

Dissertation Abstract

In this era of globalization, food supply knows no boundary. With it comes a host of issues related to food safety and quality that could affect trade between countries.

Recent food scares reported in the media regarding food imports from specific countries has put the focus on Country of Origin Labeling (COOL). Some examples are: Chinese farm-raised shrimp and catfish because they contained antimicrobial contaminants in June 2007, Salmonella outbreak reported for Jalapeños grown in Mexico in July 2008, etc. To ensure food safety, there needs to be a comprehensive system in place that tracks food from farm to fork. A number of such systems commonly called traceability systems are already in place for some food products in developed countries. In the United States, Hazard Control Critical Points (HACCP) is a process-oriented food safety system already implemented for seafood. There is a whole gamut of tools that are representative of food quality and safety. Some of them are geographical identifiers, certifications, different kinds of labeling, trademarks, and patents.

In a global trading economy, identification of origin is one of the first steps toward food safety. Having a traceability system in place for every product is infeasible and cumbersome. Similarly for geographical identifiers; which are a more comprehensive origin labeling system that ensure quality and reputation is verifiable. It is not practical to implement such comprehensive systems for all food products. COOL operates more on the country-wide reputation rather than that of a particular supply chain. The best-case scenario then is that high risk products must be selectively chosen to implement food safety systems. Overwhelming consumers with information might not be feasible; instead selective information should be provided based on a case by case analysis. There might be tradeoffs with COOL in terms of information provided with respect to quality and safety, yet it is the most encompassing tool which meets with the basic and fundamental requirements in a global trading economy.

COOL acts as the simplest form of source identifier. It informs consumers about the origin of the food product. The feasibility of COOL and its role on food safety and quality is debated in literature. Many consider that the costs of implementing COOL far outweigh the benefits proposed by the policy. Others believe that COOL would benefit consumers who value the information. There is no clear consensus on the impact of COOL on society, but it is dependent on taking a holistic approach to the issue - identifying whom the benefits accrue to, implications on the supply chain, expectations and limitations of the law, and the effect on trade between countries.

In the continuum of food-information-providing tools, COOL serves to empower consumers with information regarding origin, so that they can make informed decisions based on their choice. COOL might not be as stringent as the laws require of traceability system, yet it documents information about the product, which is passed along in the supply chain. Compliance is verified but mandatory identification systems that would be required to track controlled product through the entire supply chain is prohibited. Thus, COOL is only a form of identification system; it reflects food safety only as far as

consumers perceive it from their perception of the reputation of a country. Essentially then, there is no underlying process that can verify the food safety aspect of COOL. But connecting the information available from a food safety crisis to COOL could result in achieving a preliminary or ad-hoc solution to the crisis. COOL maybe a proxy for food safety and quality, but it is the simplest and quickest tool which can be applied in a food crisis. It provides an opportunity to reduce risk and cost due to food safety problems or outbreaks that may originate in a particular country. If processing plants have product segregated and identified, they can avoid some of the tremendous losses emanating from shutdowns and recalls. Further, consumers can avoid products from the affected countries that are already on the retail shelf.

International agricultural and food markets are shaped by changes in consumer demand. And companies, other interest groups, and governments shape consumer demand. In my three essays, I focus on the former. The three essays proposed in my dissertation address the implications of consumer demand on food safety and quality. Farmers, food processors, food distributors, retailers, and food service companies are all faced with varied demands for food quality, including food safety, from consumers. The goal is to start with characterizing consumer demand for quality in general and then specifically look at COOL. My work departs from others as it looks into the current implementation of the COOL policy and evaluates its effectiveness on welfare and trade. COOL is a retail labeling law, which means foodservice sector is not labeled. This could lead to some unintended consequences such as diversion of lower quality seafood into the non-labeled sector. This is an unexplored area which I investigate using theoretical modeling and simulations, and extend to understand how trade between United States and major shrimp exporting countries is affected with COOL. By empirical estimation I seek to get insights on the effect of partial implementation of COOL on shrimp trade between developing countries and the United States.

The objective of my first essay is to develop a more complete picture of consumer demand for quality on the agricultural and food system. The focus is on consumers' willingness to pay for food safety, for other quality attributes, and for information about them. The magnitude of the valuation varies by food product, attribute, country, and study design. I survey recent economic studies and together with a case study on genetically modified foods suggest that consumer demand has a strong effect on agricultural and food trade. There is an ongoing differentiation of food products on the basis of a growing range of attributes. This research could be helpful to marketing agencies and public policy makers as well as for understanding consumer demand. It is expected that consumer demand for quality will remain a strong force in global trade over the coming decades.

In my second essay I delve into consumer demand for quality via origin information facilitated by country of origin labeling. I propose a theoretical model in which consumer heterogeneity is modeled. Consumers are considered to differ in their taste for quality with domestic seafood considered as high quality and imported seafood considered to be of lower quality. Origin is assumed to be synonymous with quality, so consumers use it as a cue to determine their preference for seafood. The main objective is to model quality

differentiation and analyze the consequences of partial COOL implementation for seafood in the United States, where part of the market (retail) is covered by labeling requirements and part (foodservice) is not. The hypothesis is that the implementation of COOL only in the retail sector could lead to unintended diversion of lower quality seafood into the non-labeled market. As a result, consumer and total welfare may not increase as much as the increase associated with a situation wherein all the sectors are labeled with no potential for diversion. Results indicate that diversion indeed takes place and consumer welfare is highest with total implementation of COOL versus partial. Also, accounting for costs of implementation and market power at the retail and foodservice level still shows no change in the results. Total welfare is largest under partial implementation because firms with market power are able to take advantage of the absence of labeling in the foodservice sector, thereby masquerading lower quality seafood as that of higher quality. The conclusion is that if the goal of COOL is to enhance consumer welfare contingent upon their preference for domestic seafood, then our results show implementing COOL in both retail and foodservice sector to be most desirable.

The final essay is an empirical test of the concepts introduced in the first two essays. The paper develops a conceptual model which takes into account vertical and horizontal product differentiation, i.e., consumers' valuation for quality via origin and preference for shrimp variety. COOL implementation on seafood in the United States excludes processed products from labeling while unprocessed products require labels indicating their origin. The hypothesis is that major shrimp exporters to United States have an incentive to change the product mix from unprocessed to processed shrimp with COOL implementation. This allows them to circumvent costs of labeling and avoid disclosure of quality via origin. An empirical model is designed based on the reduced form expressions of the conceptual model to test the implications of partial implementation of COOL on shrimp trade between developing countries and United States. With the recent food scares reported in media, it is assumed that consumers value origin information and could be influential in shaping trade between countries. I specifically look at the shrimp trade as it is the most popular seafood consumed in the United States and the majority is imported from developing countries. The contribution of this work is the investigation whether partial COOL implementation may be instrumental in developing countries exporting more of processed rather than unprocessed shrimp to the United States. Econometric results indicate that partial COOL implementation affects trade between major shrimp exporting countries and United States by diversion of unprocessed shrimp to the processed sector. These findings have important implications for public policy and firm strategic decision making.