True Differentiation:

Producing, Certifying, and Communicating for Diverse Consumers

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Consumer demand is diversifying in terms of the range of quality attributes consumers are interested in, as well as the depth of their interest in particular attributes. For some consumers, the quality/price tradeoff is placing increasing weight on quality relative to price. This paper focuses on how agricultural production and food-based businesses, as well as their supply chains, are responding to this wider and expanding range of consumer demands through differentiating products across multiple quality attributes and price levels.

The papers by Wendy Umberger and Jill McCluskey from the 2015 Agricultural Symposium at the Federal Reserve Bank of Kansas City discuss trends in consumer demand in full, both internationally and in the United States. Their discussion focuses on what consumers want and are demanding from the agricultural and food systems. That is the demand side of the product differentiation picture. Here I turn the focus to the supply side of the market to look at what producers, companies, and other participants in supply chains want in terms of the supply of product differentiation. The levels and types of product differentiation in the market are determined by the interaction of consumer demand decisions, company supply decisions, and public policy that regulates product quality and quality signaling through labels. What is true differentiation in this context and what supports it? What are the keys to producing, certifying, and communicating for diverse consumers?

The Overall Market for Food Product Quality

Consumers demand food products that have the bundles of quality attributes that they want at prices they find acceptable. These product attributes can be classified into five categories as shown in Figure 1. These attributes include food safety, nutrition, sensory/organoleptic characteristics, value/function characteristics, and process attributes. All of these attributes are intrinsic to the product—that is they are attributes of the product that are independent of how the product is presented or labeled.

Figure 1: Intrinsic Quality Attributes of Food Products (Attribute Space)

1. Food Safety e.g., foodborne pathogens, pesticide residues
2. Nutrition e.g., calories, fat, carbohydrates, vitamins, minerals
3. Sensory/Organoleptic e.g., taste, tenderness, color
4. Value/Function e.g., compositional integrity, baking properties
5. Process e.g., animal welfare, organic, use of GMOs, fair trade, natural, sustainability

Consumer demand is one part of the overall market for product quality. On the supply side, producers and companies have strong private incentives to produce food quality, including gaining or maintaining market share and protecting brand reputation. However, market failures and imperfections limit the production and marketing of food quality that meets consumer demand for quality. In other words, markets for quality do not work perfectly.

Economists note that these shortcomings in markets for quality frequently stem from an environment of imperfect information regarding quality (Golan et al. 2001; Caswell and Mojduszka, 1996). Companies' incentives to produce products with the product attributes that

consumers want are weakened if consumers are not readily able to judge quality and make purchase decisions based on quality. For example, companies that sell unsafe products will not be penalized in the market with lost sales unless consumers become ill and that illness is tied to a particular company, which it often is not. Public policy, such as food safety regulation, is designed to build regulatory incentives for producing quality when market incentives are insufficient or do not produce the quality level desired by society. A recent example of this regulatory undergirding is the Food Safety Modernization Act signed into law in 2011 to update food safety regulation under the U.S. Food and Drug Administration.

Marketing quality depends on communicating to consumers. Companies have strong incentives to do so when communicating about high quality attributes attracts consumers but have weaker or no incentives to communicate the less desirable attributes of their products. Companies may choose ways of presenting their products that make the product appear to be better than it really is.

Regulatory policy is designed to control how companies communicate about quality for quality attributes that the government believes are important. In the United States, for example, nutrition labeling is considered to be very important and is heavily regulated under the Nutrition Labeling and Education Act (NLEA) of 1990. NLEA mandates that the Nutrition Facts Panel appears on nearly all food products and regulates the use of voluntary nutrient content and health claims. Governments are increasingly becoming involved in regulating labeling of process attributes, frequently through rules that control voluntary labeling claims. An example in the United States is rules for organic certification and labeling. The regulatory decision can also be focused on not requiring labeling as is the case with the labeling of genetically modified organisms (GMOs) in the United States.

In the context of more diverse consumers and more interest in food quality attributes, agricultural producers, food companies, and food supply chains are continually refocusing their emphasis on differentiation in terms of producing, certifying, and communicating quality. They do this through both meeting consumer demand and shaping consumer demand. They also respond to and seek to influence public policy that affects production, certification, and communication of quality in food markets.

There is a real tension in terms of differentiation of food products. Agricultural producers, food companies, consumer groups, and other non-governmental organizations all want to control the scope of differentiation and the types of communication about quality. All vie to define which quality attributes are important, the scale or terms on which they should be evaluated, and the acceptable means of communicating about them.

Production agriculture and food companies respond to consumer demand but also are active in shaping demand and the regulatory environment. In this process, production agriculture and food companies consider which differentiation/labeling to emphasize and promote because it fits with their production, efficiency, and business needs. There is a tendency to resist (sometimes clobber) differentiation that is not aligned with these needs. Consumer and other groups want to influence the scope of differentiation, too, but have fewer weapons to deploy.

Quality Assurance is Pivotal in Markets with Diverse Consumers

Product differentiation rests on quality assurance. Quality is assured through a hierarchy made up of three parts (Caswell and Anders, 2011; Boys et al. 2015). The first part is a standard setting mechanism that identifies the attributes targeted and the quality levels that need to be achieved to meet the standard. The second is a certification mechanism that audits products and processes to ensure that they conform to the standard and are eligible to be certified as meeting

it. Third is quality signaling to buyers/consumers that communicates that the product meets the standard. The quality communication takes the form of certificates in supply chains and of labeling in consumer markets.

All three levels of the quality assurance hierarchy can be owned and controlled by different parties. Figure 2 shows several common patterns of certification organization. Certification standards may be owned privately by 1st (product seller), 2nd (product buyer), or 3rd (collective of buyers and/or sellers) parties; independently by 3rd parties; or by governments. The standards can then be audited and certified by 1st, 2nd, or 3rd parties or by governments. And, finally, certification can be communicated in several ways. This communication is frequently voluntary but may be mandatory.

Some examples illustrate the range of quality assurance systems in use. Under Type I, a food company would have internal (1st party) quality standards for its products that it sets and audits, then deciding how to communicate this system to buyers and consumers. An example of a Type IV system is eco-labeling of seafood where standards are set and audited by independent 3rd parties, with sellers choosing voluntarily to enter the certification system and use its labels on their products. In the United States, organic labeling is an example of Type V certification. The federal government sets standards for organic certification, 3rd parties and state governments conduct audits and certification, and labeling is voluntary. An example of Type VI certification in the United States is the inclusion of the Nutrition Facts Panel on food products. The federal government sets the standard and the labeling is mandatory.

Figure 2: Certification System Ownership

Type	Standard Owner	Type of Certification Bodies	Certificates or Consumer Labeling (If Done)
I	Private, 1st or 2nd Party	1st or 2nd Party	Voluntary
II	Private, Collective 3rd Party	1st or 2nd Party	Voluntary
III	Private, Collective 3rd Party	3rd Party	Voluntary
IV	Independent 3rd Party	3rd Party	Voluntary
V	Government	Government or 3rd Party	Voluntary
VI	Government	Government	Mandatory

Source: Adapted from Caswell and Anders, 2011.

Setting up certification systems is a point of tension. A primary question is whether quality assurance and regulation of communication about a quality attribute or set of attributes merits government regulation or the private and 3rd party sectors can adequately address needs for certification. While natural and social science research informs the answer, the question is ultimately a political one based on whether regulation is deemed necessary by legislators or by citizens in public referenda (Caswell, 2013).

Major Questions Facing Agricultural & Food Companies and Supply Chains

Agricultural and food companies and supply chains face major questions regarding differentiation based on quality attributes. These questions are:

- What is true differentiation?

    - What supports it?
    - Is it based on meaningful quality distinctions that can be verified?
- How much of differentiation is:
    - Responsive to consumer demand for underlying quality attributes?
    - Altering only presentation of products?
- How good are quality assurance and certification systems?
    - Do markets have capacity to provide product with desired quality attributes?
    - Over what time frame and with what reliability?

Good answers to these questions are necessary to deliver true differentiation to consumers. They are also needed to answer the segments of the population of diverse consumers who evaluate differentiation by production agriculture and major food product companies as questionable/untrue/unreliable/self-serving—that is, manipulated to align with their production, efficiency, and business needs.

Interaction of Demand and Public Policy in Labeling of Food Products

Three examples of the interaction of demand and public policy in labeling highlight issues around true differentiation of food products.

Nutrition Quality and Labeling

In the United States, nutrition labeling is a very closely regulated area of differentiation under the Nutrition Labeling and Education Act. With the Nutrition Facts Panel being mandatory across food products, voluntary nutrient content claims, particularly on the front of package, are a prominent way in which companies compete to differentiate their products based on nutrition attributes. These voluntary claims are regulated under NLEA. Martinez (2013), for example,

found that the percentage of new product introductions with voluntary nutrient content and health claims in the United States was 34.6% in 1989 before implementation of NLEA, fell to 25.2% in 2001, and then increased to 43.1% of all new products introduced in 2010.

Under NLEA, the U.S. Food and Drug Administration continues to update regulations over time to reflect changes in nutritional recommendations and to improve how the Nutrition Facts Panel communicates to consumers. A recent example of the interaction of policy and differentiation in food markets is the regulation that came into force in 2006 requiring that trans fat content be listed on a separate line on the Nutrition Facts Panel. This change for the first time made this information searchable by consumers on product labels.

Researchers have found that the new trans fat labeling policy had a significant impact on the differentiation of food products. For example, focusing on new product introductions, Unnevehr and Jagmanaite (2008) found an increase in the number of products introduced with trans fat free claims from 64 in 2003 to 544 in 2006. Researchers have also found significant product reformulation away from trans fat in the chips and cookies markets (Van Camp et al., 2012; Hooker and Downs, 2013, 2014). Wang et al. (2015) looked at both the supply and demand sides of the market for margarine and spreads with trans fat free claims before and after the 2006 rule. They found that introductions of products with trans fat free claims surged after the regulation took effect in 2006. At the same time, the average annual percentage of household expenditures in this market that were labeled trans fat free rose from about 1% of the market in 2001 to nearly 6% of the overall market in 2007, one year after the labeling rule took effect. The market share of products with trans fat free claims settled back to about 2% of the market by 2011.

For companies focused on true differentiation, the major question is what nutrition differentiation is meaningful for consumers and should be featured on labels? This question is

particularly relevant in the context of voluntary nutrient content claims, which are regulated. However, the FDA is not currently devoting large resources to monitoring compliance. True differentiation requires that label claims reflect meaningful nutritional quality differences.

Process Quality and Labeling

The process attributes of food products relate to how the product was produced and how it arrives at market. Examples of process attributes used to differentiate products include organic, sustainable, animal welfare, presence of GMOs, fair trade, and country of origin. The labeling of process attributes of food products has some elements of the Wild West. Many certification standards are private or 3rd party. This allows an open market to operate where standard owners can develop standards and market them to food companies who in turn are audited to the standard and can use the associated labeling logo. In terms of true differentiation, the downside of this open market is that the standards may not accurately capture the quality attributes they are intended to focus on, auditing to standards may be faulty, or both.

The issues of standard setting and the quality of audits are major challenges to differentiation based on process attributes. In some cases, questions arise around whether standards achieve the intended outcome (for example, improvements in animal welfare, environmental sustainability). Good intentions may not always achieve results; in other cases, not so good intentions may result in meaningless standards that mislead consumers. In all cases, it is important to analyze who wants the standard and for what purposes.

Relatively little research has looked closely at the same time at the content of voluntary process standards, the quality of the auditing, and the achievement by the standard of its ultimate goals. An exception is work by Froese and Proelss (2012, 2013) who analyzed the eco-labeling

of seafood, focusing on two standards with the largest share of the market: Marine Stewardship Council and Friend of the Sea. Both of these standards are owned by independent 3rd parties. The study first focused on defining a sustainable fishery, finding that there is no single, widely accepted definition. It then looked at the criteria used in the two standards to ascertain how they address sustainability as defined by the authors and how the standards are applied via auditing. The authors conclude that the certification systems do allow consumers to select products from sustainable fisheries more often than they would have without labeling but that both standards need to do a better job of defining and auditing sustainability. The sustainability of fisheries is only one of a long list of process standards that are being used to differentiate food products. Each poses challenges in standard definition and reliability. For food companies, the question is whether specific process certifications offer true and reliable differentiation.

Food Safety Quality and Labeling

In the United States, food safety has traditionally not been looked upon as a basis for product differentiation to consumers. Instead it has been viewed as a floor for quality that is ensured by regulation and should be attained by every product offered for sale. The quality floor is currently being updated through the implementation of the Food Safety Modernization Act of 2011. Under this law, FDA has or will issue rules on Standards for Produce Safety; Preventative Controls for Human Food; Preventative Controls for Food for Animals; Foreign Supplier Verification Programs for Importers of Food for Humans and Animals; Accreditation of Third-Party Auditors; Sanitary Transportation of Human and Animal Food; and Focused Mitigation Strategies to Protect Food Against International Adulteration.

Food safety levels are differentiated in supply chains; companies compete to set and comply with rigorous standards, both domestically and internationally. Increasingly companies are also seeking to differentiate themselves to consumers based on a food safety message, although the food safety message may not be explicitly stated and the differentiation may be based on process standards such as organic or no GMOs. The challenge facing companies and consumers is what is true differentiation based on safety versus differentiation that is assuring a process rather than a safety standard.

Concluding Thoughts

Producing, certifying and communicating quality to diverse consumers requires a focus on true differentiation. As noted, consumer demand is diversifying in terms of the range of quality attributes consumers are interested in, as well as the depth of their interest in particular attributes. Agricultural producers and food companies both respond to and shape consumer demand for quality. They also work to shape the regulatory environment that controls how food is produced, marketed, and labeled. As agricultural producers and food companies focus on true differentiation, the balance of responding to and shaping consumer demand is important, particularly when some consumer segments see differentiation as serving the interests of the producers and companies rather than those of consumers. True differentiation is supported by meaningful quality standards and reliable quality assurance systems.

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