



Department of Political Sciences

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The Effect of the Removal of Fast Food Advertising on Obesity Rates in the UK

Supervisor

Professor Giacomo Sillari

Candidate

Edoardo Primerano

Student Number: 089102

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Introduction

For a number of years, obesity has been a major and increasingly severe cause of public concern for countries around the world. The World Health Organization (WHO) defines the term ‘obese’ differently for different age groups. For adults, “obesity is a Body Mass Index (BMI) greater than or equal to 30kg/m²” (World Health Organization). It is, however, acknowledged that BMI is an imperfect measure of obesity, failing to discriminate between weight due to fat and weight due to muscle mass. Wherever possible, it is advised to consider waist circumference as an additional metric. The current standard for obesity when analysing waist circumference is a measurement of 102 cm or above for men, and 88 cm or above in the case of women. It is acknowledged that the waist circumference metric is imperfect for comparing adults with children. In the case of children, the WHO categorises obesity as “greater than two standard deviations above the WHO Growth Reference median”. It is estimated that 2.8 million deaths per year are due to being overweight or obese. The UK has distinguished itself by recording some of the highest obesity rates in the world, boasting the third-highest rate among European nations. As of 2019, 26% of men and 29% of women in Britain were obese. Furthermore, 20% of Year 6 children were considered to suffer from obesity. More than 11,000 hospital admissions in 2019 were directly attributable to the condition. By 2035, it is forecast that five million people in the UK will be obese, presenting a significant threat to livelihoods, as well as a major financial and administrative burden on the country’s health system. In November 2020, the UK Government announced plans to impose a ban on all online ‘junk-food’ advertisements, as well as a ban on any such TV advertising before 9 pm, in an attempt to tackle the nation’s obesity crisis.

‘Junk-food’ refers to foods high in fat, sugar or salt (HFSS). The association between fast food advertising and the decision-making process of agents in relation to the consumption of such foods has strong roots in Advertising Theory and models of behavioural economics examining consumer behaviour. As a result, the dissertation combines the branches of behavioural economics and psychology in order to attain a holistic perspective on the ways in which agents (fast food consumers) form their attitudes and actions in relation to fast food advertising. These topics are discussed in greater depth in the Theoretical Background section of the thesis.

The most comparable existing regulation in place, which has been prohibiting the advertising of HFSS foods during the broadcasting of children-directed television programs since 2007, is a significantly less stringent restriction than the ban currently under consideration. Any decision made by the UK government on the matter will be divisive and face pressure from the social and corporate fronts. This study will investigate the potential impact of this initiative on obesity rates in the UK. It is acknowledged that effects are unlikely to be homogeneous due to differences in dimensions such as age and socioeconomic backgrounds, hence the study will seek to differentiate between categories of individuals by relevant criteria. The objective is to offer a balanced prediction of the effectiveness of the proposed ban which could be used to weigh the merits of implementing legislation against junk-food adverts.

An extensive literature review has been conducted as part of the dissertation, with the objective of firstly gaining awareness of the existing academic progress made on the relationship between fast food advertising and obesity rates and identifying gaps in the literature which may be worth exploring in further depth, as well as observing the ways in which the nature of this relationship may have fluctuated over time by considering studies from different periods. Since the proposed government ban would affect internet and television fast food advertising, the sources examined in the literature review have been selected to encompass insights into both forms of marketing.

The main limitations of the study lie in the statistical rigour of the analysis. While care has been taken for the survey to collect data on many of the relevant factors contributing to the observed relationship between fast food advertising and obesity, and a range comparisons to be drawn to isolate the most influential variables, this approach is limited in its ability to account for interactions between the heterogeneous properties of the survey participants. As a result, conclusions inferred from the analysis of the data collected should not be automatically considered to be of a causal nature. Nevertheless, it is a balanced, methodical investigation which yields new insights into the subject, and as such it is a step forward towards offering more clarity on the link between obesity rates in the UK and fast food advertising.

Literature Review

The existing literature on the subject of fast food advertising and its association with obesity is partially comprehensive. Studies spanning different geographies from around the globe, as well as time periods, have been published, and as a result many of the individual characteristics influencing an agent's weight outcome when undergoing exposure to such forms of marketing have been identified. From the research stage of this thesis, it has become apparent that academic efforts have been overwhelmingly concentrated on the study of obesity rates in children, with minor variation in the definition of a child's age range across the books, papers and journals examined. While the justification for this focus may be logically justified in that the views, attitudes, beliefs and habits of younger demographics have been shown to be more susceptible to external influences, this thesis proposes that the effect of fast food advertising on the weight outcome of adults may be significant enough to warrant further study.

A research report titled 'Taking Down Junk Food Ads: How local areas are taking action on outdoor advertising' produced by Food Active in partnership with Sugar Smart and Children's Food Campaign found that the likelihood of obesity in a local area increased with the percentage of outdoor advertisements for foods high in fat, salt and sugar (HFSS). This suggests that an all-out ban on junk food ads may have an impact on observed obesity rates. However, the report does not investigate the influence of advertisements in the online space, which has become the primary medium for content. Rutsaert and Pieter confirm the power of social media in terms of reaching a wide (particularly young) audience very quickly. They emphasise the potency of algorithms for exposing users to content aligned with their previous interests, which can result in an over-exposure to fast food ads, and potentially higher obesity rates as a result (Rutsaert et al.). The power of the online world on consumer incentives is a key reason for engaging in this study, as the conclusions derived can have ramifications beyond the fast food sector.

Andreyeva's 2011 paper investigating the effect of television fast food ads on fast food consumption in elementary school children in the US reveals a significant link between the exposure to these advertisements and the body mass index (BMI) of children already in the

overweight and obese categories. The same association for normal weight and underweight children was insignificant (Andreyeva et al.), indicating that some groups may be more vulnerable to the persuasion of these ads. Meanwhile, among a Canadian youth cohort, Powell and Lisa find insufficient evidence to suggest a significant connection between food advertising exposure and fast food consumption once unobservable heterogeneities in the sample population are controlled for (Powell et al.). This reinforces the hypothesis that sub-groups in a population are influenced unequally by fast food ads, and by extension may react to a ban of these ads in different ways. A 2019 report by NHS Digital supports this conclusion, reporting that the prevalence of obesity among school children in Year 6 was over twice as high in the most deprived areas than in affluent regions (NHS Digital, 2019). However, neither study considers the adult and elderly population. Indeed, the vast majority of the existing literature exclusively investigates children and youths. This dissertation seeks to fill that void by additionally considering the wider adult age spectrum for the UK population.

A 2004 research report finds a correlation between the time adults and children spent watching television and obesity. The exposure to advertisement of HFSS foods was quoted as a possible explanation for this trend, alongside the sedentary nature of watching television and the snacking habits it encourages (Keaver et al.). While it is difficult to establish an isolated causal link between the ads themselves and obesity, the research supports the hypothesis that its existence of such an association is very much a real possibility. As a further point of study, it would be insightful to examine the marginal changes in fast food consumption as a function of the time spent under exposure to such content, which would enable the calculation of elasticities for different sub-groups in a sample population.

The largest recent study conducted to examine the level of exposure to fast food stimuli and obesity rates is 2018's paper, '*Examining the interaction of fast-food outlet exposure and income on diet and obesity: evidence from 51,361 UK Biobank participants*' (Burgoine et al.). A cross-sectional analysis of the data from the 51,361 aged 38-72 selected from Greater London was performed, examining the household income of participants and the proportion of fast food outlets in their neighbourhood. While this measure of exposure is not identical to the context at hand (whereby television and online advertising, as opposed to physical fast food outlets, would

be affected), it is a reasonable proxy for fast food exposure. Body Mass Index was used as a metric for obesity in the study. A multivariable regression model with interactions revealed that household income was negatively associated with BMI, implying that respondents from lower-income backgrounds may adopt a less healthy diet, consuming more fast food meals. Furthermore, a higher proportion of fast food outlets (as a percentage of all food outlets) was positively associated with BMI. This stipulates that increased exposure could have an effect on the decisions made by individuals in relation to the consumption of fast food, as predicted by the theory of Consumer Buying Behaviour. A small interaction effect was found between income and fast food outlet proportion, suggesting that those in financial hardship with an abundance of fast food restaurants in their neighbourhood are more likely to consume HFSS food (academic research justifies this phenomenon by the high caloric content obtained for an affordable price). This adds a further dimension to the thesis question: while an advertising ban would reduce awareness, will there be individuals with no choice but to consume fast food due to its accessibility, and what will this mean for the effectiveness of the regulation?

O'Connell, Smith and Stroud contribute to existing literature progress on the subject of advertisement and obesity by considering the key drivers behind potential impacts of such a ban, as well as accounting for the reactions of stakeholders to government intervention in their 2020 article '*Could restricting junk food advertising reduce obesity?*' published by the Institute for Fiscal Studies (IFS) (O'Connell et al.). In terms of television advertising, the proposed ban would apply to ads currently shown before the 9pm watershed (i.e. the time from which programs aimed at mature and adult audiences are permitted to be broadcast). The article quotes that 60% of all adverts for HFSS foods and associated restaurants were seen by adults before the watershed. The same figure was 70% in the case of children. No statistics of this kind were provided for fast food adverts seen in the online space. Nevertheless, it is reasonable to form the hypothesis that exposure to such marketing is likely to decrease from current levels, all else being equal. However, O'Connell, Smith and Stroud recognise the practical implications of such a ban, not least the reaction of firms which would face a downturn should this policy come into effect (specifically, fast food restaurants and advertising companies). Businesses have the option of shifting their advertising efforts to post-watershed slots, which already include some of these

types of ads. Despite the guidance provided by authorities on the protection of children from viewing material of a mature nature, many continue to watch television late into the evening. This is of course subject to any specific provisions included in the new regulation. The discussion of the thesis will be based on the assumption that companies may advertise post-watershed with no additional restrictions. Furthermore, under current proposals, fast food businesses would not be restricted from advertising items on their menus which are not classified as high in fat, salt or sugar. Indeed, many of the UK's most prominent chains, such as McDonald's, Nando's and KFC have been expanding their range of 'healthy' options to suit a more health-conscious mass audience. The exposure to advertisement of these products may serve as a gateway for attracting customers to restaurants, at which point they would be likely to discover the wider offering of HFSS meals. This amalgamation of factors makes the expected reduction in exposure to HFSS food advertising a gray area. An even less clear-cut question, however, (which this thesis aims to address with the support of existing literature) remains: whether this reduction will translate into favourable obesity statistics in the UK.

One of the studies most closely aligned to the theme of this thesis is the research published in the British Medical Journal titled '*Sociodemographic differences in self-reported exposure to high fat, salt and sugar food and drink advertising: a cross-sectional analysis of 2019 UK panel data*' (Yau et al., 2020). The study performed a cross-sectional analysis on UK panel data obtained for the year 2019 based on the responses of 1,552 adults self-reporting their level of exposure to different forms of fast food advertisement for multiple HFSS food categories, which was compared to their Body Mass Index (BMI). The data collected supports the intuition that exposure to such stimuli is highly prevalent - 84.7% of all participants reported exposure over the course of the previous 7 days. This further emphasises the scale and potential importance of exploring the possible impact of government intervention through a restrictive bill in the UK. The research findings reveal that adults from low socioeconomic backgrounds reported higher exposure than their more affluent counterparts. This extends the conclusion of Powell and Lisa that children of lower social standing experience increased contact with fast food advertisements, suggesting that this is also the case at the adult level. The study groups the sample population into younger adults (18-34 years), older adults (35-64 years) and the elderly (≥ 65 years). The data suggests that younger adults are most prone to being exposed to digital forms of HFSS food

ads and ads for food delivery services, which have gained significant traction in recent years among this demographic. The older adults and the elderly, on the other hand, reported superior exposure to traditional forms of fast food advertising (leaflets, billboards, etc.) and adverts placed in recreational environments. On aggregate, the digital space was found to have the strongest association with increased BMI figures, and thus an increased likelihood of obesity. The literature points to an unequal impact of a hypothetical governmental intervention across socioeconomic backgrounds and age brackets. However, the research does not differentiate between online and television marketing. Furthermore, the use of the Body Mass Index as an indicator of obesity is arguably an imperfect proxy, due to its ignorance of body composition across fat, muscle mass, and bone density. This dissertation therefore includes discussions pertaining to waist circumference in conjunction with BMI in order to establish cases of obesity with increased rigour.

In a 2011 journal, Yu explores the relationship between methods of parental communication and the effect of fast food TV advertising on children's eating habits. The study examined children in the 7-12 years old age bracket and used the Body Mass Index as a metric for obesity. The results were overwhelmingly indicative that parents hold immense influence both in promoting unhealthy attitudes and in preventing the negative effects of fast food advertising (Yu, 2011). It was found that the children of parents who expressed agreement and approval of televised fast food ads consistently reported higher BMI figures. Conversely, parents who invested time in encouraging healthy weight management practices in their offspring and nurtured a harmonious family culture at the dinner table had more children in the normal BMI range. Regardless of the direction of the effect, it is clear that, at least in the case of children, the effect of fast food advertising is markedly influenced by external circumstances, and as such these factors must be accounted for when discussing the issue of causality in the context of obesity rates.

Methodology

The study will be based around a range of theories from the branches of behavioural economics and psychology, namely Consumer Buying Behaviour and Advertising Theory. The core of the research is the way in which individuals' decision-making process is influenced by external stimuli (in this case adverts). It is acknowledged from existing literature that different age groups are influenced to different degrees, therefore the thesis will compare and contrast these groups. Other differentiating dimensions will also be considered when assessing the potential effects of the fast food advertising ban, such as gender and socioeconomic background.

Data will be collected by means or both primary and secondary research, utilising sources such as books, journals, articles and reports. Both quantitative and qualitative data will be investigated to provide a thorough understanding of the issue. The quantitative element of the survey is digested through the use of traditional numerical methods to summarise the large volume of figures in a more accessible format. Appropriate graphical representations are additionally employed to convey the story presented by the raw data in an effective manner, while the qualitative findings are linked to the supporting literature examined in the Literature Review. The meaning behind the data is extracted by means of discourse analysis.

As part of the data collection process, 200 individuals living in the UK were surveyed in order to attain a better understanding of their habits relating to fast food consumption and their exposure to related ads. Participants from a broad spectrum of age, socioeconomic backgrounds and position on the BMI and waist circumference scales were selected so as to obtain a representative sample of a more general population in the UK. The data is quantitative in nature, and as such has been summarised and analysed using traditional numerical and graphical methods to extract insights pertaining to the study.

Ethical Implications

The first ethical consideration is ensuring that the participants in the research (the survey respondents) consent to having their responses used as part of the dissertation. This consent is obtained through a disclaimer in the introductory page of the survey. Compliance with the

General Data Protection Regulation and the Data Protection Act 1998 is ensured throughout the research process. Secondly, participants shall not be influenced in any way by the researcher, which may otherwise skew their responses and affect the validity of results derived from the study. This is achieved by using neutral language in formulating the survey questions. None of these questions have been designed to generate discomfort in participants answering them. However, as an additional measure against respondents feeling pressured to answer a particular query, all questions are optional, even if the individual has provided their consent prior to the start of the survey. The collection of secondary data is likewise considerate of ethical implications, with citations and referencing being used systematically to acknowledge and credit sources. The data collected as part of this dissertation will be truthfully reflected in the discussion, with no manipulation of information on the part of the researcher. The project will not aim to discredit previous research on the subject, but will instead focus on expanding the current base of understanding.

Theoretical Background

Before investigating the potential impact of a government ban on online and televised fast food advertising on UK obesity rates, it is important to acknowledge the fundamental meaning of ‘advertising’, its defining features and the ways in which it can influence an audience. Thorson and Rodgers propose a framework for underpinning the core aspects of the concept, namely the Advertising Process Cycle. They argue that the key components are: audiences, Mmessage sources, devices, media channels, advertising organizations, messages (including intended and unintended effects) and contexts (Rodgers and Thorson). The authors emphasise the limited attention span of today’s consumers, as well as the ever-intensifying competition for that attention. Consequently, they advocate that the imperative property which must be possessed by any successful advertising campaign is that it must grab the audience’s attention. Companies advertising fast food products have been making effective use of attention-grabbing strategies, such as vividness and visual appeal of foods, celebrity collaborations, and trend-setting by portraying fast food consumption as a popular social activity. A further core element of successful advertising is the ability to trigger an impulsive response and to keep the product/brand at the top of the audience’s mind (the T-O-M principle). In order to gauge the

effectiveness of fast food ads on this front, the survey was designed to include a question asking participants to score the intensity of their cravings for fast food after seeing an advert for it.

Separate queries were included for television and internet ads so as to compare and contrast the impulse triggered by each medium, and to ultimately forecast the impact of the proposed ban, should it come into effect. In their 2019 working paper, '*Embodied Motivated Cognition: A Theoretical Framework for Studying Dynamic Mental Processes Underlying Advertising Exposure*', D. Bolls, Paul and D. Bradley introduced the concept of Embodied Motivated Cognition (EMC) as a framework with the objective of exploring the ways in which human minds perceive and process forms of advertising. They postulate that the key pillars of an advert are the Receiver, the Message and the Channel. The receivers (target audience) undergo motivational mental processes, which lie at the core of their decision-making rationale. Indeed, the authors recall from previous literature that the success of advertising lies in its ability to trigger either one's appetite or aversive systems - persuading individuals to desire or resent a particular product (Lang and Bradley, 2010). Traditionally, fast food advertising has aimed to achieve the former, with restaurants seeking to make their own products as appealing to the prospective customer as possible, as opposed to breeding enmity towards competitors. D. Bolls, Paul and D. Bradley agree that the advertising campaigns for HFSS foods are correct in their approach to target the motivated sensory processing system inherent in us all - images of a burger or a box of fries would often be magnified and depicted in vivid colours to stimulate appetite, and many adverts would depict the consumption of such meals as an in-trend social activity to appeal to the natural human desire of participation and belonging.

The second school of thought applicable to the proposal of a fast food advertising ban on UK obesity is behavioural economics and the insights it offers into consumer buying behaviour. The neoclassical model of behaviour treats individuals as agents acting rationally with the objective of maximising their expected 'utility' - the value that they obtain from acting in a particular manner or consuming a particular product, according to their concept of utility. Traditional literature acknowledges that, as humans with different tastes, preferences and priorities, our utility functions (perspective of value) vary, hence the discrepancies in our actions and attitudes towards a specific subject. However, more modern research has consistently concluded that the assumption of people being and operating as fully-rational, utility-maximising machines ('homo

oeconomici') is not one representative of reality. Indeed, much work has undergone into uncovering and examining the wide range of biases we as humans are susceptible to in our daily lives. In their 2017 article published by the Cambridge University Press, '*Behavioural economics, consumer behaviour and consumer policy: state of the art*', Reisch and Zhao discuss the influence that biases, heuristics and the contexts in which a decision is made influences agents' way of processing and attitudes towards a particular issue (Reisch and Zhao, 2017). In the case of fast food advertising, their findings concur with those of Calitri, Pothos et al. in their 2010 study of fast food consumption behaviour and BMI that one of the main biases exploited by fast food advertising is the cognitive bias - the phenomenon whereby individuals create their own subjective reality and perceptions, which deviate from the real state of affairs. This bias is thought to be systematic, however its effect on one's decision-making process can be magnified by carefully-selected stimuli (Calitri et al., 2010). In practice, fast food adverts employ a wide range of strategies to depict the reality of HFSS food more appealing, such as collaborating with celebrities to introduce an element of glamour to fast food experience, displaying insights into the supply chain element (more recently, fast food companies have shared testimonials from farmers supporting the organic nature of the ingredients used to make the consumers feel 'right' about the products) and depicting the consumption of fast food as a joyful, innocent activity undertaken by all. There exists the possibility that a ban on such advertising over television and the internet can reduce the deviation from reality created by cognitive biases and pave the path to more objective decision-making in relation to HFSS food consumption, which would in turn have potential ramifications for obesity rates observed in the UK.

Public Report Data

Research findings released by the public sector further justify the importance of performing a study of the issue of fast food and obesity. Multiple public health reports for the United Kingdom published in recent years highlight the growing concern that is the fast-food induced obesity in the general population, generating detrimental health and financial problems for individuals and the public sector. In the year 2014 to 2015, it is estimated that the National Health Service spent £6.1 billion on treating patients suffering from obesity-related afflictions (Public Health England, 2017). When accounting for the negative externalities associated with obesity, as well as

factoring in the private cost to the individual, the total cost of obesity to society was approximately £27 billion over the same time period. As of 2015, it was found that 27.1% of adults and 20.3% of children eat from out of home outlets at least once per week. In an attempt to pinpoint the potential causes for the consistent increase in fast food consumption observed in the UK's historical data, Public Health England carried out surveys and produced field reports. The results show that the low price and growing accessibility of fast food are the two key drivers for the ascending trend. The UK's society (and indeed that of many developed countries) has transformed in a way where cost efficiency and convenience are at the forefront of our minds, and as such we seek the products which best satisfy these criteria. In a world where time is of the essence and instant gratification is pursued, it is perhaps unsurprising that fast food is perceived as an ideal option by many. The question becomes whether or not the removal of advertising stimuli in the online space and on television can reverse this trend and improve the weight outcomes of the UK population. There have already been critics expressing their disapproval of such a measure, on the grounds that they would fail to have a material effect on obesity incidence generated by fast food consumption.

In 2018, the proportion of male adults in the UK who were obese was 26%, while the same figure for women came at 29% (NHS Digital, 2019). Although the thesis investigates the association between televised and internet fast food advertising on obesity rates, it is important to acknowledge that the physical presence of fast food outlets in and of itself may constitute part of the overall effect observed on the rates of obesity. From 2010 to 2018, the number of such outlets in the UK increased by 34%, with the number of fast food restaurants per 100,000 people rising from 41 to 67. As of 2018, the 'out of home' sector, including fast food outlets, pubs and restaurants, were estimated to provide 20-25% of an average adult's daily caloric intake. Although no data was available for the fast food sub-sector alone, the statistics are strongly suggestive of a significant reliance on it as a nutritional source. The figures are in agreement with the premise of this thesis insofar as considering the fast food culture a core culprit for high obesity rates, and hence a subject which should justifiably be explored in greater depth.

Survey Results

Overview

The survey, which collected the target of 200 responses, was designed to pin down the relationship between exposure to fast food advertisements and rates of obesity. The questions used served the additional purpose of differentiating participants in sub-groups of age, socioeconomic background and level of exposure to the online space, all of which have been found to be influential factors in determining the rate of obesity in previous research. While this study and its results are not abundant in their statistical rigour and hence cannot be credited with establishing a definitive causal link between fast food ads and obesity, the methodology has been followed to a scientific standard and has aimed to isolate effects as much as possible without making use of a regression model. It is hoped that the conclusions can provide a foundation guiding future investigations.

Sample population summary

One of the objectives in collecting responses was to obtain a sample that is as representative as possible of the general population across the dimensions of age, gender and socioeconomic background. This was achieved to a good extent, but not to an ideal standard. Of the 200 respondents, 52% were male and 48% were female. 13% were under 16 years old, 18% between 16 and 18 years old, 23% between 19 and 25 years old, 15% between 26 and 35 years old, 18% between 36 and 45 years old and 15% were over 45 years old. The representation of socioeconomic backgrounds suffers from a bias towards the mid-upper class and upper class categories. 15% of participants labelled themselves as working class, 12.5% as low-middle class, 17.5% as middle class, 30% as mid-upper class and 25% considered themselves to belong to the upper class. In analysing the results pertaining to fast food advertisement exposure and measures of obesity, the figures were segregated by these respondent attributes in an attempt to minimise any bias which may produce misleading conclusions.

Fast food cravings and age

As part of the survey, participants were asked to provide a score based on how much fast food ads made them crave junk food. Specifically, they were asked the question ‘On a scale of 0 to 10, how much do fast food adverts make you crave fast food?’, with 0 meaning ‘not at all’ 10 meaning ‘hugely’. The mean score was calculated for each age bracket defined in the survey. It was found that the mean response was 8 in the ‘Under 16 years old’ group, 6.8 in the ‘16-18 years old’ group, 6.7 in the ‘19-25 years old’ category, 4.8 in the ‘26-35 years old’ bracket, 4.3 in for the ‘36-45 years old’ group, and 2.8 over the ‘over 45 years old’ category.

Discussion

The results reveal that, without accounting for differences other than age among respondents, younger individuals may be more strongly influenced by exposure to fast food ads. This is consistent with the findings from existing literature. In fact, respondents under the age of 16 are reportedly on average more than three times as strongly affected than the over 45s. The effect of these ads on cravings appears to be, on average, similar across the ‘16-18 years old’ and the ‘19-25 years old’ groups. Within each age bracket, the range of responses was wide (in the order of 6-8 in terms of the score provided), indicating a substantial degree of heterogeneity across all ages. This indicates that, whilst on average older age groups may be less prone to persuasion by fast food ads, this may not necessarily be a consistent trend at the individual level.

Fast food cravings and socioeconomic background

When grouping the scores provided by participants to the same question by their reported socioeconomic background, the working class mean score was 7.6, the low-middle class mean was 6.8, the middle class figure was 5.3, the mid-upper class average was 4.6, and the upper class mean was 3.9. Within the ‘working class’ and ‘low-middle class’ groups, the range of scores was 3 and 2 respectively, whereas the same figure for the ‘middle class’, ‘mid-upper class’ and ‘upper class’ categories ranged from 8 to 10.

Discussion

The responses indicate a negative correlation between the socioeconomic affluence of respondents and the magnitude of the persuasive effect of fast food ads. Judging by the mean scores, respondents belonging to the working class reported cravings almost twice as strong after viewing a fast food advertisement than their upper class counterparts. Furthermore, the concentration of responses was markedly higher in the groups of lower socioeconomic status, suggesting that these individuals are consistently more influenced by fast food ads. By contrast, the range of scores provided by members of the higher classes spanned the entire scale in some cases, potentially implying a greater degree of heterogeneity, albeit still exhibiting signs of a lower impact of junk food advertisements on participants.

The potential justifications for observing lower mean scores among participants of higher socioeconomic status are numerous. It is possible that such individuals have access to a wider choice of meals, among which would be healthier foods of higher quality. Moreover, these respondents may have superior access to information on the damaging effects of fast food and dietary guidance from professionals. Being more educated on these matters may make them more disciplined and resilient to persuasion by the advertisement of HFSS foods.

Fast food cravings and Body Mass Index (BMI)

In order to better understand the relationship between fast food ads and obesity, the mean scores were additionally analysed alongside the BMI ranges of the respondents. For reference, the options provided to participants for specifying their BMI were: <16, 16-17, 17.1-18.5, 18.6-25, 25.1-30, 30.1-35, 35.1-40 and over 40. The mean score for those in the ‘<16’ was 2.1, 3.3 for the ‘16-17’ group, 3.5 for the ‘17.1-18.5’ group, 4.2 for the ‘18.6-25’ group, 6.4 for the ‘25.1-30’ group, 8.8 for the ‘30.1-35’ group, and 8.6 for the ‘35.1-40’ group. There were no respondents in the ‘over 40’ category.

Discussion

The results show a positive correlation between the Body Mass Index of the participants and their reported intensity of cravings after being exposed to HFSS food adverts. The increase in the mean scores is particularly sharp on the threshold of a BMI of 30, which is scientifically considered to be the beginning of the obese range. One interpretation of this observation is that the individuals who are less disciplined and more impulsive towards the consumption of fast food end up acting on their cravings to a greater extent, resulting in a higher BMI over time, potentially as far as reaching obesity status. However, from another perspective, this observation may raise more questions than answers. Even if there were to exist a causal relationship between ad-induced cravings and obesity, the direction of such causality would remain unclear based on this data alone. It would not be unreasonable to argue that individuals with a higher Body Mass Index are inherently more attracted to HFSS foods and therefore this would lead to them selecting a higher score for the question, as opposed to the ads themselves making them crave such foods in the first place.

Fast food cravings and daily internet usage

The final comparison was made between the scores related to the intensity of cravings triggered by fast food ads and the time respondents reportedly spent on the internet on an average day. In submitting their internet usage time, participants were provided with the options: 0-2 hours a day, 3-5 hours a day, 6-8 hours a day, 9-11 hours a day, and 12 or more hours a day. The mean scores were calculated for participants within each of these categories. The means were 2.7, 4.3, 7.2, 7.7 and 9.3 for the participants in the 0-2 hours a day, 3-5 hours a day, 6-8 hours a day, 9-11 hours a day, and 12 or more hours a day group respectively. The grouping of respondents did not account for any other participant attributes.

Discussion

The broad picture painted by this comparison is that a positive correlation is present in the sample data between the length of time individuals use the internet per day and the intensity of the cravings for junk food induced by encountering ads for these products. Another striking characteristic of this data is that there was by and large no diminishing marginal rise in the mean

score, even at the upper end of the internet usage scale. The individuals spending 12 more hours a day on the internet reportedly had a 1.6-point stronger craving on average than those spending 9 to 11 hours a day in the online space. While no existing literature has been examined as part of this thesis to suggest this is an unusual result, intuition would dictate that a marginal increase in online exposure may not increase cravings by such a significant magnitude when the time spent on the internet is already very long. It must be considered that only 14 participants reported using the internet for 12 or more hours daily, hence generalisations derived from this comparison must be treated with caution. Nevertheless, it appears that heavy internet usage is associated with stronger ad-induced fast food cravings. The difficult facet is that multiple possible explanations for this phenomenon exist. One interpretation is that spending more time online will, on average, result in exposure to more fast food ads, and their sheer quantity may have an amplified effect on the individual's cravings. A second theory may be that prolonged internet activity reduces one's attention span and makes them more impulsive, and therefore more vulnerable to persuasion by such advertisements. Other reasonable hypotheses could be formed as justifications for this observation. The comparison so far suggests that the removal of junk food ads might have a greater positive impact on reducing the consumption of HFSS foods in heavy internet users. However, this has not been tested with sufficient statistical rigour to establish causality.

Online fast food ad exposure in the sampling frame

A further objective of the survey was gauging the level of exposure of individuals to fast food advertisements, both while using the internet and while watching television, as it is these two media which would experience the proposed junk food ad ban should a bill be passed. These two branches were investigated individually. Participants were firstly asked the question "How often do you see fast food adverts while surfing the web?", with their response options being 'not at all', 'rarely', 'occasionally', 'often', 'very often' and 'all the time'. A summary of the results obtained from across the combined cohort of respondents is displayed in Figure 1.

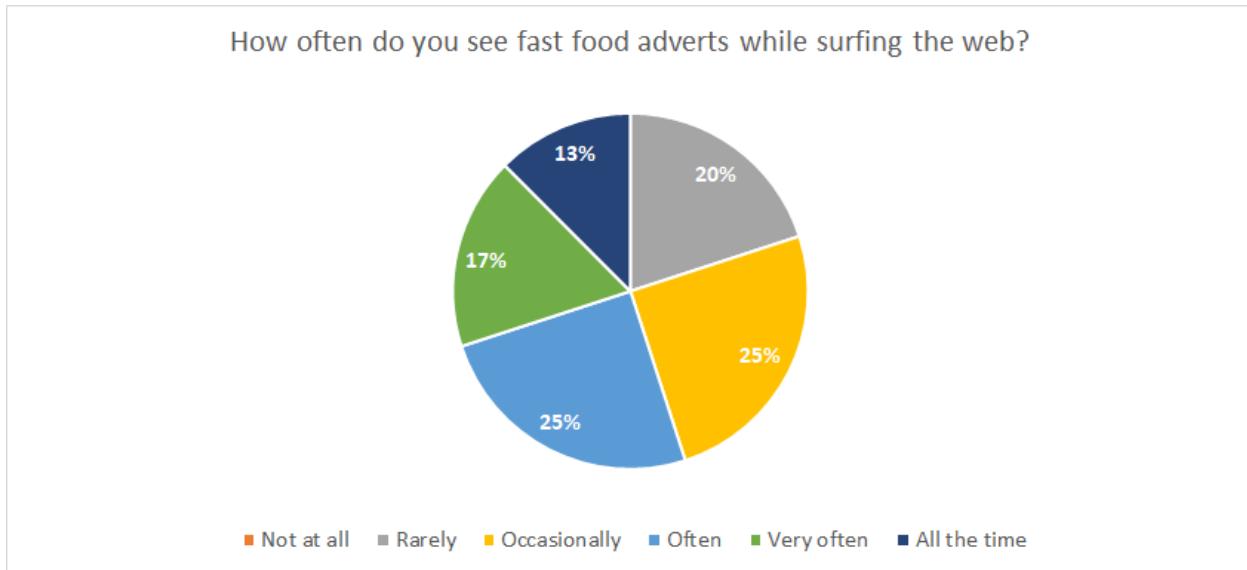


Figure 1. Frequency of exposure to online fast food ads in participants (all age groups)

Discussion

The first striking (albeit perhaps unsurprising) observation from the data is that all respondents experience at least some exposure to fast food ads in the online space - none of the 200 participants selected the 'not at all' option. It is furthermore apparent that fast food adverts are highly prevalent on the web from this data, with 55% of respondents reporting seeing such ads often, very often, or all the time. However, the pie chart combines the entire sampling frame, thus masking discrepancies in the exposure to ads across between sub-groups.

In order to overcome this limitation, the sample population was divided into two factions based on age: over 25s and under 25s. This divided the respondents into two groups of approximately equal size (105 under 25s and 95 over 25s). Age was selected as a differentiator based on the intuition that younger individuals, on the whole, invest more time in surfing the web, and the average youth may therefore not be comparable to a more senior person. The responses of these two groups are compared side-by-side in the bar chart in Figure 2.

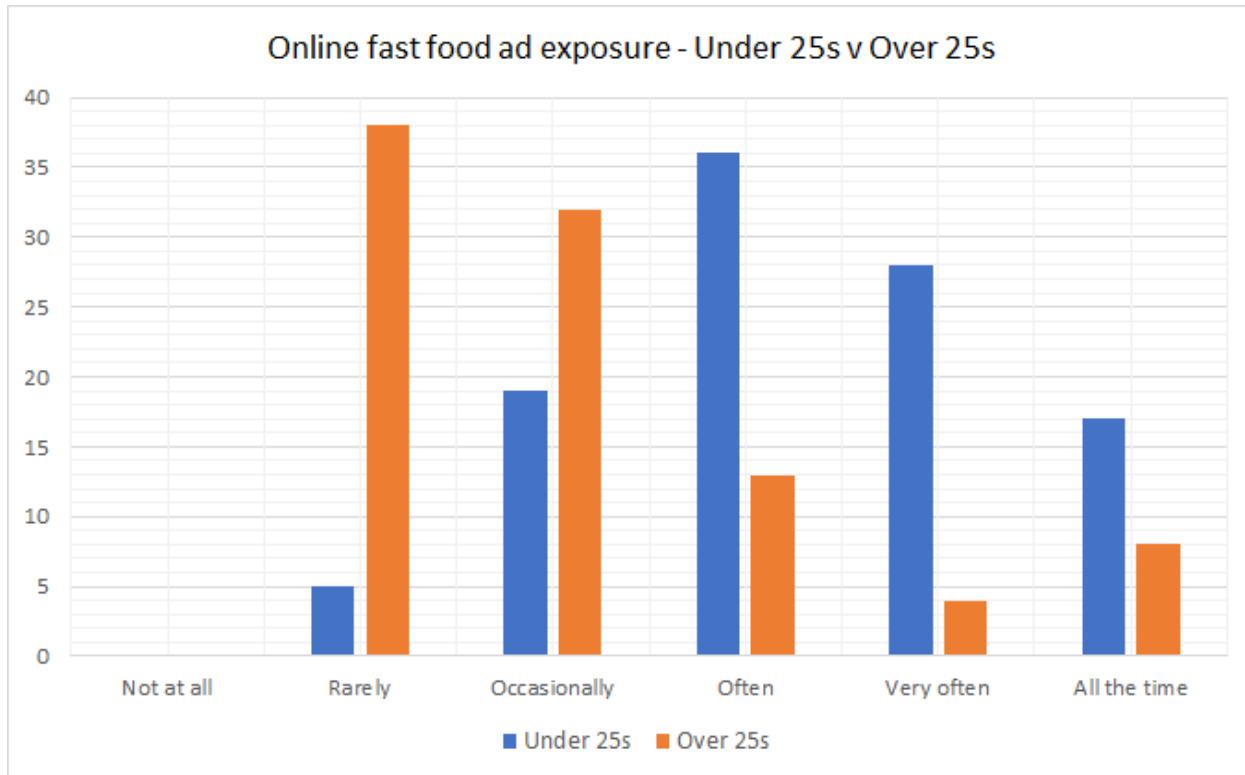


Figure 2. Online fast food ad exposure of under 25s compared to over 25s

It can be seen that the exposure of the under 25s to online fast food ads is generally substantially higher than that of the over 25s. The modal response for the under 25s group was ‘often’, while the modal response for their older counterparts was ‘rarely’. Moreover, the proportion of under 25s who reported seeing junk food adverts often, very often or all the time in the online space was 77.1%, compared to 26.3% in the case of the over 25s. While this in and of itself does not reveal the potential impact of a government policy banning HFSS food adverts, any effect it may have may be more strongly felt by the younger demographic due to their superior exposure to such material. However, a simple reduction in the level of exposure to advertising content cannot be taken to translate into a proportionate change in the attitudes and habits of the youth (or, indeed, of any other demographic). Establishing the ultimate effect on fast food consumption and obesity rates therefore requires additional data to be collected and analysed in conjunction with exposure levels.

Fast food ad exposure and frequency of HFSS food consumption

In order to shed more light on the association between the level of exposure to fast food ads and obesity, comparisons were made between the frequency with which participants reported to have seen such ads online and on television and their answers to the question “On average, how many times do you have fast food in a week?”. The response options provided were: ‘never’, ‘1-2 times’, ‘3-4 times’, ‘5-6 times’ and ‘7 or more times’. The answers to this question were grouped based on the responses to “How often do you see fast food adverts while surfing the web?” and mean scores were calculated. This was achieved by representing ‘never’ as a score of 0, ‘1-2 times’ as 1.5, ‘3-4 times’ as 3.5, ‘5-6 times’ as 5.5 and ‘7 or more times’ as 7.5. None of the participants responded with ‘not at all’, hence a mean number of weekly fast food meals could not be calculated for this group. In the case of the individuals who answered ‘rarely’, the mean number was 0, 1.1 fast food meals per week for ‘occasional’ respondents, 1.6 for those who responded with ‘often’, 3.6 for ‘very often’ and 3.9 for participants who reported seeing online fast food ads ‘all the time’. The same calculation was performed for the groups of respondents to the question “How often do you see fast food adverts while watching television?”. The survey respondents in the ‘not at all’ category had a mean number of fast food visits of 0, those who answered ‘rarely’ recorded a mean of 0.6, those in the ‘occasionally’ category a mean of 1.7, while the participants in the ‘often’, ‘very often’ and ‘all the time’ groups had a mean of 2.3, 3.6 and 4.2 respectively.

Discussion

There appears to be a positive correlation between the number of times the survey participants report to consume fast food in a week and the level of exposure to HFSS food advertisements, both on television and on the internet. The ascent of the mean scores with increasing exposure for the two media are comparable, although the range of scores was marginally greater for television ads. In both categories, the most significant increases in weekly fast food visits

occurred between the ‘often’ and ‘very often’ categories, with the change in scores across the other responses being relatively gradual. This may indicate that the problematic aspect of these ads is realised most at a high level of exposure, albeit it does not establish causality. It may be the case that a mere reduction in the prevalence of HFSS food advertisement could be sufficient to effect a significant positive change in people’s consumption habits, and thus the rates of obesity. The next question is which of the two forms of ads, television or web-based, the government should focus on to achieve such improvements. As far as the survey is concerned, the modal response for the frequency of exposure to online fast food ads was ‘often’, while the modal response for television ad exposure frequency was ‘occasionally’. It is an acknowledged fact that the online space has become broader and more widely-adopted than television channels, especially by the younger generations. It is important to note that the sample population has a moderate skew towards younger respondents, hence the dominance of either form of ad medium is inconclusive at this point.

Fast food ad exposure and waist circumference

The level of exposure to online and television fast food ads was additionally compared to waist circumference as a supplementary indicator of obesity. Respondents were asked the question “What is your waist circumference (in cm)?”, and were offered the following options based on the National Health Service Waist Circumference scale: ‘less than 80 cm’, ‘80-90 cm’, ‘91-94 cm’, ‘95-100 cm’, ‘101-105 cm’ and ‘more than 105 cm’. Participants were once again divided into the level of exposure they had first to online fast food ads, and second to television ads. As the answer options were provided as ranges, the midpoint of each category was used to compute the mean waist circumference in each group. For the ‘less than 80 cm’ and ‘more than 105 cm’ groups, however, the circumference used was 80 cm and 105 cm respectively.

Online fast food ads

For those who responded with ‘rarely’, the mean waist circumference was 86.3 cm, while the mean figures for the ‘occasionally’, ‘often’, ‘very often’ and ‘all the time’ categories were 87.8 cm, 90.8 cm, 94.7 cm and 97.6 cm respectively. No responses were recorded in the ‘not at all’ bracket. These groups contained a combination of ages, genders and socioeconomic

backgrounds. The comparison was repeated with genders divided into male and female. This is because the standards for obesity differ for the two groups (female obesity is categorised as a waist circumference of 88 cm or above, whilst a circumference in excess of 102 cm is considered to be the obesity threshold in men). Amongst the men, none responded with ‘not at all’ or ‘all the time’ to the online ad exposure question. Those who responded with ‘rarely’, ‘occasionally’, ‘often’ and ‘very often’ averaged waist circumferences of 90.0 cm, 92.9 cm, 96.9 cm and 103.7 cm respectively. By comparison, the female respondents in the same categories reported mean waist circumference measurements of 84.0 cm, 84.5 cm, 88.3 cm and 90.0 cm. Those who answered ‘all the time’ had a mean circumference of 96.6 cm.

Television fast food ads

Respondents’s mean waist circumferences in the ‘not at all’, ‘rarely’, ‘occasionally’, ‘often’, ‘very often’ and ‘all the time’ groups were 85.4 cm, 92.0 cm, 92.6 cm, 89.2 cm, 96.4 cm and 93.3 cm respectively. The gender separation process was replicated for television fast food ads. There were male respondents across all six answer options (‘not at all’,..., ‘all the time’), in which the following mean waist circumferences were reported (in order): 88.8 cm, 93.8 cm, 95.1 cm, 98.9 cm, 99.8 cm and 100.6 cm. In the case of the female participants, the measurements for the same groups were 82.0 cm, 84.4 cm, 85.6 cm, 86.3 cm, 89.2 cm and 93.1 cm.

Discussion

It can be observed from the data that, on both an aggregate and a gender basis, there is a positive correlation between the level of exposure to fast food ads (both online and televised) and mean waist circumference. In the case of male respondents, the only group to exhibit a mean circumference past the obesity threshold was the ‘very often’ category at 103.7 cm. The lack of male data points in the ‘all the time’ category is a shortcoming of the survey results. By contrast, none of the male respondent groups displayed a mean waist circumference in the obese range when questioned about their exposure to televised fast food ads (not even the men in the ‘all the time’ bracket). This suggests that the online space may be a more potent influence on the decisions made by men in relation to their nutrition, albeit it does not establish a causal link. The

case of female respondents is rather different. As far as online fast food ads are concerned, females in the ‘often’, ‘very often’ and ‘all the time’ groups recorded mean waist circumference measurements lying in the obese bracket. This may indicate that the female population is more susceptible to the persuasive effects of online HFSS food advertisement. Investigating the same figures for television ad exposure reveals a less extreme trend. Only the women who answered ‘very often’ and ‘all the time’ exhibited mean waist circumference categorised as obese, and those in the ‘all the time’ group had measurement of 3.5 cm greater than the counterpart bracket for online ads. It therefore appears to also be the case for women that online junk food ads have a more severe association with high waist circumference figures than televised ads, and that the relationship is stronger among the female population. By this theory, a government ban on fast food advertisement may yield superior results for the female community in the online space, all else being equal. However, it must be considered that the study by Powell et al fails to establish the significance of a link between fast food advertising exposure and consumption when integrating the heterogeneities across individuals.

Conclusion

Any framework for projecting the impact that a government ban on fast food advertising would have on obesity rates is influenced by the consideration that the damage may already have been done. The vast majority of teenagers and adults across all socioeconomic backgrounds have been repeatedly exposed to, and are aware of, the existence and product offering of major fast food chains. Beyond relevant heterogeneities accounted for in this thesis and in wider literature, personal discipline and beliefs are key drivers of the decision-making process over the consumption of fast food, which is undergone on a regular basis by us all. From this perspective, a governmental ban seeking to reduce exposure may not deliver substantial changes. However, as shown by the survey results, impulsive behaviour upon exposure to such stimuli is associated with fast food consumption, which may be reduced should the stimuli be eliminated.

Furthermore, arguments may be made for the beneficial impact a ban on advertising would have on children. Academic research has long established that this demographic has a significantly more fluid concept of ‘right’ and ‘wrong’, and their actions and wishes are more malleable than those of adults. It is therefore reasonable to infer that obesity statistics across the younger

demographics could benefit from a ban, which may extend to a long-term reduction in rates of obesity in the adult population upon maturity. The study of this issue remains, however, incomplete. Intuition dictates that parents and guardians exert significant influence over an individual's early years. A rigorous statistical model would incorporate the attitudes of adults towards the consumption of fast food and how these attitudes ultimately impact children's relationship with HFSS foods. Moreover, the survey produced as part of this study fails to account for ethnicity as a relevant factor in the fast food-obesity equation. The Marmot Review produced in 2008 finds this to be a statistically significant characteristic when predicting an individual's likelihood of becoming obese, and as such the sample population could have been segregated by ethncical background to obtain a more comprehensive understanding of the observations. A multivariable regression would once again be suitable for integrating the causal effect of ethnicity into the model.

The subject of fast food and obesity cannot be neglected. The negative ramifications for society and the public sector have already been substantial, and under circumstances, the situation is only predicted to aggravate. Societal changes are increasingly encouraging lower activity levels (with a rising proportion of jobs being office-based or remote) and unhealthy eating habits (with a vast selection of high-calorie foods being significantly more accessible than healthier alternatives). This is a particular issue in developed economies such as the United Kingdom. It is therefore essential that such topics continue to be researched with the purpose of generating solutions for the future. This thesis concludes that a government ban on internet and television fast food advertising would be a step in the right direction. However, it should be treated as just that - a step. Should it come into effect, the primary objective of the government would be to study the data for signals of changes in consumer attitudes and habits in relation to fast food. A behavioural change is unlikely to be immediate, however. Much akin to being freed from political indoctrination, it is highly probable that individuals who have already had extended exposure to fast food advertising will not alter their behaviour suddenly. Rather, the process would unfold over months, if not years, and obesity data figures will reflect this gradual shift. This makes the implementation of an action plan towards combating fast food-induced obesity an even more pressing priority.

Reference list

- American Psychological Association (2010). The Impact of Food Advertising on Childhood Obesity. <https://www.apa.org>. [online] Available at: <https://www.apa.org/topics/kids-media/food>.
- Andreyeva, T., Kelly, I.R. and Harris, J.L. (2011). Exposure to food advertising on television: Associations with children's fast food and soft drink consumption and obesity. *Economics & Human Biology*, 9(3), pp.221–233.
- Burgoine, T., Sarkar, C., Webster, C.J. and Monsivais, P. (2018). Examining the interaction of fast-food outlet exposure and income on diet and obesity: evidence from 51,361 UK Biobank participants. *International Journal of Behavioral Nutrition and Physical Activity*, 15(1).
- Calitri, R., Pothos, E.M., Tapper, K., Brunstrom, J.M. and Rogers, P.J. (2010). Cognitive Biases to Healthy and Unhealthy Food Words Predict Change in BMI. *Obesity*, 18(12), pp.2282–2287.
- Childhood Obesity – Food Advertising in Context. (2004). [online] Available at: https://www.ofcom.org.uk/__data/assets/pdf_file/0020/19343/report2.pdf.
- D. Bolls, P., Wise, K. and D. Bradley, S. (2019). Embodied Motivated Cognition: A Theoretical Framework for Studying Dynamic Mental Processes Underlying Advertising Exposure.
- EFSA (n.d.). *Technical Assistance in the Field of Risk Communication*.
- Keaver, L., Xu, B., Jaccard, A. and Webber, L. (2018). Morbid obesity in the UK: A modelling projection study to 2035. *Scandinavian Journal of Public Health*, 48(4), pp.422–427.
- Lang, P.J. and Bradley, M.M. (2010). Emotion and the motivational brain. *Biological psychology*, [online] 84(3), pp.437–50. Available at: <https://www.ncbi.nlm.nih.gov/pubmed/19879918>.
- NHS Digital (2019). *Statistics on Obesity, Physical Activity and Diet, England, 2020*.

O'Connell, M., Smith, K. and Stroud, R. (2020). *Could restricting junk food advertising reduce obesity?* [online] ifs.org.uk. Available at: <https://ifs.org.uk/publications/14963> [Accessed 11 Jun. 2021].

Powell, L.M., Wada, R., Khan, T. and Emery, S.L. (2017). Food and beverage television advertising exposure and youth consumption, body mass index and adiposity outcomes. *Canadian Journal of Economics/Revue canadienne d'économique*, 50(2), pp.345–364.

Public Health England (2017). *Health matters: obesity and the food environment.* [online] GOV.UK. Available at:
<https://www.gov.uk/government/publications/health-matters-obesity-and-the-food-environment/health-matters-obesity-and-the-food-environment--2>.

REISCH, L.A. and ZHAO, M. (2017). Behavioural economics, consumer behaviour and consumer policy: state of the art. *Behavioural Public Policy*, [online] 1(02), pp.190–206. Available at:

<https://www.cambridge.org/core/journals/behavioural-public-policy/article/behavioural-economics-consumer-behaviour-and-consumer-policy-state-of-the-art/2141A51B066F5031F4E97006A1DC2BE4>.

Rodgers, S. and Thorson, E. (2012). *Advertising Theory*. Routledge.

Rutsaert, P., Pieniak, Z., Regan, Á., McConnon, Á., Kuttschreuter, M., Lores, M., Lozano, N., Guzzon, A., Santare, D. and Verbeke, W. (2014). Social media as a useful tool in food risk and benefit communication? A strategic orientation approach. *Food Policy*, 46, pp.84–93.

World Health Organization (2020). *Obesity and overweight.* [online] World Health Organization. Available at: <https://www.who.int/news-room/fact-sheets/detail/obesity-and-overweight>.

Yau, A., Adams, J., Boyland, E.J., Burgoine, T., Cornelsen, L., de Vocht, F., Egan, M., Er, V., Lake, A.A., Lock, K., Mytton, O., Petticrew, M., Thompson, C., White, M. and Cummins, S. (2021). Sociodemographic differences in self-reported exposure to high fat, salt and sugar food and drink advertising: a cross-sectional analysis of 2019 UK panel data. *BMJ Open*, 11(4), p.e048139.

Young, B. (2003). Does food advertising make children obese? *Young Consumers*, 4(3), pp.19–26.

YU, H.J. (2011). Parental Communication Style's Impact on Children's Attitudes Toward Obesity and Food Advertising. *Journal of Consumer Affairs*, 45(1), pp.87–107.

Abstract

Questa tesi ricerca la relazione tra l'influenza della pubblicità dei fast food, online e attraverso la televisione, e i tassi di obesità nel Regno Unito. La domanda della mia ricerca è stata ispirata dagli annunci fatti dal governo del Regno Unito nel novembre 2020, secondo cui è allo studio una proposta di legge che vieta tutte le pubblicità di fast food online e gli annunci televisivi prima delle 21:00. La tesi ha cercato di fornire maggiore chiarezza sui possibili impatti di tale regolamento. La struttura dell'elaborato inizia con l'introduzione, seguita dal riesame della letteratura, metodologia, implicazioni etiche, risultati del sondaggio, conclusione ed elenco dei riferimenti. L'introduzione si apre stabilendo la definizione accettata per l'obesità secondo l'Organizzazione Mondiale della Sanità (OMS), sia in termini di indice di massa corporea (BMI) che di circonferenza della vita. Procede a riassumere le statistiche chiave relative all'obesità per giustificare l'importanza di intraprendere questo studio. È stato stimato che oltre 2,8 milioni di decessi si verificano ogni anno in tutto il mondo come conseguenza diretta dell'obesità. Il Regno Unito ha il terzo più alto tasso di obesità tra le nazioni europee e si prevede che le cifre aumenteranno nei prossimi 15 anni. L'introduzione definisce inoltre i confini dello studio specificando che la pubblicità di fast food in questione è per la promozione di alimenti ricchi di grassi, zuccheri o sale (HFSS, High Fat Sugar or Salt, acronimo a cui farò riferimento nella mia esposizione).

La sezione "Riesame della letteratura" discute i progressi accademici esistenti compiuti sul tema della pubblicità dei fast food e dei suoi legami con i tassi di obesità. Un denominatore comune delle fonti analizzate era che individui diversi per età, background socioeconomico e livello di istruzione, mostrano discrepanze nel modo in cui reagiscono alle forme televisive e online di pubblicità alimentare HFSS. La maggior parte della letteratura sull'argomento indaga il caso specifico dei bambini piccoli. È stato stabilito che la loro demografia è più malleabile nel pensiero e negli atteggiamenti verso un particolare argomento (in questo caso il fast food), tuttavia non è stato fatto alcun confronto chiaro tra gli effetti mostrati da adulti e bambini.

Uno dei risultati più sorprendenti identificati nel riesame della letteratura è stato ottenuto da Powell e Lisa, che hanno trovato un rapporto inesistente tra il consumo di fast food e l'influenza della pubblicità degli stessi fast food dopo aver identificato una serie di divergenze nella popolazione campione. Da questo risultato si potrebbe ipotizzare che eventuali sviluppi positivi osservati a seguito dell'imposizione del proposto divieto di pubblicità sarebbero attribuibili alle caratteristiche degli individui. Tuttavia, eventuali impatti positivi potrebbero non essere osservati (o, almeno, non sulla stessa scala) se il nuovo regolamento non dovesse essere approvato.

La sezione sulla Metodologia fornisce una ripartizione della strategia che è stata messa in atto durante l'indagine della domanda di ricerca. Inizia delineando le branche dell'economia comportamentale che sono state utilizzate come strutture per analizzare sia i dati primari che quelli secondari raccolti. La sezione specifica, inoltre, la natura dell'indagine su 200 intervistati che ha costituito l'elemento di dati primario dello studio. È stato chiesto a 200 persone che vivono nel Regno Unito di tutte le età e contesti socioeconomici di completare il sondaggio. La sezione "Implicazioni etiche" spiega le misure di conformità adottate per garantire l'integrità e la moralità dello studio. Nello specifico, include una dichiarazione di esclusione di responsabilità sulla protezione dei dati, nonché un'esposizione sul fatto che le risposte dei partecipanti al sondaggio non siano state influenzate e, in quanto tali, i dati sono rappresentativi delle loro vere scelte di risposta.

La sezione "Risultati del sondaggio" è suddivisa in base alle tematiche che derivano dalle domande poste ai partecipanti. Ciascuna di queste sezioni contiene una sintesi dei risultati (quantitativa) seguita da una sottosezione di discussione che interpreta il significato delle cifre nel contesto più ampio dello studio. Il primo tema riguarda l'associazione tra l'intensità del desiderio di fast food dopo aver visto una pubblicità dello stesso, e l'età della persona. Questo aspetto è stato esaminato al fine di superare il limite comune della letteratura esistente, ossia una mancanza di confronto tra i gruppi di età. È stato riscontrato che i partecipanti più giovani hanno mostrato una maggiore sensibilità agli stimoli pubblicitari rispetto ai più anziani. Il punteggio che misura il desiderio è risultato essere 3 volte più grande per la fascia di età più giovane rispetto al gruppo più anziano nello studio. Le voglie sono state esaminate anche rispetto al contesto socioeconomico, il che ha prodotto risultati coerenti con la letteratura, in cui gli individui di uno stato socioeconomico inferiore sono più inclini agli stimoli legati al fast food. Il

confronto delle voglie con il BMI (Body Mass Index) degli intervistati ha rivelato che i partecipanti con un BMI più elevato hanno anche riportato voglie più forti dopo essere stati esposti ad annunci online o televisivi. I punteggi medi del desiderio negli individui che rientrano nella categoria "Obeso" erano fino al 67% più alti (indicando un desiderio più forte) rispetto ai gruppi all'interno di parametri sani.

Il livello di esposizione agli annunci di fast food online e televisivi è stato modulato rispetto all'età dei partecipanti al sondaggio, al fine di indagare quale fascia demografica potrebbe essere maggiormente influenzata dal nuovo regolamento. È stato riscontrato che gli intervistati più giovani hanno riportato la più alta esposizione sia alla pubblicità televisiva che a quella dei fast food online, sebbene il risultato sia stato più estremo per gli annunci online. Di conseguenza, è possibile che un divieto abbia un forte impatto sull'esposizione vissuta dalla fascia demografica più giovane.

Lo studio ha rivelato, confrontando l'esposizione agli annunci di fast food su Internet o in televisione, e la circonferenza vita delle persone e separando gli intervistati di sesso maschile e femminile, che gli uomini che affermavano di vedere gli annunci online "molto spesso" avevano, in media, una circonferenza vita di 103,7 cm, ponendosi all'interno della categoria "Obeso". Le donne che sono state esposte alla pubblicità online "spesso", "molto spesso" o "sempre", in media avevano una circonferenza di vita ingente, che le faceva rientrare nella fascia di obesità. Al contrario, nessun gruppo maschile ha mostrato una circonferenza vita media oltre la soglia, indipendentemente dal livello di esposizione agli annunci televisivi. Tuttavia, le donne che hanno visto tali annunci "molto spesso" o "sempre" avevano una circonferenza vita in media che superava la soglia di "Obesità" di 88 cm. Sembra che gli annunci online siano correlati a tale circonferenza vita, a parità di condizioni, e quella delle donne appare maggiormente legata all'esposizione pubblicitaria rispetto a quella degli uomini. Sebbene non si possa presumere che ciò possa stabilire la causalità, è probabile che il divieto proposto avrebbe un impatto più forte sulla fascia femminile, in base alla popolazione campione nello studio.

I temi principali della teoria economica comportamentale e della psicologia che si sono presentati nello studio della pubblicità dei fast food e dei tassi di obesità sono: la pubblicità

ricorrente ed il comportamento di acquisto dei consumatori. Gli annunci alimentari HFSS sono noti per la loro natura visiva, che spesso esagera l'appeal dei prodotti. Secondo i rapporti del settore, esaminati come parte della ricerca secondaria di questo studio, le aziende hanno fatto ampio uso di tipici pregiudizi umani e comportamenti impulsivi spesso innescati da stimoli visivi. L'analisi del comportamento di acquisto dei consumatori è stata incentrata sull'identificazione degli aspetti rilevanti per gli individui che sono stati trovati per convincerli a consumare alimenti HFSS, ma che non erano correlati al cibo stesso. La ricerca secondaria ha rivelato che l'esaltazione e l'aspetto sociale dell'esperienza del fast food hanno contribuito in modo significativo al processo decisionale di un agente. Promuovere tali associazioni e immagini è un'ulteriore capacità delle società pubblicitarie, che incrementano in larga misura. Questa analisi ha indicato l'ipotesi dello studio sulla posizione secondo cui un divieto di pubblicità avrebbe il potenziale di ridurre al minimo lo sfruttamento dei pregiudizi umani intrinseci e limitare il consumo di fast food guidato dall'impulso che alla fine può portare a un aumento dei tassi di obesità.

L'analisi conclusiva considera la realtà che un divieto della pubblicità dei fast food non sarebbe in grado di contrastare l'effetto che ha già avuto su adulti e adolescenti in termini di atteggiamento nei confronti degli alimenti HFSS e, indirettamente, sui tassi di obesità nel Regno Unito. L'analisi ha raggiunto la convinzione che i benefici più significativi potrebbero essere osservati in coloro che sono attualmente bambini molto piccoli, poiché non avrebbero avuto l'esposizione delle generazioni più anziane. Tuttavia, i bambini piccoli sono sotto l'autorità dei loro genitori e tutori e adottano le loro abitudini, quindi è probabile che anche questi benefici sarebbero distorti in modo significativo da fattori ambientali. Un'ulteriore scoperta è stata che il consumo di fast food relativo al comportamento impulsivo potrebbe essere ridotto dal divieto proposto, mentre l'effetto sulle abitudini radicate sarebbe significativamente meno potente. Infine, lo studio riconosce i suoi limiti nella ricerca perché esistono fattori di casualità, molti dei quali potrebbero essere superati introducendo un "modello di regressione" come parte di ulteriori ricerche. In futuro, il potenziale per avvalorare un divieto governativo sulla pubblicità online e televisive è accreditato e degno di ampia considerazione. La legislazione richiederebbe clausole meticolose per limitare le scappatoie a disposizione delle aziende di fast food e delle agenzie

pubblicitarie nell'intento di adeguare i loro sforzi di marketing. In questo modo, qualsiasi potenziale rialzo di tale regolamentazione potrebbe essere ottenuto senza essere intaccato.