

Competing with Fad Products: Erroneous Health Beliefs and Market Outcomes

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In many countries including most western nations, poor eating habits have led to an increase in the occurrence of nutrition-related diseases such as hypertension, obesity, and diabetes. This has led to substantial efforts by governments and other organizations to promote healthier foods and eating habits. At the same time, several nutrition fads have become popular despite scant evidence that these diets are beneficial for the general public. Examples include eating gluten-free, taking supplements such as probiotics and collagen, and choosing low-fat versions of regular food items. Food producers have taken advantage of these fads and offer products tending to devotees of such diets, creating new product categories (and grocery aisles) often with large profit margins (Jargon, 2014). In 2016, sales of gluten-free foods was estimated to have reached \$15 billion (Egan, 2016).

Consumption of these products comes with the obvious downside that consumers might incur additional expenses and/or choose from a limited selection of products without achieving the desired health effect. Additionally, the supposedly healthy choice could have undesirable consequences; for instance, there is evidence that gluten-free diets can lead to nutritional deficiencies (e.g., Veci et al., 2016) and that processed foods reformulated to be gluten-free often include more added sugars and fat, which may potentially contribute to diabetes and obesity (Reilly, 2016).

We study how erroneous nutrition assumptions affect profits as well as consumer surplus in the market and how the government could intervene to improve welfare. To be more concrete, we consider a model in which two manufacturers offer products differentiated horizontally based on the product characteristic subject to the fad: a conventional product and a product serving the fad market (e.g., one product containing gluten and one gluten-free product). The products are also differentiated vertically based on taste. Products compete in quality and price where the fad manufacturer faces increasing costs the closer it brings its own quality to the standard set by the conventional product. Consumers are heterogeneous in their willingness to pay for quality (taste) and their belief about the health benefit of the fad. They make their purchase decisions based on price, quality, and their preference for complying with the fad.

In our analysis, we model beliefs over health effects and allow the beliefs to deviate from the scientific evidence. The manufacturer of the fad product first determines a quality level relative to the regular good. Then the two manufacturers compete in prices in a market with consumers differentiated by both their perceived health benefit of the fad and by their willingness to pay for quality. More specifically, we assume three types of consumers, i.e., consumers who have a medical reason for a diet restriction and thus must eat the product designed for the fad market, consumers who perceive a health “cost” in the consumption of the standard product, and consumers who perceive a health “benefit” (or possibly the same health outcome) from the standard product.

We compare the laissez-faire outcome (prices, quality, welfare) with the optimal outcome given two types of social planner: a populist social planner who maximizes social welfare by using consumers’ beliefs about the health effects of the fad, and a paternalistic social planner who maximizes social

welfare by adopting the scientific belief. We also compare the laissez-faire outcome to various government interventions such as information provision and minimum quality standards designed to allow consumers to make more informed purchase decisions and raise the nutritional profile of the fad product. We determine changes to product quality, prices, and welfare such policies would effect.

While numerous articles have explored the problems associated with consumers making unhealthy choices, we investigate the rarely studied opposite side of this issue, i.e., consumers trying *too hard* to live healthily. In this situation, common policy prescriptions like taxation of unhealthy products seem not realistic. For example, it is hard to imagine levying a special tax on gluten-free products. As such, this work has the potential to frame the debate about government interventions to improve nutrition in new light.

References

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