

# Virtual Mentor

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## POLICY FORUM

### **Trans Fats, the Rational Consumer, and the Role of Government**

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In 2006, a new federal regulation was implemented requiring packaged foods to include trans fat content on their nutrition labels [1]. Restaurant foods were not covered by the labeling requirement, but a more stringent “trans fat ban” for restaurants (servings cannot exceed 0.5 grams) was passed later that year in New York City [2, 3]. Similar restaurant-specific “bans” have since been enacted in dozens of local and state jurisdictions [4, 5] but remain highly controversial.

It is no surprise that policymakers have taken an increased interest in trans fat consumption. A large and growing medical literature links consumption of trans fats to cardiovascular disease [6]. According to the American Medical Association, replacing artificial trans fats with healthier oils could save 30,000 to 100,000 lives annually in the U.S. [7]. Should the government not try to reduce the amount of trans fat Americans consume to help improve the population’s health and longevity? More generally, what role (if any) should public policy play in moving the population towards healthier diets?

The purpose of this commentary is to discuss the leading economic arguments for government intervention in food consumption decisions: negative externalities, imperfect information, and self-control problems. Each is ultimately an argument for some deficiency in how individuals make dietary choices—that individuals ignore the costs imposed on *others* (negative externalities) or misjudge or undervalue the *personal* health costs (imperfect information or self-control problems). While proponents of trans fat regulation often base their arguments on negative externalities, evidence of their existence is lacking, and the empirical justification for government intervention lies in the other two arguments.

#### **A Benchmark Model: The Rational, Well-Informed Consumer**

In modeling consumption behavior, economists commonly assume that individuals make rational, well-informed decisions to maximize their own well-being. These assumptions lead to a predisposition against government interference with free choice, including interventions to reduce consumption of unhealthy foods. When rational consumers choose particular diets, they presumably do so because the benefits they derive from those diets—taking into account concerns for food price, taste, and healthfulness—are greater than they would obtain from any other diet. Interfering with free choice, therefore, can only serve to reduce people’s welfare and should be avoided.

Importantly, rationality does not preclude the consumption of unhealthy foods. As Tomas Philipson and Richard Posner put it, “rational persons constantly trade off health for competing goods, such as pleasure, income, time and alternative consumption possibilities” [8]. In the case of trans fats, an individual could be informed about the health implications of a high-trans fat diet and still “rationally” choose such a diet because, for him or her, the expected health gains from eating more healthfully are insufficient to justify paying higher prices or consuming less-flavorful foods. If people choose unhealthy diets or lifestyles, so be it: they are theoretically choosing what maximizes their own well-being—if they are rational and well-informed.

In traditional economic analysis, food producers play only a secondary role in the determination of people’s diets. Economists consider food production to be a competitive industry; producers compete by developing foods with price, taste, and health attributes that consumers find most desirable. To most economists, blaming food producers for consumers’ diets is akin to blaming the tail for wagging the dog. What the market produces is presumably what consumers demand.

### **Negative Externalities**

Even if consumers are rational and well-informed, an economic case for government intervention exists if negative externalities are present—that is, if the costs associated with trans fat consumption extend to others. It is easy to imagine this is true. Poor health leads to higher medical spending, the cost of which is mostly paid “by society” through higher premiums and taxes. Poor health can lead to work disabilities, reducing a worker’s productivity (a cost partly borne by his or her employer) and can potentially qualify a person for disability-related benefits (a cost borne by taxpayers).

Rational, self-interested consumers have no reason to consider these “external” costs when they make food choices, and, as a result, the choices individuals make to maximize their *own* well-being may not maximize *aggregate* well-being. In effect, self-interested consumers overconsume unhealthy foods because the cost of doing so falls partly on others.

The traditional economic solution to the problem of negative externalities is to raise the price of the personal choice through “corrective taxation”; the price of eating foods with trans fats is “too low” because it fails to capture the external costs associated with trans fat consumption [9]. If a gram of trans fat consumption imposes an \$X cost on society, a tax of \$X should be set per gram of trans fat in each food item. If the social costs associated with trans fat consumption were sufficiently high, this could even justify a ban on trans fats.

Whether a trans fat tax (or ban) is *empirically* justified by negative externalities therefore rests on the magnitude of social costs associated with trans fat consumption. Unfortunately, no empirical evidence exists that speaks to the social

cost of trans fat consumption, but evidence from the contexts of obesity and smoking is revealing.

While policymakers commonly assume that obesity and smoking impose large economic burdens on society, the evidence base for negative externalities is quite poor [8, 10, 11]. Cost estimates for obesity and smoking rarely distinguish between costs to the individual and costs to society. Moreover, these estimates generally rely on *contemporaneous* comparisons of health care consumption and other costs, not costs over the lifetime of individuals. This has the predictable effect of exaggerating the social costs associated with smoking and obesity, since decreased life expectancy translates into reduced social spending on elderly benefit programs like Medicare and Social Security [12, 13]. A recent Dutch study estimating the lifetime medical costs for different cohorts of individuals—an obese cohort, a smoker cohort, and a “healthy” cohort (nonsmokers with body mass index between 18.5 and 25)—found that lifetime costs were 12 percent higher among the healthy individuals than among the obese and 27 percent higher than among smokers [14]. While more research in this vein is needed, it raises the suspicion that the social costs associated with poor diets may be small or even negative, in which case it would be difficult to support government intervention on those grounds.

### **Do Consumers Maximize Their Own Welfare in Trans Fat Consumption?**

The logic of negative externalities is that consumers undervalue the healthfulness of their food choices because the health costs of a poor diet fall partly on others. An alternative and more controversial possibility is that consumers undervalue the healthfulness of their food choices to the detriment of their *own* well-being. Assessing the truth of this is difficult since the optimal decision for a particular consumer depends on personal preferences that we cannot observe.

To demonstrate, consider the costs and benefits to American consumers if they voluntarily eliminated artificial trans fats from their diets. If consumers were currently maximizing their own well-being, the personal costs of eliminating trans fats would have to exceed the benefits. If the AMA is correct, the elimination of trans fats would save 30,000 to 100,000 lives annually. Economic evidence suggests that \$7 million represents a reasonable estimate for the value Americans place on a “statistical life” (i.e. the elimination of one mortality through the reduction in some mortality risk) based on how much workers need to be paid to accept more dangerous jobs [15]. In monetary terms, then, the annual health benefit consumers would enjoy is roughly estimated at \$210 to \$700 billion in aggregate, or, when spread over 308 million citizens, \$680 to \$2,270 for the average consumer.

The financial costs are seemingly trivial in comparison. There is some suggestion in the literature that the trans fat ban in Denmark has not affected food production costs [16], but no meaningful empirical evidence supports this claim. More likely, replacing trans fats with healthier oils would increase food production costs but only by a small amount—almost certainly by less than 1 percent [17]. We should expect consumers to ultimately bear this cost by paying higher food prices. In light of

current aggregate spending on food in the U.S. (\$1.2 trillion annually), the aggregate annual financial cost imposed on consumers is likely less than \$12 billion, or less than \$40 for the average consumer [18].

If the only costs were financial, then it seems impossible that *current* diets are optimal since eliminating trans fats would apparently leave the average consumer better off. Only if the “taste costs” (i.e., loss of flavor) of eliminating trans fats were very large could we defend the notion that trans fat consumption levels are well-informed and rational. Based on the estimated financial costs (less than \$40 per person) and estimated health benefits (at least \$680 per person), taste costs would have to exceed \$640 annually for the average consumer to be worse off under a self-imposed trans fat ban.

The question of whether individuals are rational, well-informed consumers of trans fats therefore rests heavily on whether the taste costs associated with reducing trans fats are large or not. Certainly, advocates for trans fat regulation believe the taste costs are small. There is some survey evidence from Denmark indicating that consumers did not notice a taste difference after artificial trans fats were banned in that country [19]. To my mind, it seems unlikely that the taste costs incurred by trans fat reduction are generally very high, though I am willing to believe taste costs could be high for some food products or for some individuals. We can also probably expect these costs to decline over time as producers innovate with healthier oils.

### **Imperfect Information**

One reason consumers might overconsume unhealthy foods to their own detriment is that they have imperfect information: consumers could be unaware of the amount of trans fat in their food options or ill-informed about the health risks associated with trans fat consumption. Lack of information on either front could lead consumers to choose diets that are higher in trans fat than those they would choose if they were well-informed.

Economists are generally comfortable with the government playing a role to ensure that consumers have adequate information to make informed choices, for instance, through nutritional labeling requirements. Such a role may be especially important in food markets, because there is strong intuitive reason to believe the market underprovides information about the healthfulness of different food products. (McDonald’s commercials emphasize the deliciousness of a Big Mac, not its 34 fat grams.) Moreover, studies document that “humans have a weak innate ability to recognize foods with a high energy density” [20], a deficiency which likely applies to other nutritional aspects of food as well.

Labeling requirements and public awareness campaigns therefore seem eminently reasonable, but their *value* depends on whether the provision of better information actually leads individuals to consume healthier diets (and must, of course, be weighed against the associated costs). The trans fat example is encouraging in this regard. Federal labeling requirements and growing awareness about the risks of trans

fats have spurred many major food producers to reformulate their products to reduce or eliminate artificial trans fats [1, 21], presumably to meet the evolving demands of better-informed consumers. Perhaps then, as public awareness increases, the provision of trans fat content information is sufficient to combat trans fat overconsumption.

Evidence from calorie labeling suggests otherwise. By now, the relationship between caloric intake and obesity is well-known, as are the risks posed by obesity. However, the limited scientific evidence on calorie labeling in restaurant settings finds inconsistent and weak effects on caloric intake. Following implementation of calorie labeling in New York City fast-food restaurants, for instance, only 28 percent of survey respondents reported seeing the new calorie labels, and labeling had no detectable effect on caloric intake [22]. In a public health sense, this speaks to the inefficacy of caloric labels to combat obesity. In an economic sense, it also undermines the notion that imperfect information about calorie content is a significant cause of high-calorie diets.

Evidence pertaining to the perceived risks of smoking casts further doubt on the usefulness of policies based on the notion that poor health behaviors stem primarily from imperfect information. Kip Viscusi finds that the perceived risks of smoking significantly reduce an individual's likelihood of smoking, but that smokers and nonsmokers alike *overestimate* the health risks associated with smoking [23]. More accurate information on the health risks of smoking might be expected to *increase* smoking rates, an implication most public health experts would find troubling.

### **Self-Control Problems**

Since the pioneering work of Daniel Kahneman and Amos Tversky [24], economists have become increasingly cognizant of the ways people fail to act rationally. Of special import to the issue of trans fat consumption, people commonly exhibit self-control problems, valuing future outcomes far less than immediate outcomes [25, 26]. This could lead to excessive consumption of trans fats because price and taste are immediate considerations for consumers, while health considerations come to bear much later. If consumers excessively consume trans fats because they irrationally undervalue the health consequences of so doing, government interventions that increase the immediate cost of consuming trans fat can improve well-being.

Imposing a trans fat tax is one means of accomplishing this. In the case of negative externalities, we think of the tax as correcting the price of unhealthy foods to incorporate the social costs. Here, a trans fat tax corrects for individuals' tendency to underweigh the *personal* health costs of consuming unhealthy foods. Because it is predicated on the notion that people, in some decisions, fail to maximize their own welfare, such a tax could be labeled "paternalistic."

Determining the optimal tax to combat self-control problems would be very difficult. In some sense, the optimal tax depends on how much the average individual

underweighs the health consequences of trans fat consumption, which I do not presume to know. That said, a modest tax—one large enough to reverse the cost advantage trans fat holds over alternatives—would likely have a dramatic effect, especially if the taste advantage of trans fats is small. Banning trans fats is plausibly justified (if the taste costs are universally small) but possibly overreaches if there are specific foods for which trans fats contribute substantial taste value.

### **Conclusion**

The mere fact that dietary choices affect individuals' health does not justify government's interfering in those choices. The full costs of doing so must be considered, including "taste costs" that are inherently personal and exceedingly difficult to measure. On the issue of regulating diets, economists are predisposed to favor consumer sovereignty because individuals presumably seek to maximize their own well-being. That disposition is strengthened by the recognition that political interest groups sometimes exploit regulatory regimes to their own benefit [27] and by concerns of unintended consequences, such as the replacement of one unhealthy food additive with another [28].

But these considerations do not justify a dogmatic opposition towards diet-related interventions. In the case of trans fats, it is difficult to argue that consumers are making welfare-maximizing choices unless the taste costs associated with reducing trans fats are very high—improbably high, in my opinion. More likely, individuals overconsume trans fats to their own detriment, so that interventions to reduce trans fat consumption can improve aggregate welfare. Proponents of trans fat regulation often couch the issue in terms of negative externalities [8], but the existence of negative externalities in dietary decisions is highly suspect and certainly lacks any meaningful empirical support.

Information-related interventions, such as labeling requirements and public awareness campaigns, are probably justified. Growing public awareness about trans fat risks has led many producers to dramatically reduce trans fat content in their products. Still, the evidence from calorie labeling suggests a limit to how much poor diets can be attributed to poor information.

More dramatic interventions may be warranted. Given the uncertainty regarding the taste costs of reducing trans fat, one pragmatic option would be to impose a modest tax based on the trans fat content of foods. A tax large enough to offset the current cost advantage of trans fat over healthier oils could have a dramatic effect, especially if (as advocates believe) the taste costs of reducing the trans fat content are low.

Aside from intervening in dietary choice in these ways, the government can also play a positive role in another fundamental way. By sponsoring research to improve the relative taste of trans fat alternatives, the government could promote trans fat reduction without interfering with consumer sovereignty. If the taste costs were known to be small, government interventions to reduce trans fat consumption would be more easily justified—and, perhaps, no longer necessary.

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- into an annual cost of \$490 million, which is less than 0.1 percent of total restaurant sales. The percentage increase in the price of home-prepared foods is likely smaller, given that restaurant foods are generally higher in trans fat.
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