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Writing 5: Food for Thought

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Deliberately Deceptive Food Labeling: An Ongoing Conflict Between Consumer and Industry with Obesity in the Balance

It is widely known that America is struggling with an obesity crisis. In 2014, 35.0 percent of adult men and 40.4 percent of adult women were obese (Flegal et al., 2016) and the trend is increasing at a dramatic rate for children with obesity rates more than tripling since the 1970s (Nestle, 2006). Couple these dramatic increasing rates of obesity with the well-studied link between obesity and chronic illnesses, and you have a deadly crisis on your hands; in 2010 alone, more than 11 million deaths worldwide resulted from diseases related to unhealthy diet and obesity including diabetes, cancers, and cardiovascular diseases (Lim et al., 2012). A major contribution to this crisis is the oversaturation of unhealthy processed foods on the market. These foods provide a large profit margin for the food companies which is much more important to them than the health of their customers. Clearly, consumers must make healthier food decisions to combat this crisis, and one such solution is mandating federal regulation of packaged food labels which would direct consumers towards these healthy options. The U.S. Food and Drug Administration (FDA) enacted the first label regulation legislation in 1906, and increased requirements in the years following, much to the chagrin of food companies. The evolution of such regulations includes the now ubiquitous Nutrition Facts Label which was mandated in 1990. While studies indicate that federally regulated food labeling–especially the Nutrition Facts Label–largely help consumers make healthier food choices, food companies continue to mislead

their customers through less regulated methods on labels, contributing to the obesity crisis in America.

The Federal Food and Drugs Act of 1906 introduced the first regulations on what food and drug companies were allowed to put on their food labels regarding health claims. Prior to that legislation, this lack of regulation meant that food companies were able to place wild claims on their packaging such as curing disease or injury (Hutt, 1986) A label of a product seized in 1911 under the new act is as follows:

> *"Grant's Hygienic Crackers. No predigested stuff are they, but solid food for work or play. Just read what leading doctors say of Grant's Hygienic Crackers for Constipation, Indigestion, Dyspepsia and Sour Stomach. Ideal food for general family use. A daily regulator. A week's trial will convince you. Eaten daily in place of bread will keep the system in perfect order, Recommended & prescribed by leading physicians & dentists"* (United States v. Hygienic Health Food Co., 1911 in Hutt, 1986).

Such claims were often found on labeling prior to the FDA legislation, but they were quickly eliminated following the 1906 Act (Hutt, 1986). However, since the Act only applied to food labels, companies were still able to mislead consumers in advertisements and other mediums.

The Food, Drug, and Cosmetic (FD&C) Act was enacted in 1938 to replace and modernize the 1906 Act. In this new legislation, food was deemed to be misbranded if "its labeling is false or misleading in any particular" as opposed to "false and fraudulent" in the 1906 Act (Hutt, 1986). This new wording encompassed a wider range of tactics employed by food companies to sell their packaged foods with greater effectiveness and allowed court rulings more flexibility to seize a product. The act also required that "in the opinion of 20 percent of the medical fraternity [the product] may be of value in the treatment of the ills and of the symptoms indicated" (Hutt, 1986), and this addition was largely introduced to combat the rampant

misinformation surrounding vitamins which were the novel ‘cure-all’ of the time. In 1939, the FDA ran a successful prosecution against a producer of a vitamin product “bearing extravagant therapeutic claims” which “consisted essentially of milk sugar, wheat starch, wheat bran, and epinephrine, and purported to contain vitamins A, B, C, D, E, F, and G” for "such ailments as Bright's disease, high blood pressure, low blood pressure, dropsy, toxic goiter, and heart disease” (1939 Annual Report 24 in Hutt, 1986). Though this legislation was more effective at combatting false and misleading food claims than the last, it was still up to the customers to assume the general healthfulness of a packaged food product as labels were mandated no contain no more than an ingredient list.

In the late 1960s, the massive boom of processed foods on the market instigated changes to nutrition labeling, though the implementation was voluntary. Another addition to the customers’ increased desire for nutrient information was the improved understanding of the relationship between diet and obesity. Furthermore, novel studies linking obesity with diseases such as heart disease and cancer finally spurred legislative action on nutrition labels, and the Nutrition Facts Label (NFL) was established by the Labeling and Education Act (NLEA) of 1990 (Dumoitier et al., 2019; Union of Concerned Scientists, 2016). The FDA intended the NFL to communicate the nutrient profile of processed foods and ideally allow customers to make informed decisions when purchasing packaged foods. The original NFL resembles the one on packaged foods today with how it included the mandatory listing of calories, fat, saturated fat, cholesterol, sodium, carbohydrate, fiber, protein, sugars, vitamins A and C, calcium, iron. Additional nutrients were required to be when claims were made about them (Wartella, 2010). It also required that these nutrients be presented in the context of a daily diet so that customers would better understand how to interpret the NFL. However, having nutrient information on

packaged foods is only beneficial if customers are informed in food science, and thus the FDA pushed for health education in schools and for the general public. (Dumoitier er al., 2019).

Unsurprisingly, food companies largely opposed proposals for the NLEA in the years leading up to 1990 because the act would shatter their ability to minimize cost and maximize profits by packing their products with cheap, nutrient-less ingredients. Many companies opposed the NLEA because of a "fear that some foods would appear less healthy than others" (Union of Concerned Scientists, 2016); seemingly, the purpose of the act was successful with this reaction. The Frito-Lay Corporation asserted that "all of the information that the FDA [proposed to] be included on a label…would overwhelm and easily exceed the capacity of the average consumer to understand it" (Frito-Lay, Inc 1990 in Union of Concerned Scientists, 2016), showing that they were scared about how the NFL would make their products appear. Though the food industry has little independent scientific evidence to support their claims that the NFL and amendments to such would confuse or overwhelm customers (Union of Concerned Scientists, 2016), they still cite this claim in the face of any new FDA proposals. In 2014 for example, the FDA proposed an amendment to the NFL which would require companies to add a line listing the amount of added sugars and the percent daily value that amount represents to the NFL. The proposal included numerous rigorously reviewed scientific studies linking excessive sugar consumption to tooth decay, type 2 diabetes, and cardiovascular diseases (HHS and USDA 2015 in Union of Concerned Scientists, 2016). A 2014 study of 500 U.S. adults found that 63 percent of participants thought that the FDA's proposed 'added sugars line' would be helpful and only 18 percent thought that it would be confusing (Kyle and Thomas, 2014 in Union of Concerned Scientists, 2016). Despite these findings the Food Marketing Institute, a major food retailer trade organization, tried to manufacture uncertainty by questioning "whether customers will correctly

interpret the proposed added sugars declaration in the context of an overall, balanced diet" (FMI 2015 in Union of Concerned Scientists). Informed scientists and policy analysts assert that "consumers have a right to science-based nutritional information about the foods they eat…and our federal agencies have the responsibility to require food labels to reflect current scientific evidence and safeguard public health, whether or not the food industry objects." (Union of Concerned Scientists, 2016). The conflict between food companies and customers is particularly concerning because one side hopes to achieve financial gain at the expense of their customers' health and well-being, especially when one considers the danger of obesity.

Numerous studies have shown that the Nutrition Facts Label has a positive impact on customers choosing healthy foods, relative to customers who do not use the NFL. Before even going into how the NFL impacts customer buying patterns, studies have shown labeling requirements tailored towards a specific ingredient–in the context of an amendment to the NFL–tend to force food manufacturers to reformulate their products to reduce that specific ingredient (Union of Concerned Scientists); "Following the FDA's required labeling of trans fats in 2003, the food industry estimated that it had reduced trans fats content in foods 86 percent by 2015, and that consumption of trans fats dropped by 78 percent between 2003 and 2012 (Tavernise, 2015 in Union of Concerned Scientists) and as a result, trans fats levels in adults were reduced significantly (Vesper et al., 2012 in Union of Concerned Scientists, 2016). No wonder the food companies combatted the NLEA 1990 and further amendments to the act–it clearly throws a wrench in their products.

On top of its influence on food companies, the Nutrition Facts Label also impacts customer buying patterns in a positive direction towards healthfulness. A study by Cecchini and Warin (2015) showed that government-regulated food labels increase the number of people

making healthy food choices by nearly 18 percent. Furthermore, the NFL has also been shown to help people limit fat intake (Satia and Neuhouser, 2005 in Union of Concerned Scientists, 2016; Neuhouser and Patterson, 1999 in Union of Concerned Scientists, 2016). Predictably, a study by Deb and Vargas (2016) found that mandatory calorie labeling laws implemented recently (specifically the added sugars clause) have had substantial efforts in terms of decreased BMI. The study explored three subpopulations for each sex: normal weight, overweight, obese. The estimates for the models used in the study show that a majority of the effect is concentrated among the subpopulation of women classified as overweight, and for men, the effects were statistically significant for the normal weight subpopulation, and much higher for men in the overweight and obese classes (Deb and Vargas, 2016). On another note, a nationally representative survey in 2015 found that 76 percent of U.S. adults reported reading the NFL when purchasing packaged foods (Bleich and Wolfson, 2015 in Union of Concerned Scientists 2016), and information about sugar has been used by more than 60 percent of customers (Todd and Variyam, 2008 in Union of Concerned Scientists). Furthermore, Women older adults, high school educated adults, and those who are obese are most likely to read food labels as opposed to the general population (Union of Concerned Scientists, 2016). While the combination of studies measuring effectiveness of the NFL and studies reporting a large number of NFL-using customers should paint a positive light on the general healthfulness of the U.S. adult population, such obesity trends introduced in the beginning of this paper do not correlate. Clearly there are other factors at play which direct U.S. customers towards unhealthy food options.

Food fraud is a term that more collectively covers the food industry's misleading and deceptive actions which do not fall under the FDA's umbrella of regulation:

> *"Food fraud is a collective term used to encompass the deliberate and intentional substitution, addition, tampering, or misrepresentation of food, food ingredients, or food*

> *packaging; or false or misleading statements made about a product, for economic gain" (Spink and Moyer, 2011).*

For a population now obsessed with health, 'perceived healthfulness' means large 'economic gain for food companies. Thus, this paper will redefine the term 'food fraud' to highlight this correlation and append "or increase perceived healthfulness" to the end of Spink and Moyers definition.

Food companies most commonly place confusing nutrient content claims on packaging in order to mislead customers into perceiving foods as healthy. Food packaging oftentimes implicitly characterizes the level of a nutrient in a food using terms such "low," "high," "free," "reduced," or "light" (Negowetti, 2014). The FDA has established specific standards and definitions for each of these claims, but the customer can seldom comprehend these definitions on their own. What "low fat" is to one customer might be wildly different to another, and this gap in interpretation creates another gap–this time between the perceived healthfulness which differs between customers, and the actual healthfulness of a product. In particular, many studies have explored the shockingly high occurrence of customers misled by common whole grain labeling on packaging. In a study by Wilde et al. (2020), 29 to 47 percent of study participants incorrectly identified the less healthy product as the healthier option. In the second experiment, 43 to 51 percent overstated the amount of whole grains in mostly refined-grain products, and 17 percent of consumers understated whole-grain content of a product containing mostly whole-grains (Wilde et al., 2020). Clearly, the misleading packaging regarding nutrient claims prevails in deceiving customers.

While the FDA has these strict definitions for health and nutrient content claims, it does not authorize or pre-approve structure/function claims (Negowetti et al., 2020). Structure/function claims are those which pick a certain nutrient or ingredient and propose some

vague health benefit that can somewhat follow the science but is often hyperbolic. These claims do not even need a high level of scientific support to be included on packaging. Examples of such claims are “calcium builds strong bones,” “contains calcium for strong bones,” or simply “contains calcium” once customers have attained a positive correlation between calcium and bones from this bombardment of pseudoscientific claims (Negowetti et al., 2019; Wellard-Cole et al., 2019). Recent studies have found that many highly processed foods are commonly fortified with a specific positive nutrient such as calcium or iron just so that they display such structure/function claims slapped on their packaging (Wellard-Cole et al., 2019). Otherwise, these foods are often devoid of any nutrients that support a healthy diet other than their buzzword claim.

Furthermore, studies have shown that food companies often mislead and confuse customers with wildly inconsistent serving sizes and serving size terminologies. Studies have found that variation in labelled serving size affects the amount of nutrients reported on the NFL, and this inconsistency further muddles consumers’ perception of nutrition information beyond the methods already discussed in this paper (Kliemann et al., 2018). The U.S. legislation defines serving size as the “average amount customarily consumed in one occasion” (Kliemann et al., 2018), but this definition is inconsistent with the actual definition of serving size– “the amount recommended to be consumed in one eating occasion” (Kliemann et al., 2018). The legislation’s definition is more consistent with the meaning of ‘portion size’–the amount typically consumed in one sitting. Furthermore, the terms ‘serving size’ and ‘portion size’ are commonly used interchangeably (Van der Host et al., 2019). This inconsistency in terminology has a large effect in bewildering the consumer and ruins their chance to interpret serving size on packaging. In the U.S., this naming convention is especially damaging to customers who perceive the serving size

on the NFL to be the recommended serving size, because this is simply not the case. Meanwhile (and perhaps unsurprisingly), food companies weaponize serving sizes to stimulate product sales (Young and Nestle, 2003). Many experts have suggested that this lack of clarity in serving size is often a scheme to declare serving sizes smaller than the usual portion consumed by a population (Kliemann et al., 2018). One study found that 35 percent of products had serving sizes that were smaller than the serving size dictated by official regulations, and this tendency was particularly extreme for products with higher caloric densities (Chan et al., 2017). Another study found that cereal boxes that depicted exaggerated serving sizes (i.e., a cereal bowl with a large portion on the front packaging) resulted in 17.8 percent more cereal being portioned compared to boxes that depicted single-serve portions, and 42 percent more than suggested serving size (Tal et al., 2017). That same study demonstrated that the portion sizes on the front of cereal boxes were 64.7 percent more than the stated portions on the NFLs (Tal et el., 2017). Within the limits established by legislation, food manufacturers try to report the lowest values possible on the NFL for energy content and certain nutrients, such as trans fats and sodium (Young and Nestle, 2003) and manipulating serving size information is the perfect way to reduce those values. Perhaps the most misunderstood section of the NFL is the one most used to deceive consumers.

Beyond misleading nutrient and serving size labeling, customers would be surprised to learn that food companies deceive them using label colors and packaging shape. A study from Koo et al. (2016) found that the shape of a package influences the estimation of calories within. The study shows that people perceive food and drink in tall, skinny packages to contain less calories than those in wide, short packages. (Koo et al., 2016) Food companies capitalize on this skewed presumption and place sugary, calorie rich drinks in tall, skinny cans, further influencing their customers into buying unhealthy products. Furthermore, the nutrition label color affects

perceptions of healthfulness. In a study by Schuldt (2013), participants perceived a candy bar as healthier when it had a green wrapper than that same candy bar with a red wrapper. Similarly, a candy bar with a green Nutrition Facts Label had a higher perceived healthfulness than that with a white NFL (Schuldt, 2013). Since customers associate the color green with vegetables which are commonly known to be healthy, the green labeling tricks them into perceiving the arbitrary food underneath the wrapper to be healthier. The unconventional ways food companies have discovered to deceive their customers are truly frightening.

Two solutions present themselves, both simple in theory, but difficult in implementation; the United States needs better labeling regulation, and a more informed populace. The 'traffic light' labeling system which highlights the total fat, saturated fat, sugar, and sodium content on the front panel of food packages is one such feasible solution which solves both problems. It is called the 'traffic light system' because each nutrient is color-coded as red, amber, or green corresponding to high, medium, or low levels of that nutrient. As explored earlier with the impact of label coloring, colors have inherent associations for consumers, and thus it makes sense that it is extremely intuitive for customers regardless of nutrition-education backing. This labeling scheme is already required in the U.K., Australia, and New Zealand and has seen some success. The study by Cecchini and Warin (2015) explored all food labeling schemes and found that the 'traffic light' labeling scheme was the most effective in influencing consumers to pick healthy options. This result suggests that the United States should implement this scheme.

Though the FDA has attempted to curb food companies' misleading tactics through labeling legislation, through the methods outlined in this paper, one can see that food fraud is still rampant in the United States. There must be radical change if the progression of the obesity crisis is to be halted or reversed. There seems to be no end in sight of the oncoming wave of

processed foods flooding supermarkets, so what must change are the labels surrounding these formulated packages of food. Labelling regulations have come a long way since the Federal Food and Drugs Act of 1906, but there must be further amendments both now and in the future. Food companies will always attempt to skirt around the edges of regulation to maximize profits, thus the FDA cannot become complacent. One such avenue looking forward is regulation on the front of packages such as the 'traffic light' scheme explored above. With consistent and well-researched amendments to federal regulations on food labeling, the United States may be able to overcome this obesity crisis which plagues the nation.

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