

Question 1

From your professional experience, or from a policy topic of particular interest to you, find a situation that can be described as a challenge of asymmetric information that leads to a market failure. You should describe the relevant market or set of markets and be precise about the nature of the market failure and the players involved. In addition, describe the solutions, if any, by which institutions, public policy, or private initiative have tried to address this market failure, or propose your own solution.

Introduction: Nutrition Labels in The U.S.

The United States (U.S.) government has made strides in regulating the packaged food market to reduce information asymmetry between food companies and consumers. The U.S. government mandates ingredient declarations and the use of nutritional fact panels on packaged food. Yet, packaged food companies find creative ways to adhere technically to label regulations, while misleading consumers by highlighting positive and downplaying negative attributes. Most consumers lack the knowledge, time, or energy to correctly apply the complicated nutritional information being given to them. This is leading to the same outcome as not disclosing the information at all, driving the market back towards information asymmetry and market failure through adverse selection.

The Nutrition Labeling and Education Act of 1990 (NLEA), which mandated the placement of a Nutrition Facts Panel (NFP) on the back of packaged foods, aimed to reduce information asymmetry in the food market. The FDA believed information asymmetry was causing a market failure in the packaged food market, because consumers could not effectively assess the health impact of food, leading to adverse selection. However, increased use of FOP nutritional marketing claims,¹ with foods carrying claims going from 25% in 2001 to 43% in 2010 (Williams, 2016). FOP marketing claims are designed to help ease the mental barrier to determine the nutritional value of a food (Hall, 2025). FOP claims highlight one nutrient, distracting from the food's overall nutritional content. This can lead to an inflated perception of the positive health impact of that food (Williams, 2016).

Packaged Food Market Failure

Asymmetric information occurs when all parties in a transaction do not possess the same information about a product (Minarelli 2016). This causes a market failure by leading one side of a transaction to have a surplus beyond what would occur under perfect information distribution, indicating that the market is not in equilibrium (Pearce, 1999). Packaged foods have a lot of

¹ See examples of FOP marketing claims in figure 1

credence attributes. Consumers do not know if a food is healthy at the time of consumption. The health effect of a diet takes years to develop. The negative health impact of these foods has great economic consequences, with obesity-related illnesses costing the U.S. healthcare system \$173 billion annually (CDC, 2022). This cost reflects the negative health outcomes and wider negative externalities on the American tax payer.

This market failure became evident when companies, who were mandated to put NFP on packaged food, reformulated products they had been successfully selling with no nutritional transparency (Williams, 2016). Now that companies need to disclose nutritional information, they increasingly rely on FOP marketing claims to differentiate their products, but these Claims often mislead and confuse consumers.

Figure 1: FOP Phrase Definitions

Calorie free	Fewer than 5 calories per serving	Reduced cholesterol	At least 25 percent less cholesterol than the higher-cholesterol version, and 2 g (or less) of saturated fat per serving
Low calorie	40 calories or less per serving	Sodium free (No sodium)	Less than 5 mg of sodium per serving, and no sodium chloride (NaCl) in ingredients
Light (Lite)	One-third less calories or no more than half the fat of the higher-calorie, higher-fat version; or no more than half the sodium of the higher-sodium version	Very low sodium	35 mg of sodium (or less) per serving
Fat free	Less than 0.5 g of fat per serving	Low sodium	140 mg of sodium (or less) per serving
Low fat	3 g of fat (or less) per serving	Reduced or less sodium	At least 25 percent less sodium per serving than the higher-sodium version
Reduced or less fat	At least 25 percent less fat per serving than the higher-fat version	Sugar free	Less than 0.5 g of sugar per serving
Light/Lite	50 percent less fat or one-third fewer calories than the regular product	High fiber	5 g of fiber (or more) per serving
Lean	Less than 10 g of fat, 4 g of saturated fat and 95 mg of cholesterol per serving	Good source of fiber	2.5–4.9 g of fiber per serving
Extra lean	Less than 5 g of fat, 2 g of saturated fat, and 95 mg of cholesterol per serving	TransFat free	Less than 0.5 g of trans fats per serving
Low in saturated fat	1 gram saturated fat (or less) per serving and not more than 15 percent of calories from saturated fatty acids	Low Cholesterol	20 mg of cholesterol (or less) and 2 g of saturated fat (or less) per serving

Source: Appended from American Heart Association (2009).

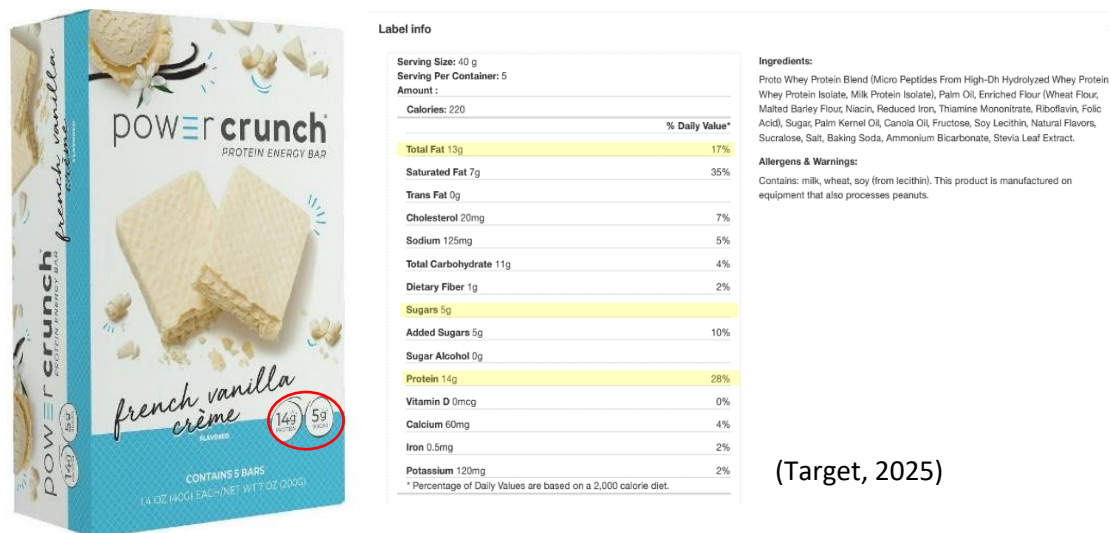
(Kolodinsky, 2012)

FOP Claims Confuse Consumers

Food companies have adopted the usage of many FOP claims to differentiate their products and gain market share. Overtime this has created hundreds of pages of regulation defining these claims, creating system that is extremely difficult for consumers to understand (Kolodinsky, 2012). For example, it is unrealistic for a consumer to know that a food item labeled “high fiber” has more fiber than one labeled as a “good source of fiber.” Reregulation of FOP claims have become so complicated food companies themselves have a hard time understanding what is misleading language.

This difficulty was evident in 2011, when the Obama Administration required an unprecedented level of resources to investigate the exaggerated claims on packaging in the market. Misleading claims were found on food products made by multi-national companies with large labeling teams such as, Kellogg's claiming "supports your child immunity" on their rice crispy cereal, and Dannon's inflated health claims on their Activia yogurt (Kolodinsky, 2012). Consumers were buying these items believing these claims were true. Dispelling these claims required highly educated scientists from the FDA. Consumers cannot be expected to have this level of knowledge. While these previous examples violated regulations and the government stepped in, it required a higher level of recourse the government has been able to use in the past, and companies continue to push the envelope in FOP marketing (Kolodinsky, 2012). Consumers in the U.S. are still often times misled through FOP marketing that use of weasel words² and bluffs³ to give food a health halo.

Figure 2: FOP Nutrient Call Out Example



² **Weasel Words:** words that lack a specific regulated meaning but give the sense of health. Examples include: natural, premium, handmade, hearty, real fruit (Pearce, 1999)

³ **Bluffs:** claims that emphasizes the addition or omission of an ingredient, when that is the standard for that food item. Examples include: fat free sugar-based candy, free from preservatives on items that are naturally preserved (Pearce, 1999)

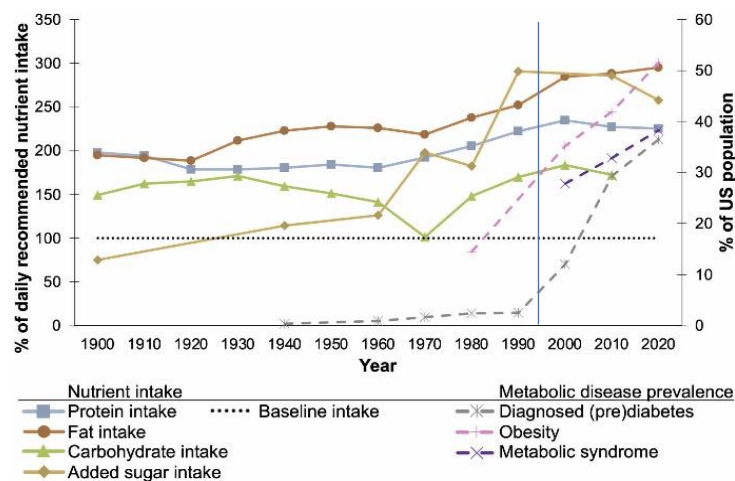
Nutrient Highlights Create False Health Haloes

While the U.S.'s current regulation requiring NFP has given consumer's some information that allows them to avoid food with high levels of any nutrients of concern, food manufactures tend to use strategic formulations to create FOP marketing that can mislead consumers (Priya, 2024). Figure 2 shows an example of a protein bar widely available in the U.S. that has FOP marketing that boasts a high level of protein at 14g and a low level of sugar at 5g. There is no mention that there is nearly the same level of fat content, at 13g, as protein in this bar. This type of marketing strategy makes it easy to miss this fact and over consume fat. This system of NFP and FOP marketing claims relies on consumers to spend time, and have the nutritional knowledge to understand that the FOP marketing is not the entire nutritional story of food items.

Current Nutritional Regulation and Market Failure

The current nutritional regulation is not stopping this market failure. The complicated nature of human nutrition, packaged food formulation, and the long-term consequences of one's diet have made it difficult for the government to create a labeling policy to effectively

Figure 3: Nutrient Intake Average American by Year



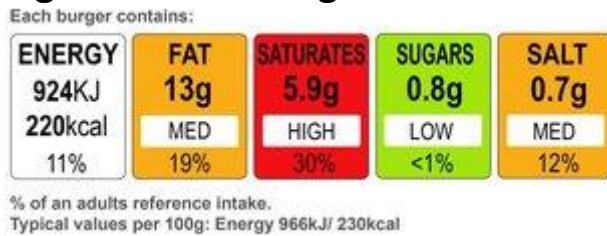
(Wiegers, 2023)

reduced the rise in over consumption of calories and nutrients in the U.S. (Wiegers, 2023). Adverse selection taking place is clear when looking at the negative health impact consumption of packaged foods has had on the American public. Food labeling now requires such a high degree of nutrition science knowledge to correctly interpret the information that is given on food, the U.S. is essentially back to a time where consumers did not have any nutritional information (Coelho, 2020). The U.S. continues to see an over consumption of nutrients, with little reduction after the passage of the NLEA meant to reduce the adverse selection being caused by the information asymmetry in the market (figure 3). Through focus group research, the FDA also found that consumers are generally confused by the current FOP claims (U.S. Food, 2025). The use of confusing FOP claims has created anti-competitive conditions in the market for players who are producing nutrient balanced food that would contribute to a healthy diet (Minarelli, 2016). Other countries have tried new FOP labeling to help combat this type of market failure.

Other Countries' Methods to Lower Information Asymmetry

The traffic light FOP labeling (figure 4) is a common tool used in countries around the world to lower the energy, time and deep nutritional knowledge needed to interpret the nutritional content of a food. These traffic light labels are FOP pictures that use red, yellow, and green to quickly indicate high (red), medium (yellow), or low (green) levels of nutrients of concern: fat, sugar, and salt (Gabor, 2020). These FOP labels are much more likely to be viewed by consumers than the BOP nutritional information. The utilization of colors makes these labels more intuitive to interpret (Omoruyi, 2025). While the traffic light system shows evidence of requiring less attention and are processed faster than numerically based NFP, there are other tradeoffs. Studies have shown these labels can lead to less accurate health perception of the food and less healthy decisions. Creating the same trap as the FOP marketing claims already found in the U.S.

Figure 4: Traffic Light FOP Label



(NHS, 2022)

Figure 5: Compact NFP

Nutrition Info		
Per serving 5 cookies		
	% Daily	Value
Saturated Fat	25%	High
Sodium	5%	Low
Added Sugars	10%	Med
FDA.gov		

(U.S. Food, 2025)

U.S. 2025 Proposed FOP Label

In January of 2025, the FDA published a proposed a new FOP compact NFP (figure 5) (U.S. Food, 2025). “The [compact NFP] would provide consumers, including those who have lower nutrition knowledge, with standardized, interpretive nutrition information that can help them quickly and easily identify how foods can be part of a healthy diet” (U.S. Food, 2025). However, this newly proposed compact NFP only lowers the barrier created by the full NFP being on the back of the package. It does not utilize the research that shows the human brain has significant barriers and requires much more energy to interoperate numbers, versus shapes and colors (Gabor, 2020).

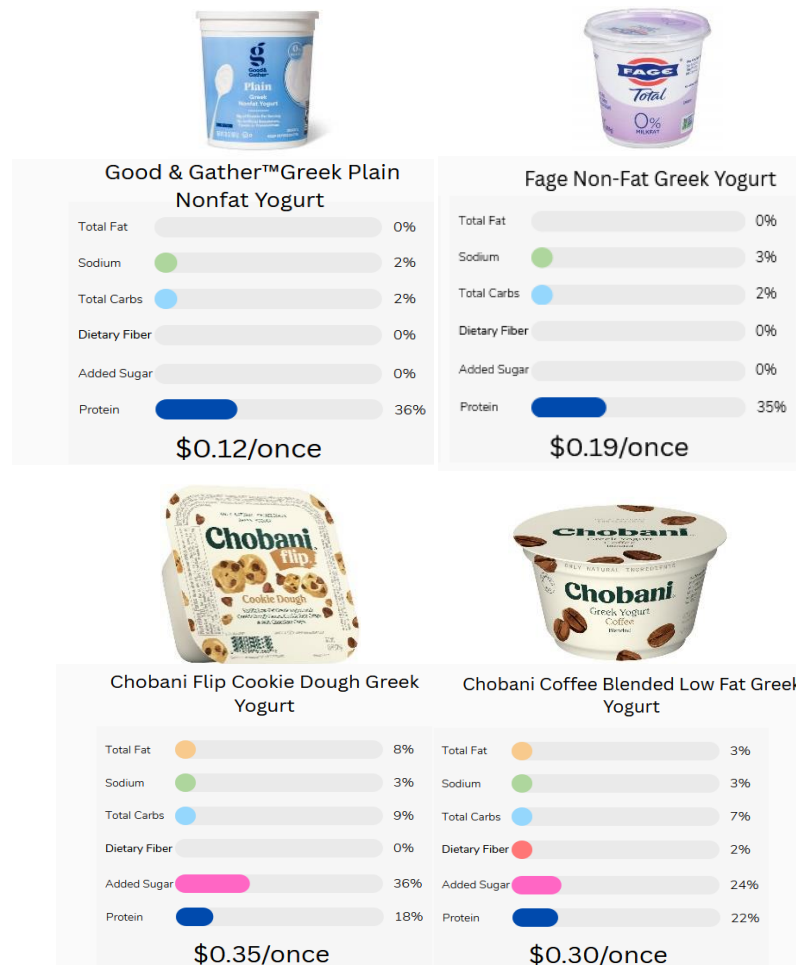
Studies comparing monochromatic FOP label to multi-colored FOP labels, show there are upsides and downsides to each. The more easily interpreted a FOP label, like the traffic light label, is read and noticed more often but leads to consumers not thinking through the meaning of the nutritional information. Multi-colored FOP labels have the tendency to lead to over inflated interpretations of the nutritional benefits of a food. While harder to interoperate, monochromatic, FOP labels such as the compact NFP, are overlooked by consumer more than the multi-colored labels. However, when read by consumers, they lead to a more accurate interpretation of health benefits of a food (Gabor, 2020). Perhaps a better solution would be to make the complex nutritional information that consumers take in from the mono-chromatic labels, easier to interoperate using shapes and colors.

Combining the Best of Both FOP Nutritional Labels

Because it is important to consume both enough and not too much of every nutrient, nutritional health is not achieved by just reducing “nutrients of concern” like and sugar (Sarwar, 2015). The obsession with reducing one nutrient at a time has not led to healthier outcomes in the U.S. and has indeed led to specific time periods where there was vast over consumption of filler nutrients (Kolodinsky, 2012). Such in the 90’s when the as the low-fat trend in led to higher consumption of sugars, which then led to a backlash and the low carb trend. Nutrition is very complicated. The entire diet needs to be considered. Not just the impact of eating one food item, or the overconsumption of a specific nutrient (Sarwar, 2015). All of this information needs to be broken down in an easily interpretable format that can lead Americans to make good choices quickly, while also balancing other factors such as price and flavor (Coelho, 2020).

My proposed solution is to use a bar chart that shows each macro nutrient filling up to the level of 100% of the recommended daily value (RDV). This solution eliminates that language around specific nutrients being “bad” or “of concern.” All nutrients are needed, at the right level. This also allows consumers to see which foods will get them to their RDV of each nutrient. This format also emphasizes that a healthy diet is cumulative over the course of a day. An example of this new proposal is in Figure 6. When comparing two of the most popular plain non-fat Greek yogurts at Target, this graph approach makes it much more obvious that these two yogurts are almost exactly the same nutritionally but the Fage yogurt is almost double the price. I then looked at two popular yogurt snacks form the Chobani. The nutritional graphs make it easy to see that the coffee yogurt has less added sugar than the cookie dough yogurt. This graphing method simplifies complex nutritional information, making it easier to interpret and apply within the context of a broader diet.

Figure 6: Proposed New FOP



(Target, 2025)

Conclusion

Despite ongoing efforts to reduce information asymmetry in the processed food market, the U.S. continues to pass regulations that are insufficient in reducing the energy and knowledge needed for consumers to make healthy decisions. Current labeling policies put a lot of responsibility on the consumer to understand complex nutrition science, and marketing regulation. This is contributing to adverse selection. Building upon international FOP labels and cognitive research, the U.S. can introduce a new FOP label that quickly conveys nutritional information in the context of a consumer's entire diet and focuses on all macro nutrients. This

will allow consumers to take in more pertinent information quickly and easily. Continued research and iterations of nutritional labeling is paramount to reduce information asymmetry and keep the packaged food market at an equilibrium.

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