

# An Exploratory Analysis to Understand Organic Food Market in the United States in Comparison to Europe

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## Introduction

To meet the increasing continuous demand of food, many techniques are used for mass production food but these techniques in turn have diminished the quality of many products. The negative effects associated with such production methods make them controversial in nature and thus requires discussion. One such method is the use of Genetically Modified Organisms (GMO), which involves genetically modifying the Deoxyribose Nucleic Acids (DNA) of plants or animals of interest to introduce certain traits such as resistance to pests or diseases. Food allergies are on a rise and researchers estimate that up to 15 million Americans suffer from vast number food allergies (FARE, 2014; Iyer, 2014). It is suspected that Genetically Modified Foods have been one of the contributing factors that have caused an increase in various allergies. Consumers not only have to think about the foreign entity present but also about the fact that there is no proper label instructions or requirements to differentiate GMOs from non-GMOs. Additionally, companies that make genetically modified seeds pay billions of dollars to stop policies that would potentially restrict their business activities (Brown University, 2000; Entine, 2014; Non-GMO Project, 2014).

Another very controversial method is the use of antibiotics and hormones in animal feed to prevent them from diseases and to promote faster growth. The continuous use of antibiotics leads to an antibiotic resistance developed in bacteria, viruses and other pathogens and results in super-bugs, which are transmitted to humans through the food chain. It is known that resistance has extended even to the fourth generation of drugs. The resulting Super Bugs not only affect the environment but also affect public health by causing infections and diseases, which are extremely difficult to treat and have high costs of treatment. WHO has cited these infections and diseases as one of the major causes for increased morbidity (disease-state) and mortality (death-state) rates (WHO, 2014; Wegener, 2012; Aarestrup, 2010; Organic Consumers Association, 2007).

Pesticide use in agriculture is another major nuisance that has adverse effects on our environment and on our health. They are absorbed by the growing plants and enter the food chain. They can cause skin rashes, affect nervous systems and are also known to be carcinogenic and therefore their use has to be strictly monitored (EPA, 2014). Other controversial products include, artificial flavoring agents such as Mono-Sodium Glutamate (MSG) and artificial sweeteners like Aspartame, which are intentionally or unintentionally added to the meals consumed. They are known to have compounds that stimulate the human receptors and lead to cardiac arrhythmias (Mercola, 2009). Another major controversial food product is the presence of Pink Slime up to a staggering amount of 70 percent in regular beef to meet the increasing demands from fast food industries. Pink Slime is unwanted beef carcass that has been treated with ammonia to decrease the bacteria present in it. The effects of pink slime have not been extensively studied yet. Although the presence of ammonia is not very desirable, the absence of it can create suitable environments for harmful bacteria like E-coli and salmonella can thrive and give rise to various infections. (Bellath, 2012; Stevens, 2012). In the light of these concerns, it is impertinent to understand the alternatives that are available for human consumption.

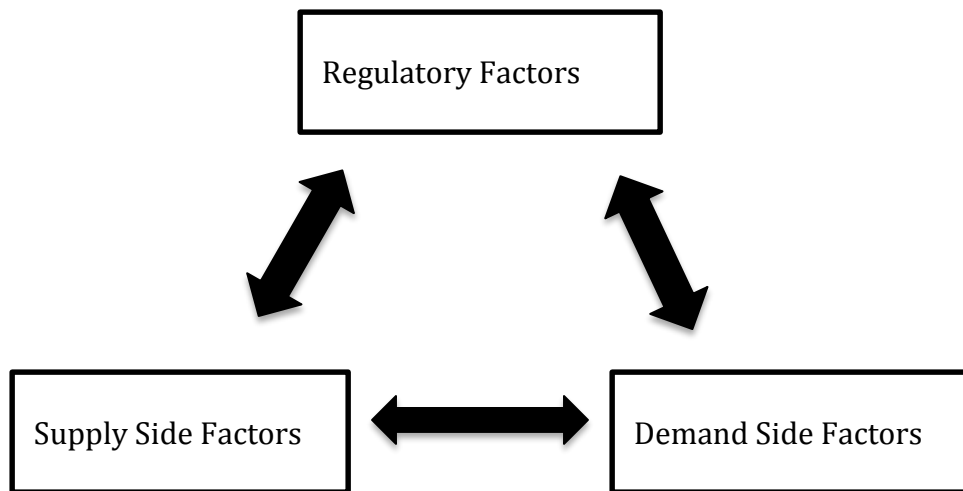
Organic food which is known to have lower risk of pesticide and antibiotic exposure could be a way of consuming right. Thus the purpose of this study is to understand the multidimensional facets that compound organic food production and consumption. The regulatory authorities such as the Food and Drug Administration (FDA) and the U.S. Department of Agriculture (USDA) have a good oversight over production and policies that support the production of organic food. The aforementioned factors have been widely discussed, but seldom communicated to consumers in a detailed manner. The regulatory authorities should ensure that their methods, rules and regulations are credible to gain support from all avenues. The limited nature of information on factors that affect supply of organic food; availability restricted by farming practices and climate conditions, the fluctuations in distribution channels, seriously narrowed our intention on examining these factors. The demand of organic food is understood by examining the motivation of consumers. Although many are motivated to consume organic food the premium prices hinder the organic food purchases to a large extent. Thus enlisting these factors would help us discuss the solutions that might help organic farming become the choice for many farmers and organic food the choice for healthy living.

## **A Conceptual Model to Explain the Factors That Effect Organic Food Production and Consumption**

An understanding of organic food industry entails, enlisting the major factors that impact organic food production and consumption. There are three primal factors that govern the organic food industry; regulatory, demand and supply. Regulatory factors are federal, national, and state laws that mandate the production, standards

such as implementation of certifications, labels, controls that are representative of organic foods. Regulatory factors directly impact the supply and demand of organic food, which in-turn impacts the consumption. Supply side factors such as availability due to climate/soil conditions or distributive channels either hinder or increase demand. The supply influences regulatory factors through trade organizations. Factors such as motivation to buy organic food and high prices, affect the demand of organic food. Also associations like AARP and businesses who have special interest influence regulatory factors. Thogerson (2010) explained this model based on EU market and has been adapted specifically to fit the US organic food market.

**Figure 1: Conceptual Model of Factors That Effect Organic Food Production and Consumption**



NOTE: Adapted from Thogerson (2010).

## **Regulatory Factors**

Regulatory authorities such as the USDA have strict practices and standards that enforce the differentiation of organic foods from other categories. Firstly, it emphasizes on the use of renewable resources for organic food production. Secondly, USDA requires that organic food should be free from conventional pesticides, synthetic fertilizers, sewage sludge, bioengineering, or ionizing radiation. Organic meat, poultry, eggs, and dairy products should not contain any antibiotics or growth hormones. Also, the 2002 USDA National Organic Standards regulation in most cases requires the farmland to be dedicated to organic farming for three years before that farm's products can be labeled as organic. Post the three-year mark, a government-approved certifier inspects the land and makes sure the rules and

regulations are followed. The regulations also mandate companies that handle and process organic food to be certified. Further, USDA enforces the use of labels such as '100 percent organic', 'organic' or 'made with organic' on food for ease of identification (USDA, 2014; FDA, 2014).

Apart from having standards and regulations, a strict adherence to the regulations is mandatory in order to build consumer's trust in the product's value. The rise of organic food imports from countries such as China, Ecuador, Mexico is particularly concerning because of the lack of stringent standards that govern the production. It took five years for the USDA to send auditors to inspect lands in China. Such issues negatively impact the credibility of organic food (The Cornucopia News, 2011). Misuse of organic food labels is another issue that has implications on product promotion and customer protection. Labeling violations result in more than 22 percent food detentions in US (Registrar Corp, 2014). For instance, federal law doesn't require the use of GMOs to be disclosed on packed food, although that is a mandatory requirement in 60 other countries. The US government allows the word "organic" on products that contain 95 percent organic ingredients, even if they contain questionable ingredients like monosodium glutamate. Products can be labeled "made with organic ingredients" even if they have 30 percent non-organic and 70 percent organic ingredients. Consumers who buy such products might be surprised to learn that 30 percent of their product could have been processed using genetically modified ingredients, which outweigh the benefits offered by organic ingredients (Entine, 2013). Thus labeling procedures should be updated and specifications of all the products on a package should be disclosed to ensure the consumer that the price justifies the product. Subsidies provided by the Political regulatory authorities are another major factor that supports the growth organic food sector. Some countries like Denmark, which is one of the top three organic producers in Europe, is highly ambitious in organic food sector and it is known not only to support the production of organic food but also to provide subsidies to support the demand of organic food. Germany, which is one of the largest organic market in Europe, also provides robust subsidies to support the production (Aschemann et al, 2007; Padel et al, 2008). Irrespective of the fact that the European countries have strong organic food market there exists a lot of research to help regulatory bodies such as the certification agencies to ensure standards are met and upgraded. The US regulatory agencies should adopt such techniques and methodologies to maintain the quality of the product and gain consumer loyalty.

## **Supply Side Factors**

Maintaining quality and integrity at each stage of the supply chain poses challenges. Today's organic food markets are demand driven unlike the markets from earlier days (Thogerson, 2010). Although almost every retail store in the US has a section allocated to fresh and processed organic food, there are evident shortages in the supply of organic products. Literature is limited to address one of

the most critical part of organic food consumption i.e supply. Mainly shortages faced are a result of practices and standards such as the use of natural fertilizers, minimal use of synthetic pesticides, which lead to lower yields and also the soil and weather. Since organic products are grown without the use of synthetic pesticides the produce can be low. To combat with this problem, the regulatory authorities are providing incentives to conventional farmers for switching to organic farming. The Environmental Quality Incentive Program of the USDA provides aid ranging from \$20,000 a year to \$ 80,000 for a period of six years to farmers switching to organic farming (Organic Farming Research Foundation, 2014). Although the premium price of organic food has been a deterrent for consumers, it can be a motivating factor for conventional farmers. However, once the continuous supply of organic produce is established prices will tend to drop that will positively influence demand. Another probable reason for lag in supply of organic food is the fact that organic growers need to wait for a period of 3 years before the land is ready to produce certified organic food (Dimitri C & Oberholtzer L 2009). Although it maintains the certainty of the standards but it can dampen the spirits of the organic growers. Even though, they are selling organic, they cannot charge as much because the lack of certification of the agricultural land. Special efforts should be taken to educate the farmers about the likelihood of an increase in demand for organic food in the coming years, thus motivating them to adopt organic farming.

Another potential factor affecting supply of organic food is the effectiveness of distribution channels. In most of the European countries such as Switzerland, Austria, and Denmark, organic food products are sold through supermarkets; and this probably is a contributing reason for organic food's relatively higher market share in these countries. Along with the increased availability of organic food in supermarkets, some European countries like Italy, Germany and Switzerland have also witnessed a recent increase in specialized organic retail sector. The sale of organic food products through conventional supermarket chains has not hurt the sale of specialized organic retailers, but in fact has augmented the sales of these specialized retailers. Due to the expansion of the organic market and the consolidation of its distribution channels, prices of organic food products have become more competitive in Europe (Aschemann et al. 2007). When the sales of organic food go up, the consumers can benefit from competitive prices achieved due to economies of scale in production and distribution. These leanings pertaining to the effective use of distribution channels should be applied to the organic food industry in the United States.

## **Demand of Organic Food**

In 2012, the retail sales of organic food in United States was approximately 31.32 billion dollars and is estimated to reach \$42 billion in 2014 (Statista, 2014). There is a large and growing literature, which addresses the demand of organic food specifically in the European countries (Thogerson, 2009; Hughner et al, 2007). The

demand in the US is rising but little research is in place to show the factors that either helps in increase or decrease of the demand. There are numerous surveys and questionnaires that indicate that majority of the customers would buy organic food because they believed it is nutritional and healthy as compared to conventional food, and others indicated that taste, environmental concern as other factors that affected their choice (Context Marketing, 2009).

The first and foremost aspect that distinguishes organic food consumers from the conventional consumers is the 'motivation'. Values and attitudes are the key motivators for organic food consumption (Shwartz, 2006). Since motivation can solely drive people to buy organic food, it is necessary to discuss it in a detailed manner. One of the most important values that convince people to buy organic food is how they perceive the health benefits (Chinnici et al, 2002; Zanolli & Naspetti, 2002; Context marketing, 2009). Although consumers' perceptions include factors such as nutritional value, absence of synthetic pesticides, and antibiotics, frequently scientific facts are usually not transparent enough. Therefore, a discussion about these facts is warranted. A recent meta-analysis by Stanford University showed that there is no nutritional difference between the organic and conventional food, as consistent with the USDA implementation standards of organic food production. However, it has recently come under intense scrutiny as critics and companies who face a threat from the rising sales of organic foods are using this opportunity and are emphasizing on the no 'nutritional difference' and thus questioning the premium prices of organic products (Smith-Spangler et al).

On the contrary, Organic food has many benefits. Produce is known to have significantly high phosphorous content; organic chicken has higher levels of omega-3-fatty acids compared to the conventional chicken. Organic food has higher levels of antioxidants and lower risk of exposure to antibiotics (Smith-Spangler et al). Majority of consumers (60-51%) considered no-pesticides and no-antibiotics as an important consideration for buying food, thus safety of food was the major motivational value behind buying organic (Dimitri & Oberholtzer, 2009). Safety aligns well with the fact that organic food is known to have lower heavy metals and 30 percent lower risk of pesticide contamination than conventional produce (Smith-Spangler et al, 2012; Hoogenboom et al, 2008; Watson, 2012; Baranski et al, 2014).

Other values that predict motivation are, 'Hedonism' which is attributed to the taste of organic food and is the most important value that predicted motivation in Swedish consumers and US consumers (Magnusson et al, 2001; Hughner et al, 2007). 'Stimulation' attributed to excitement, novelty and curiosity was highest amongst the Sicilian organic food consumers (Chinnici et al, 2002) and 'Universalism' attributed to the concern for environmental and welfare of animals. 'Benevolence' attributed to the sense of helping the local community were also high amongst the organic food consumers than other consumers (Magnusson 2001; Zanolli & Naspetti, 2002; Krystallis et al, 2008). Furthermore, self-direction,

conformity to the social norms, power and social-status were the other values that were attributed to motivate consumers to purchase organic food. Overall, the regular organic food buyers had a more idealistic cognitive structure, which possibly explains the reason for their preferences (Artsens, 2009).

Beliefs about health, taste and concern for the environment have the strongest influence on attitude that cause buyers to prefer organic food (Thogerson, 2003). The multi-component view of attitude assumes that evaluations of organic food are influenced by cognition as well as affect and it has been elaborated by Ajzen (2001). In Italy, attitude was a good predictor of organic food consumption of fruits and vegetables (Saba and Messina, 2003). In sum, a favorable attitude towards organic food is likely to strengthen an individual's intention to purchase or consume (Artsens, 2009). Food cultures also have a significant effect on the organic food consumption. Although very limited research exists to elaborate the food cultures and their effect on organic food consumption, it can still be stated that many European countries, the culture has an influence to devote large portions of lands organic farming as compared to US (FDA, 2014). Countries that emphasize on sustainable agriculture will have relatively larger demand for organic food.

The demand of organic food is surging in most parts of the world but there are major deterrents that severely narrow down the actual population/consumers who want consume organic food. Unlike conventional foods, organic foods are not exposed to many harsh pesticides, and therefore organic fruits and vegetable tend to bear more blotches and marks and it has known to have some negative impact on demand. However appearance of food is only concerning for fruits and vegetables and not for processed foods (Yue et al, 2009). The premium price associated with organic food products is perceived as a major deterrent to its demand, with consumers sometimes having to pay 100% more than what they would pay for the conventional products. Even people with high motivation struggle to rationalize the premium price of organic foods (Hughner, 2007; Zanolli and Naspetti, 2002). Results of a study investigating consumer behavior among citizens of many European countries revealed that they are willing to pay slightly higher prices for organic products than traditional products but not as much as the current market price (Millock, 2002). Future research avenues will examine the differences among organic product consumers and non-consumers, their reasons, values, and attitudes as well as price sensitivity of demand for organic products.

## **Discussion**

The exploratory analysis lists the various factors that govern the organic food production-consumption in the US. It is evident in US, that organic food production necessitates strict standards, practices and policies that subsidizes production in many European countries that have a large organic food market. Also like many other European countries, the supply of organic food in the US cannot meet the

increasing demand. This is mainly attributed to practices that are used for production, climate and lack of established distribution channels. The increasing demand of organic food can be attributed to factors such as motivation, values and attitudes of consumers; although complex in nature, it helps to differentiate consumers from non-consumers. The only major deterrent that one should address is the premium price factor that substantially reduces the market penetration. There is minimum literature to address this issue and future studies are needed to understand on how the prices can be decreased.

The available literature addresses generic concepts but it is not specific to organic food consumption in the US. Thus this is a first of a kind effort to list all the factors that are required to understand the production-consumption of organic food in the US. There have been strict standards and practices approved collectively by the USDA, FDA, NOCP but it is never communicated efficiently to the public. The organic food products don't contain many of the harmful pesticides or irradiated material and all of this is ensured by these regulatory authorities. NOCP ensures the lands have been certified and FDA ensures the integrity of the product. But certain incidents make these products less credible and thus situations should be avoided if we want to see an increase in demand of organic food. Another important issue is the consumers' superficial knowledge about the organic food production and most of them are not aware of the actual reasons of why it is called organic. The words "Natural" and "Organic" are often used interchangeably, and interpreted incorrectly. Thus the role of regulatory authorities is to minimize such confusions. The important aspects of the organic food production should be communicated effectively, and policy makers need to establish robust policies that can do the same. It can also be simple steps such as making labels more descriptive of the procedures that make the product unique. The other issue that needs immediate attention is the import of organic foods from countries where monitoring of standards that govern production are extremely difficult. Organic food production needs good oversight from the regulatory authorities for both local and international producers.

Shortages faced in the US are a result of the low productivity of organic food due to the practices that are unique to organic food and USDA takes initiatives to improve the supply of organic food by providing incentives for farmers to move to organic farming. But robust policies backed up by the political parties are required to overcome the shortages faced, but there has been a lack of comparative research investigating the relationship between national policies and the development of the organic sector and market. It is also evident from literature that many of the European countries such as Germany and Denmark have strong policies and subsidies that support not only the production but also the demand and supply of organic food. But it is not clear how such provisions are made. Therefore it is extremely difficult to comment on what policies can help improve the situation. Since it is obvious that there is a surging demand of organic food farmers can be



educated about how they can meet this demand and the advantages of switching to organic farming now than later.

Many studies have used motivation to gain an understanding on demand by investigating values, behavior and attitudes that distinguish organic food consumers from non-consumers. Motivation driven by these attributes may be similar in all parts of the world but cannot be certain that the consumers will have the similar motivation. Thus this study lists the major attributes that can be extrapolated in understanding consumers in the US. It is evident that consumer awareness and knowledge of organic food products may have impact on the motivating factors. Only if consumers are aware of the facts that organic food is healthier, free of pesticides or antibiotics, consumers can associate health, safety, environmental concern and other such attributes to organic food. It is important that right information is available to consumers so that they are motivated to eat healthy. Many critics have undermined many of the benefits that organic food has to offer and by doing so they are limiting the society to enjoy many benefits of organic food. This kind of behavior is although not avoidable can be neutralized by making consumers aware by campaigns or associations.

As mentioned earlier it is clear that the exorbitant prices of organic food are the only major deterring factor for consumers. But there has been little effort to hypothesize ways in which the prices can be reduced. An obvious solution of increasing the supply of organic food to meet the demand and thus stabilizing the prices is definitely not easy. The regulatory, supply and demand side factors that have been discussed are not mutually exclusive but are interdependent. Thus we need collaboration of various sectors to bring about a decrease in the prices.

High education and high income are two pre-requisites of people who are willing to invest on a healthier lifestyle. This can be corroborated by the fact that Maryland, which is one of the richest states in the USA is known to have a high demand for organic food (Hess et al) . Thus a research study involving the consumers from Maryland, Illinois, New York, California, Washington states where the demand for organic food is high will provide a better understanding of the consumer behavior, values and attitudes to identify effective strategies for increasing the organic market on other states where the organic food demand is low.

It is apparent from the literature that although the European markets under consideration have same common deterrents such as the premium prices that affect the demand of organic food, their incentive plans and policies are functional in providing effective support for the production and distribution and demand of organic produce.

## **Limitations and Future Research Avenues**

The regulatory, supply and demand side factors that affect organic food production and consumption in the US are discussed in this article but are challenged by the limited literature that is available. There are some factors that are beyond the scope of a literature review. To gain a better understanding of such factors in a qualitative study may be an eye opener. The increasing demand of organic food and the challenges faced here in the US to grow organic food have resulted in increased organic product imports from China. It is important that regulatory bodies should have strict adherence to standards and regulations to maintain credibility. It is been very challenging to study the supply side factors, as there is not much information available to suggest how this could be improved. A better understanding of the distribution channels and their effect on the supply of the organic food are needed. Motivation to buy or consume organic food has been only studied mainly in the European market and thus extrapolations have been made to generalize the reasons behind consumption of organic food. Thus this might not be true representation of the US consumers. The premium prices are considered as a major deterrent but there is very little knowledge available on how regulatory, supply or demand side factors can influence prices. Furthermore, standards that are limiting the production of organic food and the climate conditions may hinder the supply of organic food which may, in turn, has a negative impact on the demand side. Thus decrease in the prices of organic food is a time dependent factor and may require robust involvement of regulatory authorities and the government.

A qualitative or quantitative data in the form of questionnaires from regulatory authorities such as the USDA, FDA will help us gain understanding on how exactly policies support the production. Although there is some literature to understand motivation in the US, a qualitative study of high income states compared to low income states could help us gain a better picture of the what motivates consumers to indulge in organic food other than the fact that they can afford the premium prices of organic food. Addressing issues that can increase the production of organic food is remarkable, but the big question still is whether organic farming can produce enough food to sustain the current world population without increasing land occupation for agricultural purpose.

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**Relevance to Marketing Educators, Researchers and Practitioners:** This paper is useful in understanding the dynamics of organic food consumption in the US compared to Europe.

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