

The Ethics of Corn

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Abstract

Corn has become an increasingly popular use as an artificial sweetener in many foods that are eaten on a daily basis. Because it is inexpensive to grow the corn, the foods it is added in are cheap as well. What the public may not know about their diet that includes corn products are the hidden implications of eating so much corn. High fructose corn syrup has been associated with mercury poisoning. The corn subsidies that allow cheap production to take place have been linked to obesity; these subsidies have also been linked to the impoverishment and displacement of foreign corn farmers in Mexico. This paper discusses such claims and applies different ethical theories such as deontology, utilitarianism, the veil of ignorance, and Steven Pinker's moral 'codes', to sort out the dilemma of whether or not corn should be used as an additive in food products.

Introduction

Nutri-Grain, Kraft, Yoplait, Smucker's, Hershey's, Tropicana, and Quaker. These brand names of food items are commonly recognized across the United States; their products are staples in the American household. Each of these brands also produces foods containing high fructose corn syrup (Wallinga et al. 5). Upon learning many frequently consumed food products contain this substance, one may begin to question what it is that one is putting into his or her body. High fructose corn syrup, commonly called HFCS, is an artificial sweetener. It is composed of fructose and sucrose and is used as a cheaper replacement of the expensive, imported table sugar (Wallinga et al. 12). It is synthetically composed in laboratories and derived from corn, as its name would imply (Wallinga et al. 11). Realizing what exactly this concoction is does not necessarily put the consumer's mind at ease, however, as there may still be queries regarding its use in processed foods. For instance, corn production in the United States relies entirely on government subsidies, or financial grants, that aid in the production of the corn. These subsidies are given to corn farmers because of a high demand for the crop as it is processed and added to food items for flavoring or its preservative qualities (Wallinga et al. 9). They are also suspected of relating to health problems such as obesity and to the practice of agricultural dumping, where a crop is sold in foreign countries for a cost below the price of production ("United States Dumping on World Agricultural Markets, 1"). Considering how corn can be connected to these issues, is it ethical to manufacture products

containing the crop? Should the food industry continue to process foods using corn as an additive?

To determine the answers to these questions, I will be examining a number of different ethical theories. The ethical thinker who will be discussed most, Steven Pinker, believes in five moral codes: freedom from harm, fairness, respect for authority, a sense of loyalty within a community, and purity (Pinker 36). In this paper I will be discussing the ethics of corn as an additive in terms of Pinker's freedom from harm, fairness, loyalty, and respect for authority codes. Additionally, I will discuss the ethical theories of deontology, utilitarianism, and 'the veil of ignorance'.

While it is difficult to have a 'right' and 'wrong' answer as to whether something is ethical or not, my personal thoughts are that the food industry's act of using corn in our foods is unethical. I think there are many more things our government should be spending money on rather than this crop; putting money into the nation's education system, for example, or creating more job opportunities for the large number of unemployed individuals in the country, would be more beneficial. I feel it is wrong of them to encourage the mass-production of corn to make unhealthy processed foods rather than encouraging farmers to produce other more wholesome fruits and vegetables. I believe that the food industry continues to produce these unhealthy processed foods because they are able to reap the benefits, in the form of money, even if it means that the general population suffers as a result.

According to the information I have discovered however, the use of corn as an additive in food products can be both ethical and unethical depending on existing circumstances. I will be examining three aspects of the corn industry and its relationship to consumers: the contamination of high-fructose corn syrup with mercury, corn subsidies and specifically their relationship to obesity in the United States, and the practice of agricultural dumping into Mexico. These three case studies, along with the ethical theories and concepts I have listed, will serve to prove or disprove my thesis.

High Fructose Corn Syrup and Mercury

A risk associated with the use of high fructose corn syrup in the manufacturing of food that is not highly publicized is the possibility of mercury poisoning. The average individual may not understand what correlation corn syrup has with mercury, but the connection lies with the way in which the syrup is produced. David Wallinga, Janelle
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Sorensen, Pooja Mottl, and Brian Yablon, in their article “Not So Sweet: Missing Mercury and High Fructose Corn Syrup” explain by speaking of the production of the artificial sweetener: HFCS is produced using a substance called caustic soda. Caustic soda is produced in chlorine plants that use mercury to facilitate the production (Wallinga et al. 10-11). Thus the chlorine retains remnants of mercury, contaminating the HFCS and subsequently the food item containing the HFCS (Wallinga et al. 10). To enlighten the reader of the dangers of mercury, the authors explain that it is “a heavy metal with the potential to damage many organ systems...toxic in all of its various forms” (Wallinga et al. 12). They then go on to say that exposure to mercury on any level can profoundly affect brain development (Wallinga et al. 12). In a study of mercury content in HFCS-containing processed foods done by the Wallinga group, one out of every three foods tested contained mercury (Wallinga et al. 16).

Controversy lies in the fact that foods the American population eats on a daily basis contain a hazardous substance and that the United States Food and Drug Administration, the FDA, fails to adequately acknowledge this danger. Presently, the FDA labels HFCS as “GRAS”, or “generally recognized as safe”, meaning that “although a food ingredient hasn’t been completely studied or tested for safety, the FDA...considers it to be safe, putting the onus instead on the public” (Wallinga et al. 9). Given this information, there may be a lack of ethical cohesion. One would think that because the FDA is responsible for food safety matters, they would not simply leave such an issue up to the public.

In Pinker’s article “The Moral Instinct”, he describes different types of morals, one of them being that we ought not to harm others (Pinker 36). To elucidate what this moral code means, he gives an example of pinpricking. To stick a pin into your own palm is by all means acceptable, but to stick a pin into the palm of an unknown child is not acceptable and, because it inflicts great harm, is unethical (Pinker 36). The fact that there is a known serious danger of consuming mercury and yet consumers are not stopped from consuming food items containing mercury seems harmful. There is great possibility of inflicting danger onto others by putting mercury-containing products into the food market, and yet it is still done. Just as it is wrong to purposely harm a child, it is wrong for the HFCS industry to continue harming consumers. According to this methodology, because HFCS-containing products can cause harm, corn ought not to be used in food products.

Pinker also states that we ought to respect those with authority (Pinker 36). Compared to the average U.S. citizen, a member of the FDA might be considered to have authority as he or she has the power to decide if food items should be banned or not. However it does not seem right to hold a group of people in high regard if they are not truly looking out for our best interests. Interestingly enough, Walter Glinsmann, an ex-member of the FDA and author of a report written in 1986 clearing sugar of its negative health-related accusations, went on to become an advisor for the Corn Refiners Association, or CRA (Taubes 3). The Corn Refiners Association represents the corn industry. In discussing the failure of Congress to recall tainted meat products, Eric Schlosser in Fast Food Nation mentions how “[t]he federal government has the legal authority to recall a defective toaster oven or stuffed animal – but still lacks the power to recall tons of contaminated, potentially lethal meat” (Schlosser 9). Just as curious as it is for those in power to fail to remove toxic meat from the shelves, it is curious why those in power fail to remove mercury-containing HFCS from the hands of consumers. Glinsmann’s defense of sugar and HFCS and subsequent move to the CRA may explain why the FDA does little to regulate the mercury contamination. Perhaps any practice that sustains the corn industry benefits Glinsmann as well.

To so inadequately perform their duty to protect people from consuming unsafe foods seems ethically undeserving of commanding respect. Furthermore, in failing to sufficiently protect citizens, the FDA does not fulfill their administrative duty. Philosopher Immanuel Kant’s theory of deontology says that people should act with duty in mind. It is the duty of the FDA to protect the U.S. public, but instead of regulating mercury contamination or at least properly warning the public, they leave the decision to eat potentially dangerous processed corn-containing foods to consumers.

Wallinga et al. label mercury-contaminated HFCS “a completely avoidable problem” (Wallinga et al. 4). HFCS incurring mercury as it is produced is no longer necessary; newer technology exists to produce chlorine that does not involve mercury. Many chlorine production plants in the United States have switched over to using this new technology as it is more efficient (Wallinga et al. 4), but there are still some plants that have not yet switched. It is unclear why exactly the remaining chlorine plants have not yet made the switch, but if all chlorine production plants in the United States were to start manufacturing without the use of mercury, HFCS would become safer to consume.

In doing so, not only would the chlorine plants be benefitting themselves as they would have more efficient production, but the end product containing the HFCS would no longer be toxic and consumers would not be harmed. This scenario, according to Kant, ought to be followed through with as it benefits everyone at large. As his theory of utilitarianism states, it would produce the greatest good for the greatest number of people.

Corn Subsidies and Obesity

A more commonly heard association between corn and health is obesity. Scott Fields, author of article “Fat of the Land: Do Agricultural Subsidies Foster Poor Health?” suggests that subsidies for corn farmers do perhaps encourage poor health and even obesity, and that the use of corn causes a socio-economic division that forces less fortunate people to bear the brunt of its use.

Farm subsidies were initially begun as a way to “stabilize crop prices, keep farmers going, and provide farmers with an affordable, reliable supply of food” (Fields A821). Although these subsidies are now almost depended upon by farmers, they have created an affordable, reliable production of corn. Since it is now so readily available, the corn is incredibly cheap and thus the foods that use it as an additive are incredibly cheap. However these processed foods are generally high in sugar, fat, and calories, while low in nutritional value, and their cheap costs make them more affordable to poor people (Fields A821). To clarify how these processed foods contribute to obesity, Fields quotes Darius Lakdawalla, an economist, in saying that “it’s a very simple explanation. People face cheaper food. They eat more. And they weigh more” (Fields A822). Michael Pollan, in chapter 16 of his book The Omnivore’s Dilemma, seems to agree with Fields and Lakdawalla when he says, “...food companies put their efforts into grabbing market share by introducing new kinds of highly processed foods...sold under the banner of ‘convenience’...” (Pollan 301). Food companies know that people who have less money will be more willing to buy cheaper foods, and as a result of farm subsidies, cheaper foods are effortlessly produced.

While these subsidies provide inexpensive options for poor people, according to Fields, they do more harm than good. The fact that farmers receiving payments from the government and food companies producing artificially-sweetened foods seem to be helping the cases of obesity grow is unethical. According to Pinker, it is “bad to harm others and good to help them” (Pinker 36). By failing to provide cheaper, healthier food

options to the general public and instead promoting the purchasing of processed foods containing corn additives, government subsidies hurt people rather than help them. Fields quotes professor of medicine and nutritional sciences Richard Atkinson as saying that “There are a lot of subsidies for the two things we should be limiting in our diet, which are sugar and fat, and there are not a lot of subsidies for broccoli and brussels sprouts” (Fields A823), and he is correct. Adeli et al. in “Fructose, Insulin Resistance, and Metabolic Dyslipidemia” explain how unhealthy high fructose diets are: “High fructose diets can have a hypertriglyceridemic and pro-oxidant effect, and fructose fed rats have shown less protection from lipid peroxidation. Replacing the fructose in these diets with a more natural source of high fructose, honey, reduces this susceptibility and lowers plasma nitrite and nitrate levels” (Adeli et al. 7). Instead of helping farmers grow more wholesome crops, the government helps them grow enormous amounts of corn. Much of this corn is then produced into HFCS which, as is demonstrated with the rats discussed in this paper by Adeli et al., can cause many health problems if consumed too often in one’s diet. Until other agricultural sectors that produce crops containing lower levels of fructose, for example, receive the same types of subsidies that corn farmers receive, consumers will remain in danger by consuming corn products and the government will continue acting immorally.

While some people believe that subsidies for corn farmers are a cause of obesity, not everyone is convinced. Alston et al. in the article “Farm subsidies and obesity in the United States: National evidence and international comparisons” write that the subsidies do not actually have any large significance on the United States’ obesity epidemic. In fact, Alston et al. go so far as to say that “any effects of U.S. farm policies on U.S. obesity patterns must have been negligible...even entirely eliminating the current programs could not be expected to have a significance on obesity rates” (Alston et al. 470). The authors instead blame dietary patterns on the ever-rising rate of obesity in the United States, saying that the national food and nutrition programs ought to be revised instead (Alston et al. 1). In a report from the *Journal of the American Heart Association*, Flickinger and colleagues have similar suggestions. They state that added sugar consumption in general ought to be limited as it “displaces nutrient-dense foods in the diet” (Dowling et al. 1), and also believe that the FDA ought to provide better labeling concerning added sugars on processed foods (Flickinger et al. 2486). In terms of added

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sugars, white, brown, and corn sugars are all included (Dowling et al. 1). Given this information, one can deduce that farm subsidies are not in fact harming anyone. Through the foods that are produced as a result of these subsidies, there is no true correlation to obesity. People ought to be responsible for what foods they choose to consume.

Forshee et al. in their paper entitled “Critical Examination of the Evidence Relating High Fructose Corn Syrup and Weight Gain” agree. Focusing on the supposed relationship between HFCS and obesity, the paper examines other papers that have been written on the topic. But Forshee et al. make one clarification that is usually not remembered: “...fructose alone is irrelevant to the HFCS and weight gain debate. HFCS is not fructose” (Forshee et al. 2). Many studies, like the ones discussed in Forshee and colleagues’ paper, observe the relationship between fructose and obesity, since HFCS usually contains around 55% fructose. However, it is important to note that the two are different substances, so HFCS cannot be held responsible for obesity simply if fructose can. According to Forshee et al., the corn derived from corn subsidies to be used in HFCS is not the cause of this major health problem.

Since according to Alston and Forshee and their colleagues there is no harm being done, corn subsidies can still be viewed as ethical. Pinker says that it is one’s duty to do no harm unto others, and since obesity and the use of corn in processed foods are seen as two unrelated issues in these papers, the government’s financial aid to farmers should continue.

Agricultural Dumping

Subsidies provided to corn growers in the United States by the United States government affect not only this country, but foreign countries as well. Mexico suffers adverse effects at the hands of their northern neighbors; in some parts of the country, seventy percent of the corn-dependent population lives in extreme poverty (Fanjul and Fraser 6). Members of Oxfam International Gonzalo Fanjul and Arabella Fraser write of the hardships of Mexicans in their report “Dumping Without Borders”: following the creation of the North American Free Trade Agreement, or NAFTA, the Mexican market was opened to United States imports. Because such high subsidies are given to United States corn farmers, the crop is grown in excess and is then imported into Mexico where it is sold cheaper than the corn from Mexican farmers themselves. Chantal Thomas writes in “Globalization and the Border: Trade, Labor, Migration, and Agricultural Production

in Mexico” that upon the creation of NAFTA, “Mexico had about three million corn farmers” while “the 75,000 corn farmers in Iowa produced twice as much corn as Mexico, at half the price” (Thomas 886). Even though Mexico had an astounding number of farmers, a single state in the United States was producing more corn. Mexican farmers have therefore been forced to compete for business and have been struggling to produce enough income. Their options are to either migrate with or without their families to the U.S., seeking better job opportunities; or stay, and find second jobs along with struggling to send their children to school (Fanjul and Fraser 7).

It seems that this practice of agricultural dumping does more to harm the Mexican people than it does to help them. But, quoted as he complained about anti-agricultural dumping, Senator Norman Coleman said, “...we produce more than we can consume in this country and so we need access to foreign markets if our farm families are to earn a decent living” (Fanjul and Fraser 9). These harsh words violate John Rawls’ ‘Veil of Ignorance’ theory, which states that one ought to put a veil over one’s face to be completely unaware, or ignorant, of circumstances. Regardless of whether or not agricultural dumping benefits our farmers, Senator Coleman ought to realize what the effects are to others. In saying that the importation of corn into other countries, at whatever cost, is necessary to benefit those in our country, there is a lack of compassion displayed to the plight suffered by foreigners.

Furthermore, the wealth that is gained by agricultural dumping is not gained by all. According to Fanjul and Fraser, “around one-fifth of the richest corn farms receive nearly one half of government payments to the sector...average annual payment to a very large farm is six times that to a small, low-sales farm...despite the fact that the smaller farms make up 75 percent of all corn farms” (Fanjul and Fraser 13). The corruption illustrated with the distribution of corn subsidies clearly violates Pinker’s moral code of fairness. He gives an example of accepting a television from a friend who had received it free of charge versus accepting a television from a friend who had received it from a thief who had stolen the television (Pinker 36). He notes that the second option, the immoral option, is far more corrupt. This same ethical thinking can be applied to the corn subsidies that result in agricultural dumping: it is unfair that the richest farmers are receiving the most money while smaller, poorer farmers receive less. Farmers who are already rich do not *deserve* to get more help than farmers whose businesses are small and financially

struggling. One party receives something that another party deserves and should get, violating the code of fairness.

Relating to the concept of franchising as described by Schlosser, the United States government can be said to be a franchisor and small farm owners the franchisees. Schlosser says that one, the government in this situation, provides the supplies, and the other, small farm owners, provide the work (Schlosser 94). The government provides farms with subsidies in order to produce corn and the farmers perform the labor. However, this partnership is again unfair in that small, low-income farms account for most of the farms in this country yet receive less than the few, large farms. This franchisor and franchisee relationship can be illustrated with the idea of Trolleyology. Trolleyology is a way of interpreting Utilitarianism, and, according to a Utilitarian, asserts that in a situation where a train is about to run over five helpless people, one ought to pull a switch that would allow the train to switch its tracks and instead run over just one person. Because five people would be saved and only one person spared, one is morally obligated to do so. In accordance with this theory, it is immoral to give less financial relief to smaller, poorer farmers instead of the big, well-off farmers. Since small corn farmers make up 75% of the business (Fanjul and Fraser 13), they ought to receive more help. To act with ethics in mind, the government, or franchisor, ought to provide more subsidies to these farms rather than large farms.

Contrary to information given by Fanjul and Fraser is Timothy A. Wise's "The Paradox of Agricultural Subsidies". Wise presents material showing that agricultural dumping is in fact not as large of an issue as some reports may make it out to be. The Producer Support Estimate, or PSE, is an international 'measure' of producer subsidies (Wise 2). This form of measuring government support often inaccurately calculates the amount of subsidies being given as it does not directly measure them, but estimates. In fact, Wise says that "policies that lower prices in exporting countries-even if these are due to increases in domestic or export subsidies show up in other countries' PSEs as an increase in domestic support for their own producers" (Wise 17). Clearly then, the United States' practice of agricultural dumping does not pose harm to foreign farmers, but actually helps them. According to Pinker, this is perfectly acceptable. Again, he states that "it's bad to harm others and good to help them" (Pinker 36). Wise's information shows that our dumping of excess corn into the Mexican market helps, not harms, them.

In addition to the insight provided by Wise, in reference to Senator Coleman's statement about needing access to foreign markets so that our farmers may live comfortably (Fanjul and Fraser 9), he can be considered to be within ethical boundaries with this statement. Pinker says that we as humans "value loyalty to a group, sharing and solidarity among its members..." (Pinker 36), which is exactly the point that Senator Coleman attempts to get across. If we are producing more corn and not ridding ourselves of it to receive more profits, our farmers will suffer. As a national community, the well-being of our farmers should be considered before the citizens of any foreign nation. Senator Coleman's words are simply showing his loyalty to U.S. citizens and corn farmers, and so according to Pinker, Senator Coleman is correct and so the practice of agricultural dumping is perhaps not as unethical as Fanjul and Fraser portray it to be.

Conclusion

Before I had begun my research into this topic, I had formulated a hypothesis on whether or not corn should be used as a food additive. Not knowing nearly any information that I now know I had speculated that corn should not be used and that to do so would be violating many ethical laws. According to the facts and data that I have accumulated and read of throughout this process, I now believe my original hypothesis to be partially correct and partially incorrect.

One of the largest ethical violations in the corn industry is that consumers are not being kept from harm's way, which Pinker believes ought to be done. By risking mercury ingestion through eating HFCS and eating food products that, because of corn subsidies are linked to obesity, American consumers are being harmed. Even in Mexico as a result of agricultural dumping practices, citizens are being harmed. In these ways, corn is detrimental and therefore should not be added to foods.

That I was able to find many counter-arguments to my initial hypothesis is what has made me believe that it was also partially incorrect. There is information entirely refuting that people who consume corn-containing products will be harmed. According to some of the authors I have discussed, corn subsidies may actually not play a role in obesity. If HFCS manufacturing plants were to switch to newer technologies and avoid mercury contamination, consumers would be protected from further ingesting toxic foods.

All if the theoretical framework provided through this paper can be proved true according to the information that has been researched. Concerning Pinker's moral themes

of respect for authority and freedom from harm, the information I have collected proves these principles to be true. He says that we ought to respect authority figures but since the FDA, a group of people who have authority over what is deemed safe to eat or not, have not been doing their duty to the public, it seems correct that the public should not be obligated to respect them as much. Deontology, the idea that people ought to act according to their duties, is proved to be true as well by the FDA's insufficient implementation of their duties. Additionally, the fact that citizens are being hurt instead of being helped as a result of consuming so much corn does not seem right and also verifies Pinker's belief. I strongly believe that it is immoral to put others in harm's way, and have presented cases where the corn industry clearly violates this moral rule. According to the idea of Trolleyology, I believe the numerous amounts of small, family-owned corn farmers should be getting help rather than the handful of rich, corporate corn farmers in the United States. It does seem unfair that a large amount of people who need more help than a few number of people are receiving less help and this situation proves Trolleyology to be a correct ethical solution.

In some ways it can be thought of as acceptable to use corn as an additive in food products, for instance if it is not harming others or if it is benefitting more people than it causes detriment to. In some ways however, the use of corn is unacceptable and should not be allowed.

Bibliography

- Adeli, Khosrow, Heather Basciano, and Lisa Federico. "Fructose, Insulin Resistance, and Metabolic Dyslipidemia." *Nutrition and Metabolism*. BioMed Central Ltd, 2005. Web. 30 Apr. 2011.
- Alston, Julian M., Daniel A. Sumner, and Stephen A. Vosti. "Farm subsidies and obesity in the United States: National evidence and international comparisons." *Food Policy* 33.6 (2008): 470-479. *Academic Search Complete*. EBSCO. Web. 18 Mar. 2011.
- Dowling, Emily C., Douglas Midthune, Timothy S. McNeel, Meredith Morrisette, Francis E. Thompson, and Christopher A. Zeruto. "Interrelationships of Added Sugars Intake, Socioeconomic Status, and Race/Ethnicity in Adults in the United States:." *Journal of the AMERICAN DIETETIC ASSOCIATION*, Aug. 2009. Web. 1 May 2011.
- Fanjul, Gonzalo, and Arabella Fraser. "Dumping Without Borders." *Rep. Oxfam International*, Aug. 2003. Web. 20 Mar. 2011.

- Fields, Scott. "The Fat of the Land: Do Agricultural Subsidies Foster Poor Health?" *EHP Online: Home of Environmental Health Perspectives*. Oct. 2004. Web. 27 Feb. 2011.
- Flickinger, Brent D., Linda .. Van Horn, Rachel K. Johnson, Dorothea K. Vafiadis, and Shirley Yin-Piazza. "Translation and Implementation of Added Sugars Consumption Recommendations: A Conference Report From the American Heart Association." *Circulation* (2010): 2471-487. Print.
- Forshee, Richard A., Maureen L. Storey, David R. Lineback, Sanford A. Miller, Theresa A. Nicklas, Gary A. Weaver, and John S. White. "A Critical Exmainment of the Evidence Relating High Fructose Corn Syrup and Weight Gain." *Taylor and Francis Group, LLC*. Web. 26 Apr. 2011.
- Pinker, Steven. "The Moral Instinct." *New York Times* 13 Jan. 2008: 32-38.
- Pollan, Michael. "16." *The Omnivore's Dilemma: a Natural History of Four Meals*. New York: Penguin, 2006. 287-303. Print.
- Schlosser, Eric. "Introduction." *Fast Food Nation: the Dark Side of the All-American Meal*. New York, NY: Perennial, 2002. 1-13. Print.
- Schlosser, Eric. "Success." *Fast Food Nation: the Dark Side of the All-American Meal*. New York, NY: Perennial, 2002. 91-111. Print.
- Taubes, Gary. "Sweet and Vicious: The Case Against Sugar." *New York Times Magazine* 17 May 2011. Web. 29 Apr. 2011.
- Thomas, Chantal. "Globalization and the Border: Trade, Labor, Migration, and Agricultural Production in Mexico." University of the Pacific, McGeorge School of Law, 2009. Web.
- "United States Dumping on World Agricultural Markets." www.iatp.org. *Institute for Agriculture and Trade Policy*, Apr. 2004. Web. 30 Mar. 2011.
- Wallinga, David, Janelle Sorensen, Pooja Mottl, and Brian Yablon. "Not So Sweet: Missing Mercury and High Fructose Corn Syrup." www.iatp.org. *Institute for Agriculture and Trade Policy*, 2009. Web. 7 Mar. 2011.
- Wise, Timothy A. "The Paradox of Agricultural Subsidies: Measurement Issues, Agricultural Dumping, and Policy Reform." <http://are.berkeley.edu>. *Global Development and Environment Institute*, Tufts University, May 2004. Web. 2 Apr. 2011.