bold figures are statistically significant at the 5% level; '**' indicates statistical significance at the 1% level.

Furthermore, for cigarettes, when brand name and packaging imagery only are shown, and price is removed from the available information set, consumers' preferences shift in the opposite direction towards premium brands. The magnitude of this shift in preferences is less than the change in preferences when only price is shown. In other words, price on its own appears to have a much more significant impact on consumer brand preferences than brand name and packaging imagery. The same effect is found for most of the non-tobacco products across both smokers and non-smokers³¹.

Table 5: Impact of removing price and showing only brand name and packaging imagery for cigarettes (Treatment 5)

	Rank=1 st	Rank=2 nd	Rank=3 rd	Rank=4 th	Rank=5 th	Rank=6 th
Premium	4.7	2.2	0.3	-0.6	-2.1	-4.5
Mid-range	1.2	1.2	0.6	-0.3	-1.4	-1.3
Low-range	-1.1	-1.4	-0.8	0.4	1.3	1.6

Note: The figures indicate the percentage point change in the probability that a low-range brand cigarette will receive the ranking shown in the top row of the table under each treatment relative to the situation under Treatment 1. Figures in shaded cells are statistically significant at the 10% level; bold figures are statistically significant at the 5% level; '**' indicates statistical significance at the 1% level.

What might be the impact of this change in consumer preferences?

The impact of the removal of packaging imagery results in consumer preferences shifting away from premium and mid-range cigarettes towards cheaper low-range cigarettes. The analysis suggests that there will be a reduction in the average expenditure per unit purchased in the marketplace. Specifically, the analysis demonstrates that compared to the baseline case, where the weighted average³² of the expenditure on a pack of cigarettes stood at approximately £6.04, under the scenario where market share information and all packaging imagery was removed, the weighted average stood at £5.90 per pack. This corresponds to a 2.3% reduction in the average expenditure per pack of cigarettes as consumers' preferences shift from premium to cheaper brands.

³¹ The exceptions are ice cream and toothpaste.

³² Weighted over consumer 1st preferences.

Based on the evidence and analysis undertaken, we believe that the removal of packaging imagery from cigarettes reduces the willingness of consumers to pay for premium cigarette brands (and mid range brands to a lesser extent) and results in an erosion of premium brands' value, as consumers' preferences shift towards cheaper products. Given this brand erosion and reduction in the associated willingness to pay, if tobacco companies compete to maintain current market shares through more aggressive pricing strategies, there could be a decline in prices in the market place. The extent of any price decrease will depend on the intensity of price competition between producers.

If greater price competition were to occur (and given the importance of price signals in the marketplace), there may be a possible increase in the level of consumption, especially amongst those individuals with fewer financial resources. Other factors held constant, the removal of all packaging imagery and possible subsequent price falls may also encourage younger people to take up smoking in the first instance. There are also a number of impacts for the Exchequer. Specifically, if there is a reduction in the average price in the marketplace, Exchequer receipts from the taxation of cigarettes may also decline even in the absence of any consumption decline, as less tax is collected on lower-priced products.

Annex 1 Detailed analysis of consumer preferences

In this annex we present the detailed data analysis. First we investigate the change in average preference rankings in each of the five treatments relative to **Treatment 1** (the 'baseline case' where all information signals are presented to consumers). We then follow with the results of the regression analysis that explores the change in the probability of premium, medium and low-range cheaper brands receiving a high preference ranking in each of the treatments. The regression analysis also compares consumer preferences relative to the 'baseline case'. We present the cigarette product analysis first and then follow with non-tobacco products.

A1.1 Product rankings by category

The average rankings under **Treatment 1 (Baseline Treatment)** are shown in Table 6. As stated previously, respondents were asked to rank their preferences over the 6 brands presented to them where a ranking of '1' indicated the most preferred, while a ranking of '6' represented the least preferred. As such, on average, lower numbers in absolute terms indicate a more preferred brand, while higher numbers represent less preferred brands.

Product type	Low-range	Mid-range	Premium
Bottled water	4.36	2.97	3.17
Beer	4.14	3.54	2.82
Crisps	3.75	3.76	2.99
Ice cream	4.41	3.36	2.74
Toothpaste	3.77	2.45	4.28
Chocolate	4.60	2.93	2.96
Cigarettes	4.02	3.49	3.31

Source: London Economics' analysis of online experiment data. Shaded cells indicate 'well ordered' preferences.

The information presented in Table 6 indicates that for beer, ice-cream and cigarette brands, consumers (on average) ranked 'premium' brands above 'mid-range' brands and mid-range brands above 'low-range' brands. In contrast, for bottled-water and chocolate, respondents placed the 'mid-range' brands marginally ahead of the 'premium' brand (as shown by the un-shaded cells in the table), while for crisps, consumers placed the 'low-range' brand very marginally ahead of the 'mid-range' brand. The outlier related to toothpaste, where the premium brands were the least preferred option, although this, to a large extent, reflects the choice of brands (Sensodyne and Euthymol), which are perhaps non-standard brands and are claimed to focus on gum protection and other clinical aspects of dental hygiene rather than more standard (and more popular) brands.

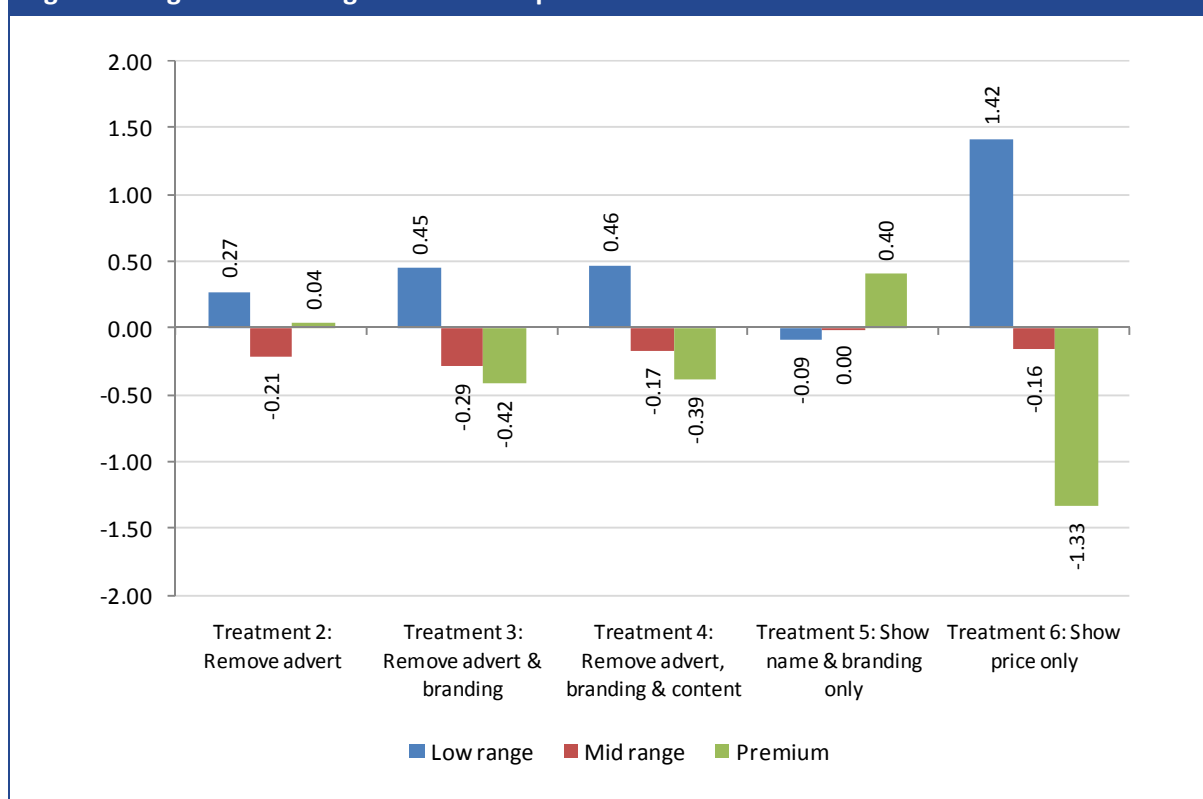
Despite this, the key point of the experimental exercise involves the assessment of how consumer preferences *change* following the withdrawal of different information signals, although these apparent discrepancies should be borne in mind when considering the results throughout the subsequent sections.

We discuss the various product markets in turn in the next section.

A1.2 Cigarettes

In this section we present the basic ranking analysis relating to cigarettes. Presented in Figure 3, the analysis suggests that the removal of factual information about market share (**Treatment 2**) has the effect of *increasing* the average ranking of premium-range and low-range brands (by 0.04 and 0.27 points respectively), while mid-range brands see a reduction in their ranking (by approximately 0.21 points). However, in the absence of market share information, the removal of all packaging imagery (**Treatment 3**) shifts consumer preferences away from premium brands (by approximately 0.42 points compared to **Treatment 1**), and increases consumer preferences for cheaper low-range brands. Conversely, where *only* brand imagery and packaging imagery are presented but price and product content are not (**Treatment 5**), the analysis demonstrates that the average ranking of premium brands increases by 0.40 points relative to the baseline (**Treatment 1**). Finally, the analysis demonstrates that under **Treatment 6**, where only prices are displayed, there is a large shift in consumer preferences across brands. In particular, the average ranking for premium brands drops by 1.33 points with a corresponding increase in the average ranking of low-range cigarette brands. Under **Treatment 6**, low-range brands have the highest average ranking amongst consumers, with premium range brands ranking the lowest.

Figure 3: Cigarettes: Change in consumer preferences relative to Baseline



Source: London Economics' analysis of online experiment data.

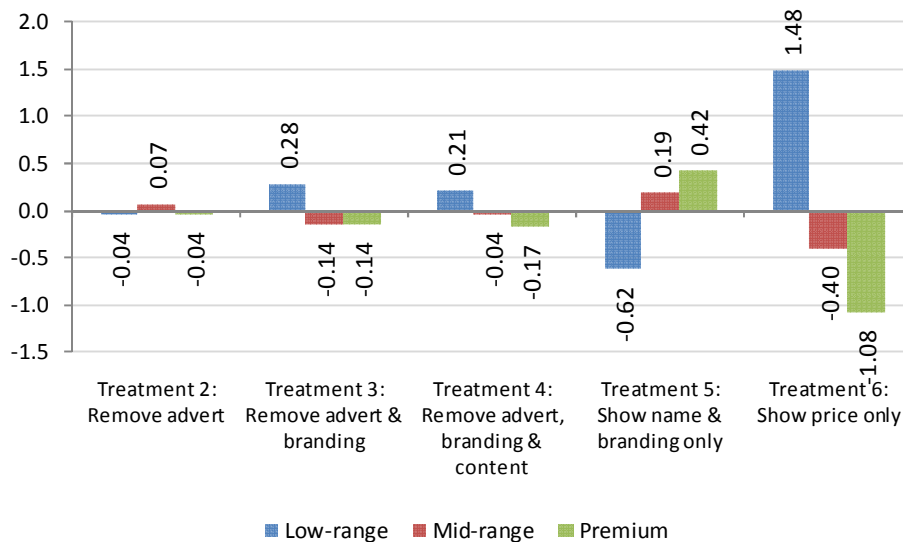
Note: Sample is weighted by age and gender across flavour class 10mg, 6-9mg, 1-5mg and Menthol. Note that a **positive change** in the absolute value of the ranking of preferences (i.e., a move from 4.2 to 3.2 represented by a vertical bar of size 1.0 above the horizontal axis) indicates that consumers rank these brands more favourably on average than under the baseline treatment or scenario. A **negative change** in the absolute value of the ranking of preferences (i.e., a move from 2.8 to 3.5 represented by a vertical bar of size 0.7 below the horizontal axis) indicates that consumers rank these brands less favourably on average than under the baseline treatment or scenario. Two thousand smokers completed the cigarette experiment. The change in consumer rankings across premium, mid-range and low-range products will not equal zero as in the original experiment, counterfeit cigarettes were included in the experiment.

A1.3 Bottled water

For bottled water, moving along Figure 4 from left to right, the results of the experiment indicate that when comparing average consumer preferences in the absence of advertising information (**Treatment 2**), there is very little effect on the ranking of consumer preferences compared to the baseline (**Treatment 1**). However, the subsequent removal of packaging imagery (**Treatment 3**) improves the average ranking of low-range brands (by approximately 0.28 points), and *lowers* the average ranking of mid-range and premium brands (by approximately 0.14 points). Comparing **Treatment 4** to the baseline scenario, where packaging imagery, product information and advertising signals are removed and only brand name and the price are presented, the average ranking of low-range brands improves whereas that of premium brands diminishes.

For the comparison of rankings between the baseline case and **Treatment 5**, where only the brand name and packaging imagery are presented (but crucially no price information), the average ranking of premium brands increases substantially (by 0.42 points), while there is a significant decline in average ranking of low-range products (0.62 points). The final comparison is between **Treatment 6** (where only price information is provided to the consumer) and the baseline case. As might be expected, price appears to have a significant influence on the preferences of consumers. The average ranking of low-range brands improves significantly (by 1.48 points) when only price is shown, while the average ranking of premium brands falls by more than 1 point (from an average ranking of 3.17 to an average ranking of 4.25). The same phenomenon is illustrated for medium-range brands, though the effect is more muted. Under this final treatment, low-range brands have the highest average ranking amongst consumers, with premium range brands ranking the lowest.

Figure 4: Bottled Water: Change in consumer preferences relative to Baseline



Source: London Economics' analysis of online experiment data.

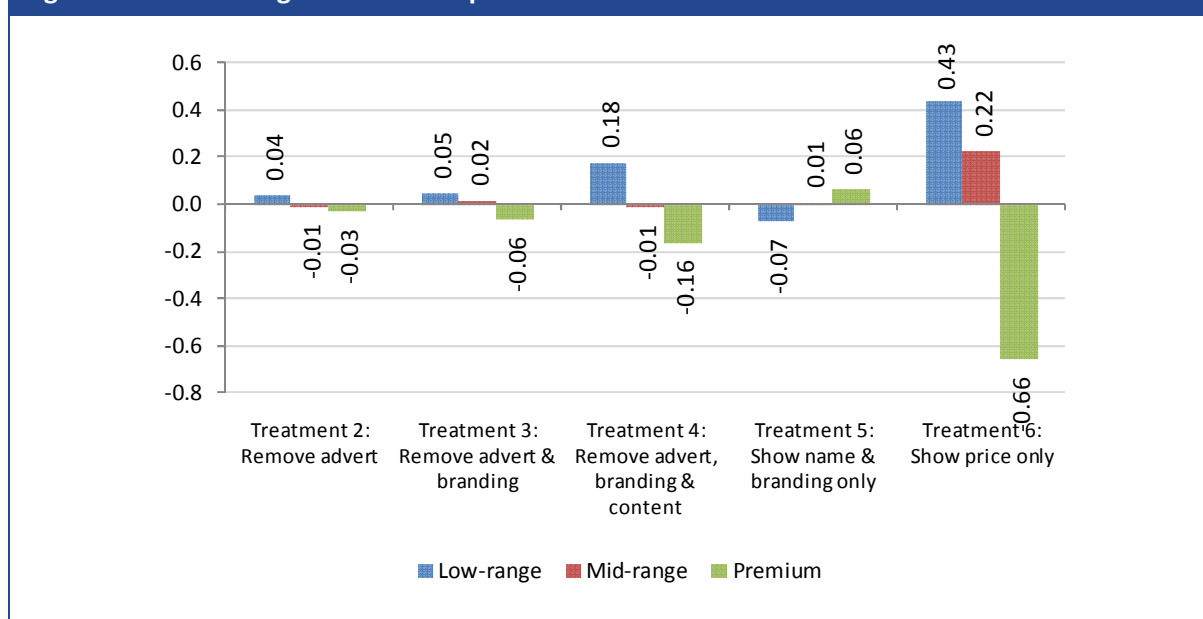
Note that a **positive change** in the absolute value of the ranking of preferences (i.e., a move from 4.2 to 3.2 represented by a vertical bar of size 1.0 above the horizontal axis) indicates that consumers rank these brands more favourably on average than under the baseline treatment or scenario. A **negative change** in the absolute value of the ranking of preferences (i.e., a move from 2.8 to 3.5 represented by a vertical bar of size 0.7 below the horizontal axis) indicates that consumers rank these brands less favourably on average than under the baseline treatment or scenario. Three thousand consumers made these rankings overall, 1,000 non-smokers and 2,000 smokers.

A1.4 Beer

For beer, the results are qualitatively similar to those presented for bottled water. As before, the impact of removing the advertising signal associated with the various brands appears to have a very limited effect on consumer preferences (**Treatment 2** compared to **Treatment 1**). However, once advertising has been removed, the results show that the average ranking given to premium brands is lower still when packaging imagery is removed (**Treatment 3** compared to **Treatment 2**), although the effect is less pronounced than for bottled water.

The other main observations suggest that removing packaging imagery and showing brand name and price only (**Treatment 4**) lowers the average ranking of premium brands compared to the baseline scenario (by approximately 0.16 points). In **Treatment 5**, where the only information signals provided are the brand name and packaging imagery, the average rank of premium brands marginally increases and marginally reduces the average ranking of low-range brands. Finally, when only price is shown (**Treatment 6**), the average ranking of the premium brands is substantially lower, as expected. Unlike the outcome associated with bottled water, however, the provision of price only improves the average ranking of mid-range brands and results in the average ranking of mid-range brands being higher under this treatment than that of premium-range brands.

Figure 5: Beer: Change in consumer preferences relative to Baseline



Source: London Economics' analysis of online experiment data.

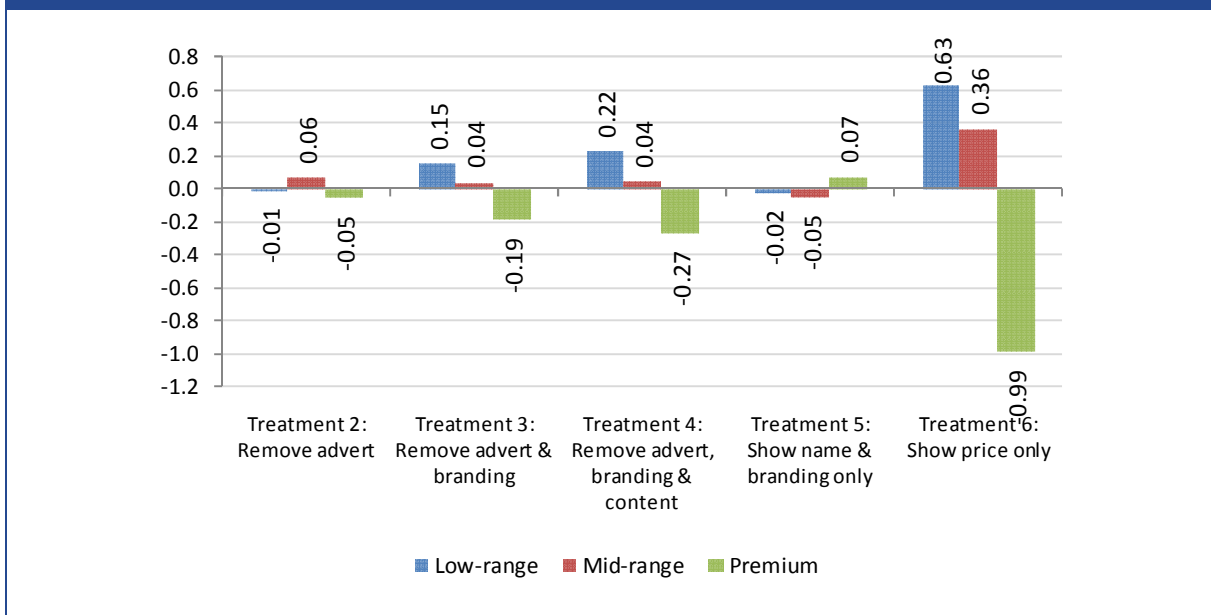
Note that a **positive change** in the absolute value of the ranking of preferences (i.e., a move from 4.2 to 3.2 represented by a vertical bar of size 1.0 above the horizontal axis) indicates that consumers rank these brands more favourably on average than under the baseline treatment or scenario. A **negative change** in the absolute value of the ranking of preferences (i.e., a move from 2.8 to 3.5 represented by a vertical bar of size 0.7 below the horizontal axis) indicates that consumers rank these brands less favourably on average than under the baseline treatment or scenario. Three thousand consumers made these rankings overall, 1,000 non-smokers and 2,000 smokers.

A1.5 Crisps

Despite the fact that the average ranking of the low-range, mid-range and premium brands are relatively compressed under **Treatment 1**, the analysis of the change in average rankings under the different treatments is again consistent with the findings relating to the bottled water and beer. In summary, under **Treatment 3**, when advertising is absent and packaging imagery is removed and replaced with plain packaging, the average ranking given to premium range crisps is lower (by approximately 0.19 points), while the change in average ranking for low-range brands is in the opposite direction (and almost equal in size).

Compared to the baseline treatment, the average rankings do not change significantly when only the name and brand imagery are shown (**Treatment 5**), although there is a slight improvement in the average ranking of premium brands. Again, average rankings amongst consumers are fundamentally influenced by the removal of all information signals (leaving price only). Under this treatment (**Treatment 6**), the average ranking of premium range brands falls by almost 1 point/place, while the average ranking of low range brands increases (and to a greater extent than mid-range brands). Under **Treatment 6**, consumers (on average) rank low-range brands highest, followed by mid-range products with premium brands in the lowest position.

Figure 6: Crisps: Change in consumer preferences relative to Baseline



Source: London Economics’ analysis of online experiment data.

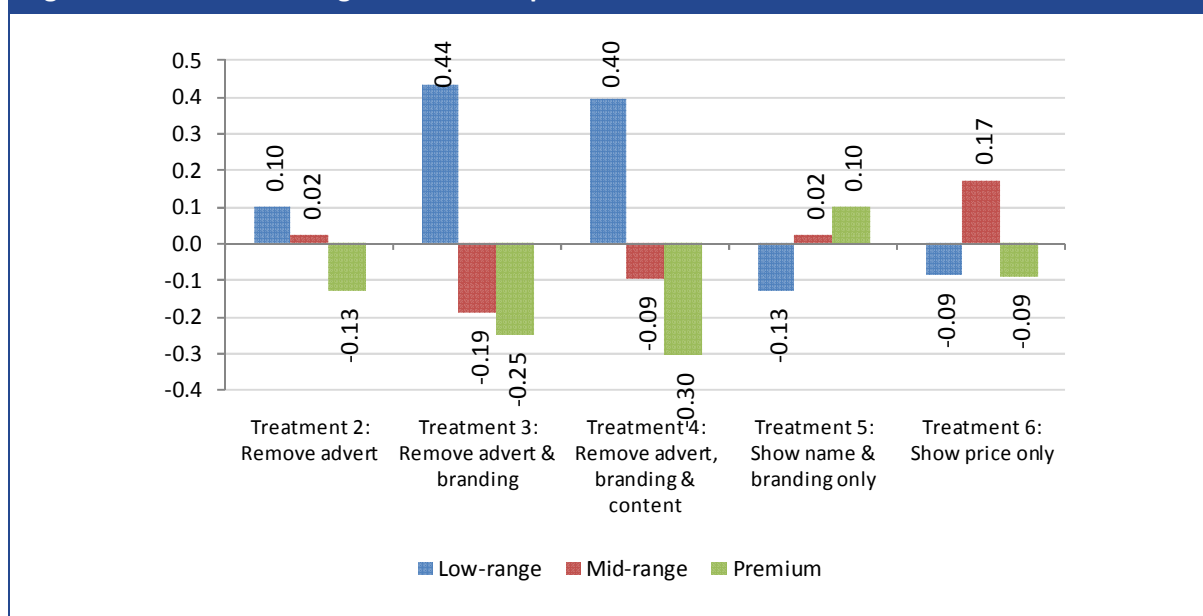
Note that a **positive change** in the absolute value of the ranking of preferences (i.e., a move from 4.2 to 3.2 represented by a vertical bar of size 1.0 above the horizontal axis) indicates that consumers rank these brands more favourably on average than under the baseline treatment or scenario. A **negative change** in the absolute value of the ranking of preferences (i.e., a move from 2.8 to 3.5 represented by a vertical bar of size 0.7 below the horizontal axis) indicates that consumers rank these brands less favourably on average than under the baseline treatment or scenario. Three thousand consumers made these rankings overall, 1,000 non-smokers and 2,000 smokers.

A1.6 Ice cream

In the case of ice cream, where there appears to be relatively well-ordered preferences across the three ranges of brands, the removal of the advertising signal appears to have a more influential effect than for other products (**Treatment 2**). Again, in the absence of advertising, the removal of packaging imagery (**Treatment 3**) further reduces the average ranking given to premium brands (and mid range brands to a lesser extent), while there is a substantial increase in the average ranking of low-range products. Across all the products considered, the removal of packaging imagery appears to have the greatest effect in the ice-cream market.

When information on the product content is also removed (**Treatment 4**), there is a relatively small change in the relative ranking of the different brands, implying that in the case of ice-cream, the provision of specific information on the content of the product is essentially irrelevant once packaging imagery has been removed. In **Treatment 5**, where only the brand name and packaging imagery are provided to consumers to assist their decision making process, the analysis suggests that there is a marginal increase in the average ranking of mid-range and premium brands and a reduction in the average ranking of low-range brands. Interestingly, when only price is shown (**Treatment 6**), the average ranking of mid-range brands increased, whereas the average ranking of both premium and low-range brands declined. This is in part due to the very high variation in the price per unit across brands (where the average price (per litre) between the three brands stood in a ratio of 7.2 : 2.8 : 1).

Figure 7: Ice cream: Change in consumer preferences relative to Baseline



Source: London Economics' analysis of online experiment data.

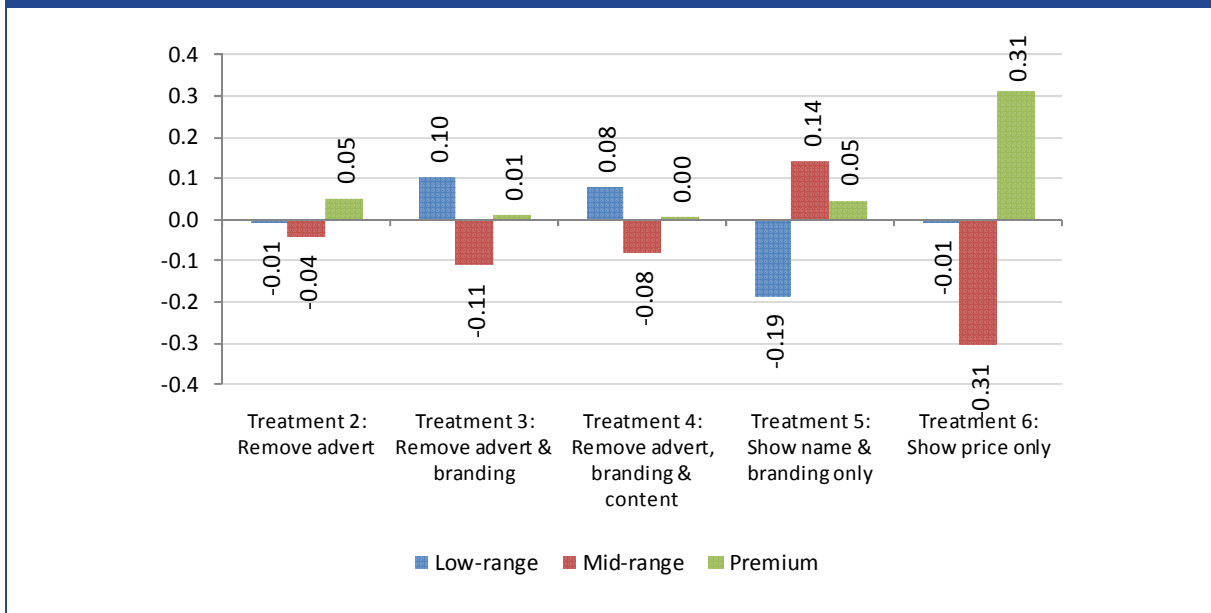
Note that a **positive change** in the absolute value of the ranking of preferences (i.e., a move from 4.2 to 3.2 represented by a vertical bar of size 1.0 above the horizontal axis) indicates that consumers rank these brands more favourably on average than under the baseline treatment or scenario. A **negative change** in the absolute value of the ranking of preferences (i.e., a move from 2.8 to 3.5 represented by a vertical bar of size 0.7 below the horizontal axis) indicates that consumers rank these brands less favourably on average than under the baseline treatment or scenario. Three thousand consumers made these rankings overall, 1,000 non-smokers and 2,000 smokers.

A1.7 Toothpaste

For toothpaste, a fundamentally different pattern emerges compared to the results for other products, although as previously suggested, this in part reflects the very specialised nature of the premium range products and the relatively limited consumer preferences for the premium range toothpastes (supporting the idea that these are niche brands that do not have wide appeal in the market place). The analysis suggests that the average ranking of premium brands *improves* when packaging imagery is removed (**Treatment 3**), a reverse of the findings relating to the previous products, although these changes in preferences for premium brand toothpaste are small. One premium brand in particular (Euthymol) has an especially low average rank (4.79 out of 6), and we believe this brand is driving the observations for the premium brands.

Turning to **Treatment 6**, where only price is presented (and no mention of brand name), the preferences for premium brands improve. Turning to an examination of the relative effect of different information signals between mid-range and low-range brands, the analysis demonstrates very similar outcomes as those presented in for the other products. In particular, there is a shift in the relative ranking away from mid-range brands to low-range brands following the removal of the packaging imagery (by approximately 0.10 points, **Treatment 3**), while the average ranking of low-range brands falls only when the name and brand imagery are shown **Treatment 5** (i.e. when price is not included).

Figure 8: Toothpaste: Change in consumer preferences relative to Baseline



Source: London Economics' analysis of online experiment data.

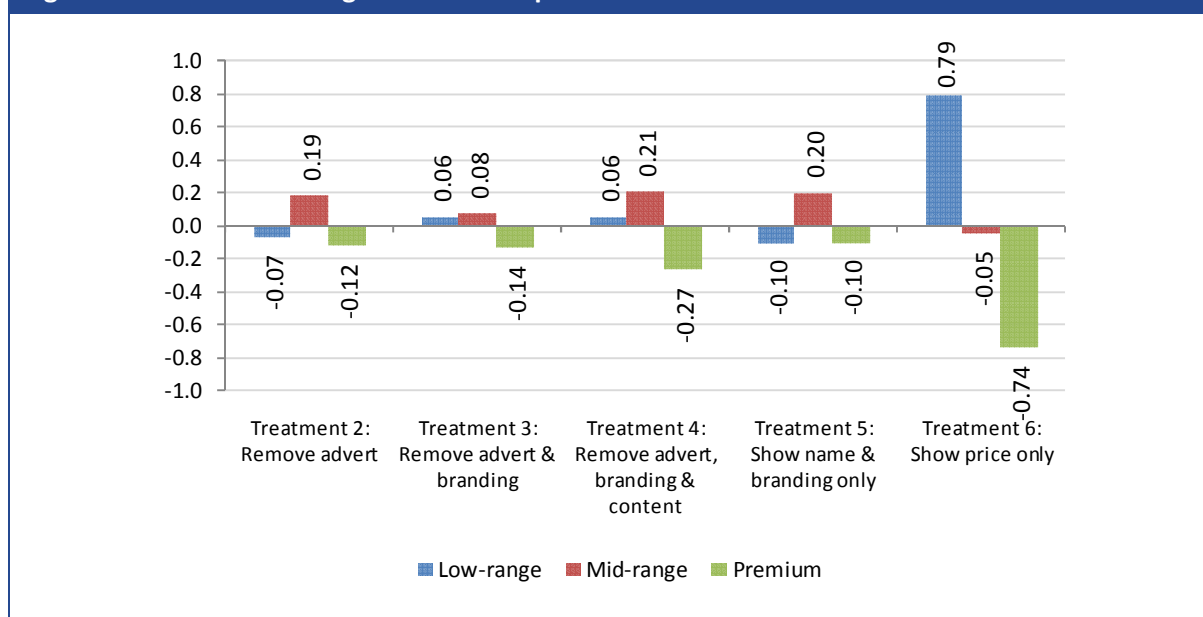
Note that a **positive change** in the absolute value of the ranking of preferences (i.e., a move from 4.2 to 3.2 represented by a vertical bar of size 1.0 above the horizontal axis) indicates that consumers rank these brands more favourably on average than under the baseline treatment or scenario. A **negative change** in the absolute value of the ranking of preferences (i.e., a move from 2.8 to 3.5 represented by a vertical bar of size 0.7 below the horizontal axis) indicates that consumers rank these brands less favourably on average than under the baseline treatment or scenario. Three thousand consumers made these rankings overall, 1,000 non-smokers and 2,000 smokers.

A1.8 Chocolate

Under the baseline treatment (**Treatment 1**), the average ranking given to premium brand chocolate is marginally lower than that achieved by mid-range chocolate brands. As before, and demonstrating a significant degree of consistency with the other products under consideration, the analysis illustrates that there is a small reduction in the average ranking of premium brands and low-range brands when the advertising signal (**Treatment 2**) is removed from the information set presented to consumers (Figure 9). Building on this, the main observations indicate that there is a marginal reduction in the average ranking of premium brands once packaging imagery is also removed from the consumer information set (**Treatment 3**).

The average rankings change marginally when only the name and brand imagery are shown (**Treatment 5**). In particular, there is a slight improvement in the ranking of mid-range brands relative to the baseline (**Treatment 1**). Unsurprisingly, the average ranking of cheaper low-range chocolate brands improves substantially when only price is shown (**Treatment 6**), whereas the average rankings of mid-range and premium brands fall. In the case of premium brands, the average ranking falls by approximately 0.74 points, with a corresponding increase in the average consumer ranking of low-range brands (0.79 points).

Figure 9: Chocolate: Change in consumer preferences relative to Baseline



Source: London Economics' analysis of online experiment data.

Note that a **positive change** in the absolute value of the ranking of preferences (i.e., a move from 4.2 to 3.2 represented by a vertical bar of size 1.0 above the horizontal axis) indicates that consumers rank these brands more favourably on average than under the baseline treatment or scenario. A **negative change** in the absolute value of the ranking of preferences (i.e., a move from 2.8 to 3.5 represented by a vertical bar of size 0.7 below the horizontal axis) indicates that consumers rank these brands less favourably on average than under the baseline treatment or scenario. Three thousand consumers made these rankings overall, 1,000 non-smokers and 2,000 smokers.

Annex 2 Regression analysis

The analysis presented in the previous sections indicates that we might expect that the removal of advertising or market share information (**Treatment 2**), the removal of packaging imagery (**Treatment 3**) and the removal of all information signals excluding price (**Treatment 6**) would reduce the probability of a premium range brand achieving a high consumer ranking (consumer preferences for higher-priced premium products). Conversely, we might expect the opposite to be true for low-range brands. In the case of medium-range products, the analysis is likely to be more ambiguous, as we might expect to see consumers with preferences for premium-range products switching towards medium range products, while consumers with an original preference for medium-range products switching in favour of low-range products.

To estimate the *causal* relationship between the various information signals on consumer preferences over different products, we undertook a detailed regression analysis. The main model is presented below, however, by way of summary this econometric model uses a range of variables (including the personal and socio-economic characteristics of the respondents as presented in section 2.3.1), as well as information on the relevant *treatment* (to understand the role of the different information signals) to explain the relative ranking of the brands presented to the respondent. The econometric technique is adapted to reflect the fact that the preferences of respondents have a specific ordering.

A2.1 Model specification

The regression equation adopted was:

$$Y_{ij} = \beta_1 \cdot T2_{ij} + \beta_2 \cdot T3_{ij} + \beta_3 \cdot T4_{ij} + \beta_4 \cdot T5_{ij} + \beta_5 \cdot T6_{ij} + \text{Controls}_i$$

where: Y_{ij} is the ranking given to brand 'i' by individual 'j' (from 1 to 6);

$T2_{ij}$ is a variable equal to 1 if Treatment 2 was used for individual 'i', 0 otherwise;

$T3_{ij}$ is a variable equal to 1 if Treatment 3 was used for individual 'i', 0 otherwise;

Likewise for the Treatment 4, Treatment 4 and Treatment 6;

Controls (e.g. age, gender, socio-economic group).

Note that Treatment 1 is omitted from the model, meaning that this treatment is the base, so the effects of the other treatment variables in the regression are measured relative to Treatment 1.

The ordered logit model is used since the values of Y_{ij} have a particular ordering. The analysis is undertaken for all products separately, and for completeness, the models are estimated separately for premium brands, mid-range brands and low-range brands, revealing the impacts that the alternative treatments and each component of branding and information have on the probability that each type of brand is given a particular rank (1st, 2nd, 3rd, etc). In addition, the analysis also shows whether the impacts are statistically significant.³³

³³ That is, whether they are statistically different from zero at a given confidence level.

A2.2 Econometric modelling results

A2.2.1 Premium brand cigarettes

To consider the impact of the role of packaging imagery, we consider the relative effect of **Treatment 3** compared to **Treatment 1**; however, in this case, it is important to look at more than just the probability that a particular brand will receive the top ranking, but also the probability that the brand will receive all rankings. Table 7 shows the impact that different treatments have on the probability that a premium brand is given each rank, relative to **Treatment 1**³⁴. The results show that, relative to the baseline where all signals are included (**Treatment 1**), premium brand cigarettes receive lower ranks (i.e. consumer preferences shift away from premium brands toward cheaper low-range brands) when **packaging imagery** is removed (**Treatment 3** and **Treatment 4**). In particular, the probability that a premium brand is ranked 1st is 5.4 percentage points lower when packaging imagery is removed in **Treatment 3**. Similarly, the analysis illustrates that there is a reduced likelihood of a premium brand of cigarettes being ranked 2nd or 3rd. In **Treatment 4**, where product information is removed as well, the probability that a premium brand cigarette is ranked first is lower (-5.4 percentage points) and is statistically significant.

Other findings indicate that premium brand cigarettes receive higher ranks when only brand name and brand imagery are shown (the probability that a premium brand is ranked 1st is 4.7 percentage points higher under **Treatment 5**). As originally hypothesised, when consumers select their preferences with all information signals removed (with the exception of price), premium brand cigarettes receive significantly lower ranks. The probability that a premium brand is ranked 1st is 15.0 percentage points lower (**Treatment 6**) when compared to the baseline scenario (**Treatment 1**).

	Rank=1 st	Rank=2 nd	Rank=3 rd	Rank=4 th	Rank=5 th	Rank=6 th
Treatment 2	-1.3	-0.7	-0.2	0.1	0.6	1.5
Treatment 3	-5.4*	-3.2	-0.9	0.3*	2.4*	6.8
Treatment 4	-5.4*	-3.2	-0.9	0.3*	2.4*	6.8
Treatment 5	4.7	2.2	0.3*	-0.6	-2.1	-4.5
Treatment 6	-15.0*	-10.4*	-4.3*	-1.0	5.2*	25.5*

Source: London Economics' analysis of online experiment data.

Note: The figures indicate the percentage point change in the probability that a premium brand cigarette will receive the ranking shown in the top row of the table under each treatment relative to the situation under Treatment 1. Figures in shaded cells are statistically significant at the 10% level; bold figures are statistically significant at the 5% level; '*' indicates statistical significance at the 1% level.

As we saw in the average ranking figures (section A1.2) the removal of the information about a brand's market share within its category appears to have no statistically significant effect on consumer preferences in relation to cigarettes (**Treatment 2**),

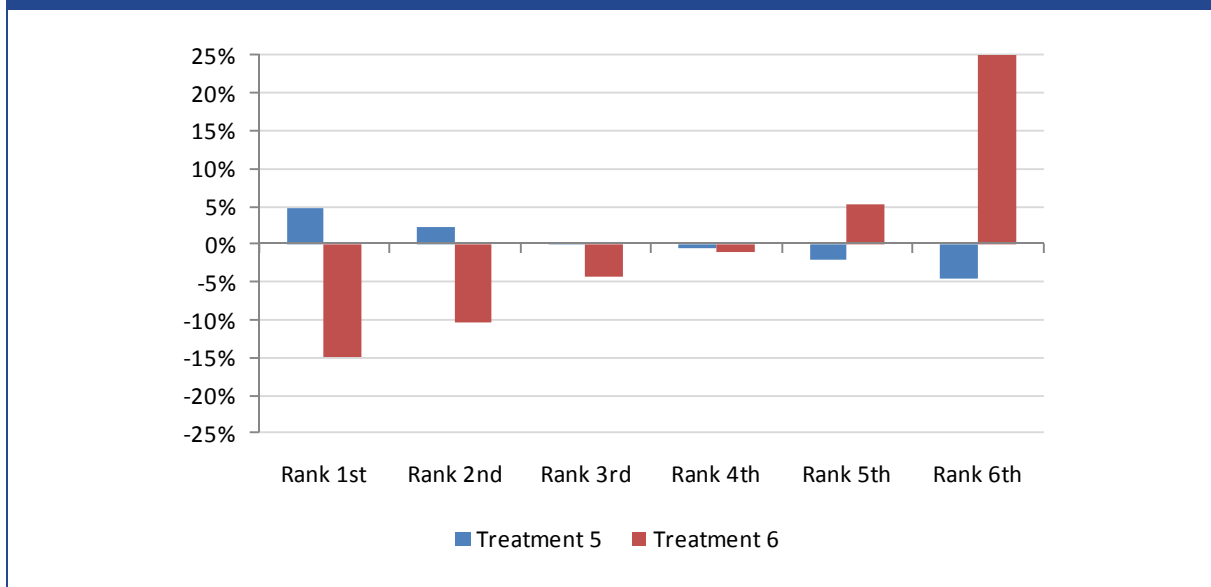
³⁴ Figures in shaded cells are statistically significant at the 10% level; bold figures are statistically significant at the 5% level; '*' indicates statistical significance at the 1% level.

The relative impact of brand name and packaging imagery, and price

In Figure 10, we illustrate the relative impact of **Treatment 5** (where the brand name is displayed and full packaging imagery are shown but no price signal is provided) with **Treatment 6** (where all information is removed with the exception of price).

The results suggest that compared to the baseline scenario (where all information signals are presented), the removal of product information, advertising (or market share information), and price signals (**Treatment 5**) causes consumers' preferences for premium branded cigarettes to improve (positive effect in relation to high preferences and negative effects in relation to lower preferences). In contrast, when only price is shown (**Treatment 6**), the impact on consumer preferences works in the opposite direction (compared to **Treatment 5**) with the size of the impact on preferences being greater in magnitude.

Figure 10: Change in consumer preferences for premium cigarettes – Treatments 5 and 6 compared



Source: London Economics' analysis of online experiment data.

Note: Figures show the percentage point change in the probability that a premium brand cigarette will receive each ranking under Treatment 5 and Treatment 6 relative to under Treatment 1.

A2.2.2 Mid-range brand cigarettes

The impact of alternative treatments (relative to **Treatment 1**) on the ranks given to mid-range cigarettes are shown in Table 8. Relative to the baseline, where all signals are included, mid-range brand cigarettes:

- receive lower ranks when market share information and packaging imagery are removed (the probability that a mid-range brand is ranked 1st is 2.8 percentage points less under **Treatment 3**);
- receive lower ranks when market share, product information and packaging imagery are removed and brand name and price only are shown (the probability that a mid-range brand is ranked 1st is 0.7 percentage points less under **Treatment 4**); and

- receive higher consumer preferences (approximately 1.2 percentage points) when only brand name and packaging imagery are presented (**Treatment 5**).

Similar effects are also demonstrated in respect to the probability of receiving a 2nd ranking from consumers.

Table 8: Impact of different treatments on consumer preferences for mid-range brand cigarettes

	Rank=1 st	Rank=2 nd	Rank=3 rd	Rank=4 th	Rank=5 th	Rank=6 th
Treatment 2	-1.3	-1.4	-0.9	0.3	1.6	1.7
Treatment 3	-2.8*	-3.1*	-2.1*	0.4*	3.6*	4.1*
Treatment 4	-0.7	-0.8	-0.5	0.2	0.9	0.9
Treatment 5	1.2	1.2	0.6	-0.3	-1.4	-1.3
Treatment 6	0.0	0.0	0.0	0.0	0.0	0.0

Source: London Economics' analysis of online experiment data.

Note: The figures indicate the percentage point change in the probability that a mid-range brand cigarette will receive the ranking shown in the top row of the table under each treatment relative to the situation under Treatment 1. Figures in shaded cells are statistically significant at the 10% level; bold figures are statistically significant at the 5% level; '*' indicates statistical significance at the 1% level.

A2.2.3 Low-range brand cigarettes

Table 9 shows the impact of alternative treatments on the probability that a low-range brand is given each rank, relative to **Treatment 1**. The results show that, relative to the baseline, low-range brand cigarettes:

- receive higher ranks when market share information and packaging imagery are removed (**Treatment 3**);
- receive higher ranks when market share, product information and packaging imagery are removed and brand name and price are shown (the probability that a low-range brand is ranked 1st is 3.4 percentage points higher under **Treatment 4**); and
- receive significantly higher ranks when only price is shown (the probability that a low-range brand is ranked 1st is 16.1 percentage points **higher** when only price is shown under **Treatment 6**).

Table 9: Impact of different treatments on consumer preferences for low-range brand cigarettes

	Rank=1 st	Rank=2 nd	Rank=3 rd	Rank=4 th	Rank=5 th	Rank=6 th
Treatment 2	2.2	2.7	1.2*	-1.0	-2.4	-2.7*
Treatment 3	5.0*	5.7*	1.9*	-2.4*	-5.0*	-5.2*
Treatment 4	3.4*	4.0*	1.5*	-1.6*	-3.6*	-3.8*
Treatment 5	-1.1	-1.4	-0.8	0.4	1.3	1.6
Treatment 6	16.1*	13.7*	1.4*	-7.7*	-12.0*	-11.5*

Source: London Economics' analysis of online experiment data.

Note: The figures indicate the percentage point change in the probability that a low-range brand cigarette will receive the ranking shown in the top row of the table under each treatment relative to the situation under Treatment 1. Figures in shaded cells are statistically significant at the 10% level; bold figures are statistically significant at the 5% level; '*' indicates statistical significance at the 1% level.

A2.3 Non-cigarette premium brands

Table 10 shows the change in the probability that a premium brand product will be given each rank depending on the treatment faced, compared to **Treatment 1** (where all information signals are included).

The impact of the removal of packaging imagery (Treatment 3)

The analysis of the non-tobacco products suggests that for non-smokers, there is a statistically significant effect of the removal of packaging imagery on consumer preferences for premium brands of chocolate and ice-cream (i.e. a reduction in the probability of awarding a high ranking and an increase in the probability of awarding a low ranking). In Table 10, to allow for easier identification, the relevant estimates are outlined with **red** borders. For beer, crisps and bottled water, consumer preferences for premium brands also decline when packaging imagery is removed but these estimates are not statistically significant.

For smokers, following the removal of packaging imagery, there is a shift in their preferences for ice-cream and crisps away from premium brands. Specifically, following the removal of the packaging imagery, smokers are approximately 2.8-3.0 percentage points less likely to rank premium brand crisps in their top 2 preferences as compared to their preferences in the baseline treatment when all information signals are present (and 2.6-3.3 percentage points more likely to rank premium brand crisps in their bottom 2 preferences). The effect on preferences for chocolate and bottled-water is similar, but not statistically significant.

The impact of price (Treatment 6)

The results also show that for four of the non-cigarette products (beer, chocolate, crisps and bottled water), premium brands receive lower rankings when only price is shown (i.e. under **Treatment 6**). For example, the probability that a premium brand of beer, chocolate, crisps or water is ranked first is 8.5 to 13.4 percentage points lower (outlined with a thick **blue** border for ease). For the smokers' (non-smokers') sample:

- the probability that a premium brand beer is ranked 1st is 9.4 pp³⁵ lower (12.7 pp);
- the probability that a premium brand chocolate bar is ranked 1st is 11.9 pp lower (8.5 pp);
- the probability that a premium brand crisps is ranked 1st is 10.9 pp lower (12.4 pp); and
- the probability that premium brand water is ranked 1st is 13.4 pp lower (12.2 pp).

The opposite effect is observed for toothpaste, which may be because, as discussed above (in section A1.7), the premium brands of toothpaste used in the experiment were relatively niche brands. It seems the names of these products deter the majority of consumers (as might be expected for a niche brand), so their ranks improve under **Treatment 6** (the only treatment where brand name is excluded).

Although they are more expensive, showing only the price does not have a statistically significant effect on the rankings given to premium brands of ice-cream, which may be as a result of the

³⁵ pp – percentage points.

selection of the specific brands of ice cream and the fact that there was large variation in the prices of the brands, which was in contrast to the other products where the price of the alternative brands was relatively clustered (as noted in section A1.6 above).

The impact of removing packaging imagery and showing price and brand name (Treatment 4)

When advertising, product information and packaging imagery are removed and price and brand name are shown (**Treatment 4**), premium brands of ice-cream, chocolate, bottled water and crisps receive a lower ranking. For example (outlined in thick **green** border), for smokers and non-smokers respectively,

- the probability that a premium brand ice-cream is ranked 1st is 4.3 pp lower (5.9pp);
- the probability that a premium brand chocolate bar is ranked 1st is 4.6pp lower (3.0pp);
- the probability that a premium brand water is ranked 1st is 2.3pp lower (3.2pp);
- the probability that a premium brand crisps is ranked 1st is 4.3pp lower (smokers only);
- the probability that a premium brand beer is ranked 1st is 4.4pp lower (non-smokers only).

Conversely, we may expect premium brands to receive higher ranks when only the name and brand imagery are shown (i.e. under **Treatment 5**). This is observed for two products: beer (for the smokers' sample) and bottled water (for both samples). For example:

- for smokers, the probability that a premium brand beer is ranked 1st is 4.3pp higher; and
- for smokers (non-smokers), the probability that a premium brand bottle of water is ranked 1st is 6.4pp higher (7.3pp).

The effect of Treatment 5 is in general not statistically significant for the other products.

Table 10: Impact of different treatments on consumer preferences for premium brand products													
		Smokers						Non-smokers					
		1 st	2 nd	3 rd	4 th	5 th	6 th	1 st	2 nd	3 rd	4 th	5 th	6 th
Beer	T2	1.2	0.5	0.0	-0.3	-0.7	-0.7	-3.0	-1.2	0.0	0.8	1.9	1.5
	T3	0.4	0.2	0.0	-0.1	-0.2	-0.2	-1.0	-0.4	0.0	0.3	0.6	0.4
	T4	-1.4	-0.6	-0.1	0.3	0.9	0.9	-4.4	-1.8	0.0	1.2	2.8	2.2
	T5	4.3	1.5	0.1	-1.1	-2.6	-2.3	-3.7	-1.5	0.0	1.0	2.4	1.9
	T6	-9.4*	-4.5*	-1.3*	1.6*	6.4*	7.2*	-12.7*	-6.5*	-1.1	2.7*	9.1*	8.4*
Chocolate	T2	-2.8	-1.6	-0.3	0.9	2.2	1.7	-0.1	0.0	0.0	0.0	0.0	0.0
	T3	-1.5	-0.8	-0.1	0.5	1.1	0.8	-3.7	-2.4	-0.2	1.4	2.9	1.9
	T4	-4.6*	-2.8*	-0.6	1.4*	3.7*	2.9*	-3.0	-1.9	-0.2	1.2	2.3	1.5
	T5	-1.5	-0.9	-0.1	0.5	1.2	0.9	-1.0	-0.6	0.0	0.4	0.7	0.5
	T6	-11.9*	-8.2*	-3.1*	2.4*	10.6*	10.2*	-8.5*	-6.0*	-1.2	3.0*	7.4*	5.4*
Crisps	T2	-1.7	-1.5	-0.4	0.4	1.4	1.8	0.5	0.3	0.0	-0.2	-0.3	-0.3
	T3	-3.0*	-2.8*	-0.8	0.7*	2.6*	3.3	-2.4	-1.7	-0.1	0.9	1.6	1.8
	T4	-4.3*	-4.1*	-1.3*	0.9*	3.8*	5.1*	-2.5	-1.7	-0.1	0.9	1.7	1.9
	T5	0.8	0.7	0.2	-0.2	-0.7	-0.8	1.4	0.9	0.0	-0.5	-0.9	-0.9
	T6	-10.9*	-11.7*	-5.5*	0.0	9.6*	18.6*	-12.4*	-10.4*	-3.1*	3.0*	9.4*	13.6*
Ice-cream	T2	-2.3	-0.8	0.2	0.6	1.1	1.3	-2.8	-1.1	0.3	0.9	1.5	1.2
	T3	-3.3	-1.3	0.2	0.8	1.7	1.9	-5.5	-2.4	0.4*	1.8	3.1	2.7
	T4	-4.3	-1.7	0.3*	1.1	2.2	2.6	-5.9	-2.6	0.4*	1.9	3.3	2.8
	T5	2.5	0.8	-0.3	-0.6	-1.2	-1.2	-0.9	-0.3	0.1	0.3	0.5	0.4
	T6	0.8	0.3	-0.1	-0.2	-0.4	-0.4	-1.1	-0.4	0.1	0.3	0.5	0.5
Toothpaste	T2	1.3	0.7	0.5	0.4	-0.8	-2.2	0.2	0.1	0.1	0.1	-0.1	-0.4
	T3	-0.2	-0.1	-0.1	-0.1	0.1	0.4	1.8	1.1	0.7	0.5	-1.0	-3.1
	T4	0.4	0.2	0.2	0.1	-0.2	-0.6	0.2	0.1	0.1	0.1	-0.1	-0.4
	T5	0.0	0.0	0.0	0.0	0.0	0.1	2.2	1.3	0.8	0.6	-1.2	-3.8
	T6	2.9	1.6	1.1	0.7*	-1.8	-4.5	4.7	2.7*	1.6*	1.0*	-2.7	-7.4*
Water	T2	-0.2	-0.1	0.0	0.0	0.1	0.2	-1.5	-0.9	-0.3	0.6	1.4	0.9
	T3	-2.3	-1.4	-0.6	0.3	1.7	2.3	-2.0	-1.3	-0.5	0.7	1.8	1.2
	T4	-2.3	-1.4	-0.6	0.3	1.6	2.3	-3.2	-2.1	-0.8	1.1	3.0	2.0
	T5	6.4*	3.2*	0.9*	-1.3*	-4.2*	-5.0*	7.3*	3.7*	0.7*	-3.0*	-5.5*	-3.1*
	T6	-13.4*	-9.5*	-6.4*	-1.7*	8.9*	22.0*	-12.2*	-9.1*	-5.4*	1.4	13.4*	11.8*

Source: London Economics' analysis of online experiment data.

Note: The figures indicate the percentage point change in the probability that a brand will receive the ranking shown in the top row of the table under each treatment relative to the situation under Treatment 1. For instance, the entry in Row 1/ column 1 (1.2) suggests that under Treatment 2 (removal of advertising or market share information), a premium beer brand will be 1.2 percentage points more likely to receive the highest ranking compared to the baseline scenario (Treatment 1). Figures in shaded cells are statistically significant at the 10% level; bold figures are statistically significant at the 5% level; '*' indicates statistical significance at the 1% level.

A2.3.1 Non-cigarette mid-range brands

There are fewer clear patterns among the results for the mid-range brands, which might be expected since the effects of the treatments are likely to depend on whether the characteristics of each mid-range brand are closer to a premium or low-range brand (see Table 11). For example, the impact of showing only price (**Treatment 6**) improves the rankings given to mid-range brands of crisps, whereas this treatment lowers the rankings given to mid-range brands of bottled water.

For the smokers' sample, the alternative treatments have relatively strong impacts on the rankings given to mid-range brands of chocolate. In particular, mid-range brands are associated with higher consumer preferences when product information, advertising and packaging information are removed (under **Treatment 4** and **Treatment 5**), but the impact is insignificant when only price is shown (under **Treatment 6**). For bottled water, in the case of the smokers' sample, when only the brand name and packaging imagery are shown (under **Treatment 5**), higher rankings are given to mid-range brands.

Packaging imagery appears to have a relatively limited impact overall for non-cigarette products. Considering **Treatment 3**, the removal of packaging imagery in general reduced the likelihood of consumers providing high rankings for bottled water and ice-cream but increased the relative attractiveness of mid-range chocolate brands.

Table 11: Impact of different treatments on consumer preferences for mid-range brand products

		Smokers						Non-smokers					
		1st	2nd	3rd	4th	5th	6th	1st	2nd	3rd	4th	5th	6th
Beer	T2	-0.8	-0.6	-0.3	0.4	0.7	0.5	1.0	0.8	0.4	-0.5	-1.1	-0.6
	T3	-0.8	-0.7	-0.3	0.5	0.8	0.5	0.9	0.8	0.3	-0.5	-1.0	-0.5
	T4	-1.1	-0.9	-0.4	0.6	1.0	0.7	0.6	0.5	0.2	-0.3	-0.7	-0.3
	T5	-1.5	-1.2	-0.5	0.8	1.5	0.9	2.6	2.1	0.9	-1.5	-2.8	-1.4
	T6	1.3	1.0	0.4	-0.7	-1.2	-0.7	7.1*	5.2*	1.5*	-4.1*	-6.6*	-3.2*
Chocolate	T2	5.4*	2.4*	-0.6	-3.1*	-2.7*	-1.4*	0.5	0.2	0.0	-0.3	-0.3	-0.1
	T3	3.1	1.5	-0.3	-1.8	-1.6	-0.8	-0.9	-0.4	0.1	0.5	0.5	0.2
	T4	5.2*	2.4*	-0.6	-3.0*	-2.7*	-1.3*	3.2	1.2	-0.3	-1.8	-1.7	-0.6
	T5	6.0*	2.6*	-0.7	-3.4*	-3.0*	-1.5*	2.7	1.0	-0.3	-1.5	-1.4	-0.5
	T6	0.2	0.1	0.0	-0.1	-0.1	-0.1	-3.7	-1.7	0.1	2.1	2.2	0.9
Crisps	T2	0.7	0.8	0.5	-0.2	-0.8	-0.9	0.4	0.5	0.3	-0.1	-0.5	-0.5
	T3	0.4	0.5	0.3	-0.1	-0.5	-0.5	-0.1	-0.1	-0.1	0.0	0.1	0.1
	T4	0.4	0.4	0.3	-0.1	-0.4	-0.5	0.1	0.2	0.1	0.0	-0.2	-0.2
	T5	-0.6	-0.6	-0.4	0.2	0.6	0.8	-0.5	-0.5	-0.4	0.2	0.6	0.6
	T6	3.3*	3.4*	1.9*	-1.4*	-3.4*	-3.7*	4.6*	4.7*	2.7*	-2.1*	-5.1*	-4.7*
Ice-cream	T2	1.2	0.9	0.4	-0.6	-1.1	-0.7	-0.6	-0.4	-0.2	0.3	0.6	0.3
	T3	-2.1	-1.7	-0.9	1.0	2.2	1.5	-3.2*	-2.4	-1.2	1.3*	3.5	2.0
	T4	-1.1	-0.8	-0.4	0.5	1.1	0.7	-1.1	-0.8	-0.3	0.5	1.2	0.6
	T5	0.8	0.6	0.3	-0.4	-0.8	-0.5	1.3	0.9	0.3	-0.6	-1.3	-0.6
	T6	1.1	0.9	0.4	-0.6	-1.1	-0.7	5.5*	3.4*	0.9*	-2.6*	-4.8*	-2.4*
Toothpaste	T2	-1.5	-0.4	0.5	0.8	0.4	0.2	-3.5	-1.0	1.3	1.7	1.0	0.5
	T3	-3.1	-1.0	1.0	1.6	0.9	0.5	-3.2	-0.9	1.2	1.6	0.9	0.5
	T4	-4.7	-1.6	1.5*	2.5	1.4	0.8	1.4	0.3	-0.5	-0.6	-0.3	-0.2
	T5	4.4*	1.0*	-1.6	-2.1	-1.1	-0.6	1.1	0.2	-0.4	-0.5	-0.3	-0.1
	T6	-10.5*	-4.3*	2.9*	6.1*	3.7*	2.1*	-7.2*	-2.3	2.5*	3.7*	2.1	1.2
Water	T2	1.9	1.5	0.2	-1.6	-1.2	-0.8	-0.1	0.0	0.0	0.0	0.0	0.1
	T3	-2.1	-1.8	-0.5	1.9	1.5	1.0	-2.2	-0.9	-0.1	1.0	0.7	1.5
	T4	-0.1	0.0	0.0	0.0	0.0	0.0	-1.8	-0.7	0.0	0.8	0.6	1.2
	T5	4.4*	3.2*	0.1	-3.6*	-2.5*	-1.6*	-0.1	0.0	0.0	0.0	0.0	0.0
	T6	-3.6*	-3.1*	-1.0	3.1*	2.7*	1.9*	-10.5*	-5.3*	-1.6*	4.1*	4.0*	9.4*

Source: London Economics' analysis of online experiment data.

Note: The figures indicate the percentage point change in the probability that a brand will receive the ranking shown in the top row of the table under each treatment relative to the situation under Treatment 1. Figures in shaded cells are statistically significant at the 10% level; bold figures are statistically significant at the 5% level; '*' indicates statistical significance at the 1% level.

A2.3.2 Non-cigarette low-range brands

As may be expected, the results for low-range brands often mirror those for premium-range brands. For example, for beer, chocolate, crisps and bottled water, low-range brands receive higher rankings when only price is shown (Table 12). Under **Treatment 6** for the smokers' (non-smokers') sample respectively:

- the probability that a low-range brand beer is ranked 1st is 6.6 pp higher (4.4 pp);
- the probability that a low-range brand chocolate bar is ranked 1st is 9.3 pp higher (6.9pp);
- the probability that low-range brand crisps are ranked 1st is 13.1 pp higher (7.9pp); and
- the probability that a low-range brand water is ranked 1st is 23.4pp higher (20.9pp).

These findings all mirror the results for the premium brands discussed above. The results also indicate that, for several products, the low-range brands receive higher ranks when brand imagery is removed (i.e. under **Treatment 3** and **Treatment 4**). For example, under **Treatment 3** for the smokers' (non-smokers') sample respectively:

- the probability that a low-range brand ice-cream is ranked 1st is 3.7pp (5.5pp) higher;
- the probability that a low-range brand bottle of water is ranked 1st is 4.1pp higher (non-smokers only);
- the probability that a low-range brand packet of crisps is ranked 1st is 3.4% higher (non smokers only); and
- the probability that a low-range brand chocolate is ranked 1st is 2.4pp higher (smokers only).

Conversely, low-range brands might be expected to receive lower ranks when only the name and brand imagery (not price) are shown (i.e. under **Treatment 5**). This is observed for several products: beer (for the smokers' sample), ice-cream (for the smokers' sample) toothpaste (for both samples) and bottled water (for both samples).

Table 12: Impact of different treatments on consumer preferences for low-range brand products

		Smokers						Non-smokers					
		1st	2 nd	3rd	4th	5th	6th	1st	2nd	3rd	4th	5th	6th
Beer	T2	-0.3	-0.2	-0.1	0.0	0.1	0.5	1.5	1.1	0.6	0.1	-0.4	-2.9
	T3	0.5	0.4	0.2	0.0	-0.2	-1.0	0.6	0.5	0.3	0.0	-0.2	-1.2
	T4	2.0	1.6	0.6	0.0	-0.7	-3.5	2.8	1.9	1.1*	0.1	-0.8	-5.1
	T5	-1.4	-1.2	-0.5	-0.1	0.5	2.7	0.9	0.7	0.4	0.1	-0.2	-1.8
	T6	6.6*	4.8*	1.5*	-0.3	-2.5*	-10.1*	4.4	3.0*	1.6*	0.1	-1.3	-7.7*
Chocolate	T2	-0.6	-0.5	-0.4	-0.3	0.1	1.6	-0.1	-0.1	-0.1	-0.1	0.0	0.4
	T3	0.0	0.0	0.0	0.0	0.0	0.1	2.4*	2.1*	1.9*	1.1*	-0.5	-6.9*
	T4	0.8	0.7	0.5	0.3	-0.2	-2.0	0.1	0.1	0.1	0.0	0.0	-0.2
	T5	-1.0	-0.8	-0.6	-0.4	0.2	2.7	-0.1	-0.1	-0.1	-0.1	0.0	0.5
	T6	9.3*	6.6*	3.6*	1.4*	-3.8*	-17.2*	6.9	5.7*	4.4*	2.1*	-2.4*	-16.6*
Crisps	T2	1.1	0.3	0.1	-0.1	-0.4	-1.0	-0.9	-0.3	-0.1	0.0	0.3	1.0
	T3	3.4	0.9	0.1*	-0.5	-1.1	-2.9	2.3	0.8	0.3	-0.1	-0.8	-2.4
	T4	5.7*	1.4*	0.1	-0.8*	-1.8*	-4.5*	2.5	0.9	0.3	-0.2	-0.9	-2.7
	T5	-0.6	-0.2	0.0	0.1	0.2	0.5	-0.9	-0.4	-0.1	0.0	0.3	1.0
	T6	13.1*	2.6*	-0.3	-2.1*	-4.1*	-9.3*	7.9*	2.5*	0.6*	-0.7	-2.8*	-7.6*
Ice-cream	T2	0.6	0.5	0.4	0.1	-0.3	-1.4	1.5	1.3	1.0	0.4	-0.6	-3.6
	T3	3.7*	2.8*	1.9*	0.4*	-1.8*	-7.0*	5.5*	4.4*	2.9*	0.8*	-2.3*	-11.3*
	T4	3.7*	2.8*	1.9*	0.4*	-1.8*	-7.0*	3.9*	3.2*	2.2*	0.8*	-1.6	-8.6*
	T5	-1.7	-1.4	-1.1	-0.4	0.7	4.0	-0.5	-0.5	-0.4	-0.2	0.2	1.3
	T6	-0.5	-0.4	-0.3	-0.1	0.2	1.2	-2.2	-2.0	-1.6	-0.9	0.6*	6.1
Toothpaste	T2	-0.6	-0.6	-0.4	0.0	0.4	1.1	0.3	0.4	0.3	0.0	-0.3	-0.6
	T3	1.5	1.4	0.8	-0.2	-1.0	-2.4	-0.1	-0.1	-0.1	0.0	0.1	0.1
	T4	1.5	1.4	0.8	-0.2	-1.0	-2.4	-1.3	-1.5	-1.2	0.0	1.3	2.7
	T5	-1.4	-1.4	-0.9	0.0	1.0	2.6	-2.4*	-2.6*	-2.1	-0.2	2.2*	5.1
	T6	1.3	1.3	0.7	-0.1	-1.0	-2.2	-2.5	-2.8	-2.3	-0.2	2.4	5.5
Water	T2	-1.2	-0.8	-0.2	-0.1	0.5	1.7	1.3	1.9	1.0	0.2	-1.1	-3.2
	T3	4.1	2.5	0.6*	0.0	-1.9	-5.2	2.0	2.8	1.5	0.2	-1.8	-4.8
	T4	2.0	1.2	0.3	0.0	-0.9	-2.6	3.0	4.1	2.0*	0.3	-2.6	-6.7
	T5	-6.4*	-4.8*	-1.7*	-0.8*	2.4*	11.2*	-2.9*	-4.6*	-2.9*	-1.0	2.0*	9.4*
	T6	23.4*	8.4*	0.4	-2.3*	-10.2*	-19.8*	20.9*	17.2*	3.0*	-3.0*	-14.3*	-23.8*

Source: London Economics' analysis of online experiment data.

Note: The figures indicate the percentage point change in the probability that a brand will receive the ranking shown in the top row of the table under each treatment relative to the situation under Treatment 1. Figures in shaded cells are statistically significant at the 10% level; bold figures are statistically significant at the 5% level; '*' indicates statistical significance at the 1% level.

Annex 3 Experiment screenshots

Below we present the screenshots associated with the cigarette brands.

Figure 11: Baseline case with all signals shown (Treatment 1) - Cigarettes

Please rank these six cigarette brands in your order of preference.





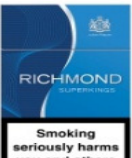





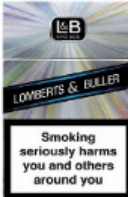

	1st	2nd	3rd	4th	5th	6th
 <p><i>Content</i> Tar: 10 Nicotine: 1 Price: £6.68</p> <p>5th best selling full flavour cigarette in the United Kingdom</p> <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p><i>Content</i> Tar: 10 Nicotine: 0.8 Price: £5.49</p> <p>4th best selling full flavour cigarette in the United Kingdom</p> <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p><i>Content</i> Tar: 10 Nicotine: 0.9 Price: £5.53</p> <p>6th best selling full flavour cigarette in the United Kingdom</p> <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p><i>Content</i> Tar: 10 Nicotine: 0.9 Price: £6.04</p> <p>3rd best selling full flavour cigarette in the United Kingdom</p> <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p><i>Content</i> Tar: 10 Nicotine: 0.9 Price: £6.03</p> <p>2nd best selling full flavour cigarette in the United Kingdom</p> <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p><i>Content</i> Tar: 10 Nicotine: 0.9 Price: £2.00</p> <p>Top selling full flavour cigarette in the United Kingdom</p> <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 12: No market share information (Treatment 2) - Cigarettes

Please rank these six cigarette brands in your order of preference.

	1st	2nd	3rd	4th	5th	6th
 <p>Content Tar: 10 Nicotine: 1</p> <p>Price: £6.68</p> <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content Tar: 10 Nicotine: 0.9</p> <p>Price: £5.53</p> <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content Tar: 10 Nicotine: 0.9</p> <p>Price: £6.03</p> <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content Tar: 10 Nicotine: 0.8</p> <p>Price: £5.49</p> <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content Tar: 10 Nicotine: 0.9</p> <p>Price: £2.00</p> <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content Tar: 10 Nicotine: 0.9</p> <p>Price: £6.04</p> <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Source: London Economics

Figure 13: No market share information, no packaging imagery (Treatment 3) - Cigarettes

Please rank these six cigarette brands in your order of preference.













	1st	2nd	3rd	4th	5th	6th
<p>Mayfair (Dark Blue)</p> <p>Content Tar: 10 Nicotine: 0.9</p> <p>Smoking kills</p> <p>Price: £6.04</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>Lombardo & Buller (Grey / white)</p> <p>Content Tar: 10 Nicotine: 0.9</p> <p>Smoking kills</p> <p>Price: £2.00</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>Windsor Blue (Dark Blue)</p> <p>Content Tar: 10 Nicotine: 0.9</p> <p>Smoking kills</p> <p>Price: £5.53</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>Benson & Hodges (Gold)</p> <p>Content Tar: 10 Nicotine: 1</p> <p>Smoking kills</p> <p>Price: £6.68</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>Richmond (Dark Blue)</p> <p>Content Tar: 10 Nicotine: 0.9</p> <p>Smoking kills</p> <p>Price: £6.03</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<p>Sterling (Red / Silver)</p> <p>Content Tar: 10 Nicotine: 0.8</p> <p>Smoking kills</p> <p>Price: £5.49</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>




Source: London Economics

Figure 14: Brand name and price (Treatment 4) - Cigarettes

Please rank these six cigarette brands in your order of preference.







	1st	2nd	3rd	4th	5th	6th
 Windsor Blue (Dark Blue) Price: £5.53 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 Richmond (Dark Blue) Price: £6.03 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 Mayfair (Dark Blue) Price: £6.04 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 Lombards & Butler (Grey / white) Price: £2.00 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 Sterling (Red / Silver) Price: £5.49 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 Benson & Hodges (Gold) Price: £6.68 	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>




Source: London Economics

Figure 15: Brand name and packaging imagery (Treatment 5) - Cigarettes

Please rank these six cigarette brands in your order of preference.

	1st	2nd	3rd	4th	5th	6th
 <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Smoking seriously harms you and others around you</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>




Source: London Economics

Figure 16: Price only (Treatment 6) - Cigarettes

Please rank these six cigarette brands in your order of preference.

	1st	2nd	3rd	4th	5th	6th
Brand E Price: £5.53	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brand F Price: £6.03	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brand D Price: £6.04	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brand C Price: £6.68	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brand G Price: £5.49	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brand A Price: £2.00	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Source: London Economics

A3.1 Screenshots for chocolate brands

Below, we present here the screenshots associated with chocolate.

Figure 17: Baseline case with all signals shown (Treatment 1) - Chocolate

Please rank these six brands of chocolate in your order of preference.







	1st	2nd	3rd	4th	5th	6th
 <p>Content (per 100g) KiloCalories: 229 Weight (g): 50 Fat (g): 11.3 Price (per 100g): £0.60 Smooth and creamy</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 294 Weight (g): 46 Fat (g): 14.5 Price (per 100g): £1.24 Smooth and creamy Galaxy chocolate is your perfect partner in chocolate indulgence</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 230 Weight (g): 43 Fat (g): 13.2 Price (per 100g): £1.37 Two twirly chocolate fingers covered in smooth Cadbury milk chocolate</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 255 Weight (g): 49 Fat (g): 14.6 Price (per 100g): £1.14 A glass and a half of fresh milk in every bar</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 367 Weight (g): 68 Fat (g): 21.5 Price (per 100g): £0.76 It's not for girls</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 232 Weight (g): 43 Fat (g): 13.3 Price (per 100g): £1.19 Irresistible</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>




Source: London Economics

Figure 18: No advertising (Treatment 2) - Chocolate

Please rank these six brands of chocolate in your order of preference.

	1st	2nd	3rd	4th	5th	6th
 <p>Content (per 100g) KiloCalories: 367 Weight (g): 68 Fat (g): 21.5 Price (per 100g): £0.76</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 230 Weight (g): 43 Fat (g): 13.2 Price (per 100g): £1.37</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 255 Weight (g): 49 Fat (g): 14.6 Price (per 100g): £1.14</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 232 Weight (g): 43 Fat (g): 13.3 Price (per 100g): £1.19</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 294 Weight (g): 46 Fat (g): 14.5 Price (per 100g): £1.24</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 229 Weight (g): 50 Fat (g): 11.3 Price (per 100g): £0.60</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Source: London Economics

Figure 19: No advertising, no packaging imagery (Treatment 3) - Chocolate

Please rank these six brands of chocolate in your order of preference.

	1st	2nd	3rd	4th	5th	6th
 <p>Content (per 100g) KiloCalories: 232 Weight (g): 43 Fat (g): 13.3 Price (per 100g): £1.19</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 294 Weight (g): 46 Fat (g): 14.5 Price (per 100g): £1.24</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 230 Weight (g): 43 Fat (g): 13.2 Price (per 100g): £1.37</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 229 Weight (g): 50 Fat (g): 11.3 Price (per 100g): £0.60</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 255 Weight (g): 49 Fat (g): 14.6 Price (per 100g): £1.14</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 <p>Content (per 100g) KiloCalories: 367 Weight (g): 68 Fat (g): 21.5 Price (per 100g): £0.76</p>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Source: London Economics

Figure 20: Brand name and price (Treatment 4) - Chocolate

Please rank these six brands of chocolate in your order of preference.







	1st	2nd	3rd	4th	5th	6th
 Price (per 100g): £1.19	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 Price (per 100g): £0.60	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 Price (per 100g): £1.37	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 Price (per 100g): £1.24	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 Price (per 100g): £0.76	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
 Price (per 100g): £1.14	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>




Source: London Economics

Figure 21: Brand name and packaging imagery (Treatment 5) – Chocolate

Please rank these six brands of chocolate in your order of preference.

	1st	2nd	3rd	4th	5th	6th
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>




Source: London Economics

Figure 22: Price only (Treatment 6) - Chocolate

Please rank these six brands of chocolate in your order of preference.

	1st	2nd	3rd	4th	5th	6th
Brand A Price (per 100g): £0.60	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brand B Price (per 100g): £1.19	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brand D Price (per 100g): £1.14	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brand E Price (per 100g): £0.76	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brand F Price (per 100g): £1.37	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brand C Price (per 100g): £1.24	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Source: London Economics

References

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