

INFORMATION, CONSUMERS, AND GMF: A COMMENT

AMIR HEIMAN, YANHONG JIN, GREGG GRAFF, AND DAVID ZILBERMAN

Traditionally, analysis of food demand has emphasized the impact of prices and income taking preferences as given. The growing importance of food security and controversy about genetically modified foods (GMF) emphasizes the need to understand preference formation and how information affects consumer choices. McCluskey and Swinnen (MS) and Huffman et al. take different approaches to analyze these issues.

Huffman et al. introduce an expanded household production function approach to analyze consumer trust of information sources about food. Consumers are assumed to be rational and allocate their resources among food items that have differing labels. They lack information about the meaning of labels and rely on various information sources. Their learning about food is affected by both human capital (HC), which reflects an ability to deal with disequilibrium, and is related to education, and social capital (SC), which reflects the impact of social relationships and networks. Their empirical analysis estimates the relative trust consumers have in various sources of information.

Huffman et al. ask consumers about their most reliable source among several alternatives. Not surprisingly, only small percentages considered environmental groups or industry most reliable, while both independent third party and government were viewed by large fractions of the populations as the best sources. We would have preferred to view the individual's relative attitude to the sources. Gaskell et al. studied sources of difference in the acceptance of GMF between the United States and Europe, and found: (1) the level of trust in

government, which provides information and supervises food safety, is higher in the United States and (2) the quantity of media publications is significantly more influential in Europe. While Huffman et al. found that independent information is the most trusted, it is also important to understand how public perceptions change when much of the information is provided by government, industry, or environmentalists. Their finding that the credibility of various information sources varies among segments of the population is useful, but it would be much more powerful if it relied on the individual rankings of the sources.

The conceptual model in Huffman et al. has raised issues for further study in an expanded food choice theory. They suggest that prices will lead most consumers to diversify between safer (or greener) foods (e.g., non-GMF) and cheaper foods (e.g., GMF). Indeed, the majority of consumers may have an internal solution, yet for some, the environmental and health cost of GMF is so high that they consume non-GMF only. An expanded model should allow for corner solutions. Hamilton et al. found significant heterogeneity in the willingness to pay for pesticide-free food. About 5% of consumers would pay 25% more for their food to avoid pesticides, but most of the population is willing to take pesticide health risk if they gain economically. The minority that opposes GMF may be very crucial for its fate. Retailers in Europe may not carry GMF for fear of retaliation by activists. The logic of political economy, where small cohesive groups can impose their will on a diverse majority, may apply to GMF regulation and availability.

The Huffman et al. paper is important in contributing to the debate on the role of religion as a social organization affecting attitudes to food. Social organizations establish and enforce norms of behavior and this may affect food consumption. There is substantial evidence that religion matters when it comes to the consumption of food, in that religions may prescribe what to do and how. Hindus, for example, are supposed to be vegetarian, Jews to eat Kosher, Islam has Halal, and Catholics are not supposed to eat meat

Amir Heiman is senior lecturer of marketing, Department of Agricultural Economics and Management, Hebrew University, Rehovot, Israel; Yanhong Jin is post-graduate researcher, Department of Agricultural and Resource Economics, University of California, Berkeley; Gregg Graff is post-doctorate researcher, Department of Agricultural and Resource Economics, University of California, Berkeley; David Zilberman is professor, Department of Agricultural and Resource Economics and Member, Giannini Foundation of Agricultural Economics, University of California, Berkeley.

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on Fridays, etc. The degree of religious observance may matter much more to food choices than the nominal religious affiliation per se (Heiman, McWilliams, and Zilberman). Secular individuals of all religions probably have more in common than they have with their strictly observing brethren. Some argue that environmentalism is a modern religion and thus shapes attitudes regarding consumption of foods. Hamilton et al. found that environmentalists are willing to pay more for pesticide-free food. Thus, the evolution of religious perspectives regarding GMF will affect the future demand of GMF.

MS present a macro approach to consumer attitude and information by developing a model, which determines information provided by the media in response to demand and supply considerations. Based on their "rationally ignorant consumer" hypothesis and "bad news" hypothesis, they argue that it is rational for consumers not to fully inform themselves about GMF issues, and that media tends to supply information regarding possible hazards of GMF, since this receives wider coverage. Their analysis ignores the fact that the majority of media revenue comes from advertising. Advertising budgets are allocated proportionally to the number of readers and their segmentation, but it is also a function of advertiser interests. That is, if biotechnology and agribusiness companies have interests in promoting GMF, they could manipulate the media to their favor by becoming major advertisers.

The MS paper will hopefully spawn a body of literature on media and consumer attitude. This theory can benefit from inclusion of recent findings regarding information and learning. Prospect theory (Kahneman and Tversky) suggests that there is a tendency to overestimate small probability events. Opponents of GMF may benefit from this tendency when they raise the possibility of low-likelihood, negative side effects. Second, the media in MS is supposed to serve a population with diverse perspectives. But, as media sources increase consumers take various political perspectives and self-select media sources that fit their biases. This may lead to further polarization as consumers may access media differently and

interpret information differently. Finally, studies such as Hogarth and Einhorn argue that consumers do not update their priors using the rational Bayesian rule. For example, consumers may ignore conflicting, or complex new information and may ignore lessons of the past when faced with more recent information that has a consistent message.

Both Huffman et al. and MS suggest that consumer acceptance is a barrier to the introduction of biotechnology in Europe. This is only part of the picture. Graff and Zilberman argue that European regulation and attitudes to GMF are also affected by competitiveness and trade considerations. European companies are dominant in the chemical pest control market while American companies control much of the agricultural biotechnology that generates GMF. European companies may use their clout to establish regulations and support an atmosphere that would slow the advance of GMF until they catch up in terms of intellectual property and product development.

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