Food Waste, Food Insecurity, and Food Donation Liability

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Why is So Much Food Wasted in the U.S.?

I. Introduction

In the early twentieth century, large-scale agricultural production provided the United States with more food than it had ever had before (Rathje and Zimring 361). After the stock market crash of 1929, however, this began to change. People became too poor to consume and invest the way that they used to. Large-scale food production declined, and unemployment continuously increased ("The Great Depression" 1).

In 1932, the agricultural sector took its biggest hit. In the previous three years, farm prices had dropped by nearly 68 percent. And this led to the accumulation of a huge surplus of agricultural products (Poppendieck 13). Many impoverished consumers could no longer afford to buy food, and farmers no longer had the means to bring food to market. But instead of letting the hungry come help themselves, many farmers destroyed their surplus of crops and livestock. Neither the farmers nor ordinary citizens could afford to buy the products of the others, so there was "overproduction and underconsumption at the same time and in the same country" (Poppendieck 14). This contrast came to be known as "the paradox of want amid plenty" (Poppendieck 14).

The National Industrial Recovery Act and the Agricultural Adjustment Act helped to curb food production, increase consumers' purchasing power by "mandating a minimum wage and maximum work hours," and establish "consumer councils that lobbied for fair [food] prices"

(Rathje and Zimring 364). This helped stabilize the food market. Government spending on World War II military production in the early 1940s further helped to end the Great Depression by reducing unemployment and boosting economic growth, but the country faced a new food situation. Once again, the United States experienced a lack of access to food; however, it was no longer associated with food surpluses, but rather true food shortages. In Europe, "farms had either been transformed into battlefields or had been left to languish as agricultural workers were forced into warfare" (Schumm 1). The Allied nations struggled to feed their forces in Europe, so the nations looked for a solution. In the United States, President Roosevelt encouraged the U.S. to strive for "freedom from want." This political statement "served as both personal and political goals to consume less and to produce more foodstuffs for the war efforts" (Gowdy-Wygant 132).

Once the United States emerged from the Depression and World War II, it appeared that perhaps two periods of dire food insecurity would lead people to value food and resources. However, it seems that people still took the availability of food for granted. Over the past 68 years, a number of factors, such as an overabundance of foods and marketing that encourages Americans to buy more food than they need, have contributed to Americans' ever-growing underappreciation of food. And today, the U.S. has a food waste problem: Americans waste 96 billion pounds of food per year (Haley 1). Of course, the implications of this are negative: it is ethically problematic to waste food at all, but even more so in a country in which many people experience food insecurity and when the production of food places even greater stress on a natural environment that is already fragile. Sadly, this is the case in the U.S., so this problem must be addressed. Solving this problem would: (1) help decrease food insecurity; and (2) improve the quality of the natural environment. In this thesis, I will describe and explain the positive consequences of federally dealing with this problem in the U.S. I will briefly discuss the

problem at the local, statewide, family, and individual levels, but I will focus primarily on the federal level. This is such a far-reaching problem that requires a solution that is equally far-reaching, namely a federal solution, and I will present a detailed plan for introducing one.

II. Background I: The Problem

By 1950, the U.S. had emerged from the Great Depression and World War II. This marked the beginning of a new consumptive era, which continues today (Rathje and Zimring 365). Instead of being a consumptive era in which food was valued and carefully used, however, "the postwar era saw accelerated rates of consumption and waste beyond any the United States had seen before the market crash in 1929" (Rathje and Zimring 366). It is as if people had been so strictly limiting themselves for so long that they lost all self-control once they had complete access to food again. However, American consumers were not the only ones who were to blame.

Food Waste in the U.S.A.

Part of this undervaluing of food was influenced by the increasingly large supply of food available to Americans after World War II. In response to the food shortages that had occurred during the war, the government took steps to ensure that Americans would never experience such shortages again. Food aid policies, which "started out in the 1950s as a means to donate surplus U.S. commodities," encouraged farmers to produce as much food as they possibly could ("Quick Facts" 1). So, farmers started to use new production practices, farming approaches, and production technologies to meet the government's demands. However, the government did not consider whether there would be sufficient demand for all this food, and the situation resulted in excess food (Campbell, Evans, and Murcott 14).

Scholars now characterize the 1950s as the period in which food security formally became a policy concern justifying federal investment in the agricultural sector (Campbell,

Evans, and Murcott 15). As a result, food relations moved from shortage to surplus, and the bountiful supply allowed food to quickly become inexpensive. At this time, the nation only accounted for six percent of the world's population, but it was producing and consuming over 30 percent of the world's goods and services. The United States had quickly become what historian Lizabeth Cohen calls the "Consumers' Republic" (Rathje and Zimring 366).

The Green Revolution, which was the spread of new agricultural technologies that drastically increased food production in the developed and developing world beginning in the middle of the 20th century, also played a role in this (Butz and Wu 11). Of course, the United States was not the only nation that experienced food shortages during World War II, the rest of the nations of the world did as well. However, only developed nations had the monetary resources to ensure that this would never happen again. The developing world, in contrast, was not as fortunate. Luckily, "the Rockefeller Foundation provided funds for agricultural advances in developing nations and gathered together a team of dedicated researchers from various parts of the world" (Butz and Wu 11). Over time, other national and international institutions joined in this charitable effort as well. The agricultural advances that they brought about were agricultural chemicals and genetically modified crops and livestock.

In comparison to the crops that were typically grown in the developing world, these new crops were superior in "yield increase, yield stability, wide-scale adaptability, short growing season duration, resistance to biotic stresses (diseases and insects), tolerance to abiotic stresses (drought and flooding), and grain quality" (Butz and Wu 11). Additionally, fertilizers, pesticides, and irrigation systems were introduced. To promote these superior crops, plant chemicals, and new farming methods, many of the governments of developing nations offered subsidies and government-guaranteed prices for farmers who adopted them.

Many view these efforts as successes. The Green Revolution enabled many parts of the developing world to make substantial jumps in their most basic food crops. At a time when many feared to experience another period of shortage and starvation, food production increased greatly. However, the effects of the Green Revolution were not just felt in the developing world. Industrial nations also saw the appeal of even further increasing their food production, and they had developed these new technologies, after all. So developed nations, including the United States, adopted the uses of these new crops, chemicals, and methods too. And the agricultural bounty has been like nothing the United States has ever experienced before.

However, food processors and retailers still struggled to find a way to remain profitable at a time when supply was much higher than demand. During the Cold War era, which lasted from 1947-1991, large-scale corporate investors invested heavily in agriculture to find a solution. The result was considerable food processing, fast food chains, elaborate branding, and the "supersizing" of food (Campbell, Evans, and Murcott 15). Not only do these investors provide an ample supply of food, they have found ways to encourage Americans to consume it in mass quantities. Food processing provides us with food that lasts longer. On any given day, fast food chains provide "one-quarter of the adult population" with large quantities of food that are not particularly nourishing (Schlosser 3). To make more profit, food processors bombard us with elaborate branding that encourages us to buy, buy, buy! And a supersized food campaign was started by these food processors to give us servings that are far larger than our bodies need, because that also puts more money in their pockets. All of this was done by the corporate food industry to drive us to take far more food than we need, but we often cannot consume it all, so it ends up getting wasted. But with so much food out there, we are told that all of this is reasonable and appropriate because there will always be more that the food industry can sell us. As a result,

the 1970s-2000s became an era in which food waste became increasingly invisible and culturally irrelevant.

Nothing has changed in 2018. Today, there are two aspects of American society that are most striking to the rest of the world. One aspect is the abundance we enjoy, but the other is the amount of waste that we accumulate and permit (Rathje and Zimring 367).

Food Waste Defined

Food waste occurs at all levels of the American food system, and at each level, food waste continues to grow rapidly. In fact, statistics indicate that U.S. per capita food waste has increased by over 50 percent since 1974, which is remarkable (Hall, Guo, Dore, and Chow 1). Since the U.S. population has increased roughly 50 percent since then, that makes the actual increase about 150 percent! This food waste happens at three different levels of the system: the primary production level, the retail level, and the consumer level (Haley 1).

Food waste at the primary production level occurs before food makes it from the food producer to the food retailer. This waste can happen because of "weather damage, pest damage, spillage, inefficiencies in the farm to retail outlet processes, overplanting, food safety regulations which determine some food as inedible by humans, and out-grading of food, especially produce, that does not meet consumers' expectations" (Haley 1). Although this waste is important, there is little data on it. However, scholars believe that the percentage of food wasted at this level is much less than that wasted at the other two levels. For the purposes of this paper, I will focus on food waste at the retail and consumer levels.

Food waste at the retail level happens after food makes it to the retailer, but before it gets to the consumer. The retail level includes grocery stores and supermarkets, but not restaurants or other foodservice outlets. Food is wasted at this level because of "dented cans, damaged

packaging, unpurchased holiday foods, spillages, bruising, improper storage, inadequate storage, overstocking or over-preparing resulting from incorrect customer predictions, and out-grading of food, especially produce, that does not meet consumers' expectations" (Haley 1).

Food that is wasted at the consumer level successfully made it out of the retailer but does not quite make it all the way to people's mouths. This level includes food that is purchased and prepared by the consumer at home, and food that is prepared for the consumer to eat away from the home by restaurants and foodservice establishments (caterers, dining halls, etc.). At the consumer level, food is often wasted due to "improper handling or storage, failing to use before the item 'goes bad,' consumers confusing 'best by' / 'use by' / 'sell by' with an expiration date, excessive portions, plate waste, consumer tastes, and food appearance" (Haley 1).

Stats: Lots of Food and Thus Money is Wasted

In the 1970s, the amount of available volume in U.S. landfills sharply decreased, indicating an American waste crisis. Since then, total volume nationwide has increased, as new landfills have been opened and old ones have been expanded. This is problematic, since landfills are environmentally damaging. Americans only make up five percent of the world's population, but we generate 19 percent of its waste. Moreover, "the volume of municipal waste generated in the United States between 1998 and 2001 grew by 6.6 million tons, or 20 percent, to a total of 409 million tons per year" (Rathje and Zimring 369). For Americans, there is seemingly no cause for concern over waste because many believe there is no end to our ample supply of resources. In fact, some even boldly claim that "shortages in natural resources are so mythical that recycling is pointless" (Rathje and Zimring 370). Here, part of the problem is the misuse of resources and flawed notions of their value. Another part is the filling of landfills themselves and the need for new ones. For example, the Chestnut Ridge landfill in Anderson County, which serves

Knoxville, TN, has already grown to the size of a mountain on the west side of I-75 and has begun another "mountain" on the east side.

Part of this growth in landfills stems from the fact that since the 1970s, per capita U.S. food waste has increased by over 50 percent (Hall, Guo, Dore, and Chow 1). Today, 40 percent of food in the U.S. is thrown away every year, which is equivalent to throwing away $165 billion, "equaling more than 20-lbs. of food per person every month" ("Study: U.S. Food Waste Occurs Across the Food Chain" 1). But this is not a global phenomenon. The average American wasted over 10 times as much food as the average Southeast Asian. And the average American family of four wastes 25 percent of the food it buys per year, which is equivalent to throwing away $1,365 to $2,275 every single year. With this exponential amount of waste, it should come as no shock that most American food waste is at the consumer level.

At the retail level, there was an estimated 43 billion lbs. of food wasted in 2008, which was "equivalent to 10 [percent] of the total food supply at the retail level" ("Study: U.S. Food Waste Occurs Across the Food Chain" 1). In 2005 and 2006, retailers wasted an average of 11.4 percent of fresh fruit and 9.7 percent of fresh vegetables. Scholars estimate that this equals $15 billion in waste.

Why Food is Wasted

There are many reasons that food is wasted. In this section, I will discuss some of the most important reasons.

Misconceptions about legality. In 2014, a survey conducted by the Food Waste Reduction Alliance found that 56 percent of large restaurants do not donate surplus food because they fear liability (Goldberg 1). Another survey, conducted by America's Second Harvest, found that 80 percent of the food companies it surveyed do not donate food because they fear liability as well

(Ahmann, Hall, and Hamilton 1). In fact, this a concern for almost all potential food donors who do not donate food that is still edible and wholesome.

Of course, their concern is not completely unfounded. In this day and age, the risk of being held liable for damages is higher than it has ever been. Moreover, the risk and cost of being held liable for a foodborne illness are even higher. The Centers for Disease Control claim that there are 48 million foodborne illness cases in the United States every year. In all, 128,000 of these 48 million people are hospitalized and 3,000 of them die. Although it would be useful to find out what sorts of foods are most often implicated in these illnesses, the Centers for Disease Control state that:

> arriving at these estimates is challenging because food may become contaminated by many agents (e.g., a variety of bacteria, viruses, parasites, and chemicals), transmission can occur by nonfood mechanisms (e.g., contact with animals or consumption of contaminated water), the proportion of disease transmitted by food differs by pathogen and by host factors (e.g. age and immunity), and only a small proportion of illnesses are confirmed by laboratory testing and reported to public health agencies (Angulo et. al 1).

This can make it difficult to identify and prevent these illnesses. If found to be the source of these illnesses, food companies could be held liable for millions of dollars in damages, just as Taco Bell was held liable for $98 million after an E. coli outbreak in 1992.

However, food donors' concerns over liability are misguided. What these potential food donors do not realize is that there is a federal act which protects them from liability, the Bill Emerson Good Samaritan Food Donation Act. This begs the question: is this a new law, since few know about it? No. This act was signed into law in *1996.* Protection from food donation

liability has existed for *22* years! I will discuss this law in greater detail later, but I will briefly mention the requirements for liability protection under the act. Specifically:

> "The Bill Emerson Act states that covered parties engaged in covered activities 'shall not be subject to civil or criminal liability arising from the nature, age, packaging, or condition of' the donated items as long as the following requirements are met:
>
> 1. The donated item must be either an 'apparently wholesome food' or an 'apparently fit grocery product';
> 2. The covered party must donate the items in good faith;
> 3. The donation must be made to a nonprofit organization; and,
> 4. The nonprofit must distribute the donated items to needy individuals" (Haley 1).

Inconvenience. For those who are aware of the Bill Emerson Food Donation Act, yet still choose not to donate, an often-cited reason is inconvenience. Per the requirements of the act, "the donation must be made to a nonprofit organization" (Haley 1). This requirement itself deters some from donating food, because it seems like it would be an inconvenience to either have to transport this food to a nonprofit organization or to coordinate with the organization to ensure that the food will be picked up. Others take the time to contact these organizations but abandon their efforts if they learn that the organizations are unable to pick up and transport the food and that they would have to do so themselves.

However, transportation is not the only obstacle. Storing food that can be donated is also inconvenient for retailers. If a nonprofit will come retrieve that food, the retailer must store it somewhere until this time. The retailer also must keep it separate from marketable food that has not been stocked yet and find a way of labeling it so that it does not get mistaken for marketable food and put back on the shelf. Moreover, if the food is

perishable, then the retailer must provide refrigerator space for it, which could be used for something else. Retailers can transport the food themselves, so they do not have to wait on nonprofit organizations. However, to make the most efficient use of their time, they prefer to take a substantial amount of food when they do make donations. Accumulating a lot of food takes time. Therefore, retailers still run into a storage inconvenience (Jacobs 1).

Confusion about expiration dates. The confusion over end dates, when combined with the storage inconvenience, is also a problem. Since many people do not know the genuine time frame for when different foods are unsafe to eat, and retailers do not want to store food that is no longer marketable and unfit to be donated, this results in a "sorting" inconvenience. For all the foods that are no longer marketable, retailers have to pay employees to sort through them and inspect them to determine what is still able to be donated. This ensures that they are not using their already scarce storage space for food that is no longer safe for consumption.

Misconceptions about marketability. Many in the food industry dispose of food that they no longer deem "marketable." However, there is a difference between marketability and genuine expiration. Food product dating creates confusion for many, because "there is no uniform method of dating food in the U.S." (Haley 1). The only food product federal food regulations require distributors to genuinely date is baby formula.

The various dates we see on foods in the grocery store are nothing more than protections from consumer dissatisfaction and liability. Distributors know that a processed item will lose its freshness after a certain date, but it is still safe to consume. They just do not want to have to reimburse a customer who complains about the taste. And for perishable items, they do not want to be held liable if a consumer contracts a foodborne

illness. But in both of these cases, the food is labelled with a date that is earlier than its true date, to provide a "safety cushion" for the distributor. This "safety cushion" also enables sellers to sell more product. The different kinds of dates found on products also confuse users. The three most common types are "Sell-By," "Best if Used By (or Before)," and "Use-By". Many people confuse each of these for being an expiration date, but this is not the case. One scholar notes:

> A 'Sell-By' date tells the store how long to display the product. [Consumers] should buy the product before the date expires. A 'Best if Used By (or Before)' date is recommended for best flavor or quality. It is not a purchase or safety date. A 'Use-By' date is the last date recommended for the use of the product while at peak quality. The date has been determined by the manufacturer of the product" (Haley 1).

The fact is that none of the commonly seen dates on food are true expiration or "safety" dates. They inform the consumer when to prepare the food to get its best quality. And they tell the retailer when a food is no longer "marketable." Consumers do not want to buy a food that has been sitting at the store for too long or is nearing the date upon which its quality will diminish. Furthermore, they do not want to support a retailer that will even display that food. People want to buy from retailers that can brag about the fresh quality of their foods, because it makes it seem as if they genuinely care about giving their customers the "best." However, the vast majority of food that retailers no longer want to offer to consumers is still safe for consumption (Jacobs 1).

These marketability notions also extend to food that is no longer seemly or is overstocked. This can often be the case for perishable produce and nonperishable

processed food. Retailers view bruised fruits and vegetables or dented cans as unmarketable. In addition, they do not like to keep displays with large quantities of food out for too long. They do not want their customers to come in every few days and see the same display slowly dwindling away; this does not seem very fresh. Marketability also dictates that markets constantly change their stock, because people like change. For retailers, it is all about appearances. However, in the end, bruised fruit and food in dented cans are safe for consumption. Moreover, retailers can often estimate how much stock is too much, which can help them avoid overstocking large quantities of food. But time and again, retailers do not seem to think about any of this. Furthermore, they do not seem to consider the fact that unmarketable products are still safe for consumption.

Lack of awareness. Every reason for food waste that I have mentioned above is at least partially the result of a lack of awareness. Companies are unaware that they are protected from food donation liability because there is a federal law to protect them. And retailers and food preparation services are unaware that some nonprofits will come pick up donated food, which requires little effort on their part (Cuellar 1). And many at all food levels are unaware that there is a difference between marketability and expiration.

One could also argue that these reasons for food waste also stem from a lack of concern. However, in this paper, I will give Americans the benefit of the doubt; perhaps most Americans simply do not know how much food is wasted. Maybe Americans would care more if they realized that 40 percent of food in the U.S. is thrown away every year ("Study: U.S. Food Waste Occurs Across the Food Chain"), or that 15 percent of homes in the U.S. experience a "limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (Troy et. al 8-9), or that wasted food hurts the environment. Maybe

Americans would care more about wasting less food if they were aware of all of these facts, but the problem is they are not (Haley 1).

III. Background II: The Consequences

As I mentioned above, 15 percent of homes in the U.S. experience a "limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (Troy et. al 8-9). In terms of definitions, these homes can be classified as those that experience "food insecurity." Food insecurity is the inverse of food security, which is defined as "a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (Barrett 825).

Food Insecurity

It is important to note that "food insufficiency" and "food insecurity," although related, are different. The U.S. Department of Agriculture (USDA) defines food insufficiency "as an inadequate amount of food intake due to a lack of resources" (Troy et. al 8). The scope of food insecurity is wider: it "includes food insufficiency and additionally psychological and other qualitative aspects of the food supply and intake" (Troy et. al 8).

The USDA closely monitors food security through surveys in order to evaluate the effectiveness of federal nutrition assistance programs, private food assistance programs, and other public-private initiatives in reducing the food insecurity of homes. To measure this, the USDA classifies homes under different levels of food security. There are four levels of food security:

1. *High food security* households are those "that report no indicators of food insecurity on the U.S. Department of Agriculture (USDA) survey. Households had no problems, or anxiety about, consistently accessing adequate food" (Troy et. al 9).
2. *Marginal food security* households are "reporting one to two indicators of food insecurity on the USDA survey. Households had problems at times, or anxiety about, accessing adequate food, but the quality, variety, and quantity of their food intake were not substantially reduced" (Troy et. al 9).
3. *Low food security* comprises "a range of food insecurity in which households report multiple indications of food access problems, but typically report few, if any, indications of reduced food intake on the USDA survey. Households reduced the quality, variety, and desirability of their diets, but the quantity of food intake and normal eating patterns were not substantially disrupted. Prior to 2006, USDA described households with low food security as 'food insecurity without hunger'" (Troy et. al 9).
4. *Very low food security* is "a severe range of food insecurity on the USDA survey in which the food intake of some household members was reduced and normal eating patterns were disrupted because of limited resources. At times during the year, eating patterns of one or more household members were disrupted and food intake reduced because the household lacked money and other resources for food. Prior to 2006, USDA described households with very low food security as 'food insecure with hunger'" (Troy et. al 9).

The survey the USDA produces to evaluate households' food security statuses is called "the Core Food Security Module (CFSM)" (Troy et. al 10). Examples of questions on the CFSM include:

1. Did you worry whether your food would run out before you got money to buy more?
2. Did you or other adults in your household ever cut the size of your meals or skip meals because there wasn't enough money for food?
3. Were you ever hungry but did not eat because you couldn't afford enough food?
4. Did a child in the household ever not eat for a full day because you couldn't afford enough food?

There are 18 questions on the CFSM that is given to households with children. The CFSM for households without children includes only 10 questions. If households answer "yes" to at least three of the questions, they are classified as having low food security. If households without children answer "yes" to at least six questions, then they are classified as having very low food security. If households with children answer "yes" to at least 10 questions, then they are also classified as having very low food security.

Statistics on Food Insecurity

Prior to 2008, 10-12 percent of homes in the U.S. experienced food insecurity (Troy et. al 8). However, in 2008 there was a food price crisis and that number increased to, and remains at, 15 percent. In other words, 15 percent of homes in the U.S. lack "the ability to access sufficient, safe, and nutritious foods in socially acceptable ways" (Troy et. al 8)!

It should come as no surprise that survey-based estimates of food insecurity are strongly correlated with survey-based poverty estimates (Barrett 826). Since 1990, food

production per capita has increased by 12 percent, yet the undernourished population has increased by nine percent. Given these estimates, it is important to remember that "starvation is the characteristic of some not *having* enough food to eat. It is not the characteristic of there *being* not enough food to eat" (Barrett 825).

Why Food Insecurity Is Bad

There are many reasons that food insecurity is bad. In this section, I will examine a few of the most important reasons.

Poor health. There is a correlation between food insecurity and "poorer overall health" (Bresnahan et. al 1307). The definition of food insecurity is the lack of "physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (Barrett 825). This means that food insecurity has a strong "nutritional component," because many people must compromise between food quality and food quantity (Troy et. al 14). Foods that are processed and energy-dense are far cheaper than nutrient-rich foods. Furthermore, people under stress, such as those who are food insecure, are more likely to crave food that is energy-dense and low in essential nutrients. Research has shown that those who are food insecure have "lower average scores on indices of healthful eating compared to individuals in food-secure households" (Troy et. al 15).

In adults, scholars have found a correlation between food insecurity, hypertension (abnormally high blood pressure), and hyperlipidemia (abnormally high concentrations of fats or lipids in the blood). Diabetes, which is more prevalent among those with unhealthy eating habits, is often not properly maintained by those in food insecure homes. Those who are food insecure and have diabetes have been shown to have higher blood sugar levels

"than adults living in food-secure households" (Troy et. al 15). For those with diabetes, the goal is to lower your blood sugar levels, otherwise known as A1C hemoglobin values, as much as possible (Theobald 1). So, this suggests that "food-insecure adults are not managing their disease well through their diets" (Troy et. al 15).

Moreover, on top of all those physical problems, numerous studies show a link between food insecurity and mental well-being, stress and depression. Food insecurity has socioeconomic origins. A difficult socioeconomic situation, in and of itself, can take a toll on mental well-being and lead to stress and depression. But the inability to provide sufficiently nutritious food for yourself and/or your family only adds to the emotional turmoil. It can be difficult to accept these situations, leading many to feel like they have failed in some way. Moreover, physical hunger and malnutrition further worsen emotional well-being (Troy et. al 16).

Although food insecurity negatively affects all its victims, it is especially harsh on children. Hunger and malnutrition result in days missed at school, inattentiveness in class, stunted physical and mental growth, and frequent illness. This has the potential to not only affect their immediate health and well-being, but also their future health and well-being (Haley 1). Children need proper nutrition to ensure their growth and development. Malnutrition can lead to many long-term physical and mental side effects. Furthermore, the inability to focus at school and regularly attend has the potential to hinder their future education and career goals.

Ethical concerns. Given all of this, one cannot help but feel at least a twinge of guilt. To me, throwing food away when 15 percent of our fellow Americans do not have sufficient access to nutritious food simply seems wrong. But just in case anyone still does not feel

sufficient remorse over this, I will argue that those who live in affluence, as many Americans do, are ethically "obligated not to waste food and instead use the saved resources to help others" (Scheifler et. al 59). Furthermore, even if we put an end to food insecurity, we still have an obligation to not waste natural resources, which I will explain later.

Mid-level philosophical principles exist that practically anyone can agree with. They are derivable from pretty much any ethical theory. Here, I will appeal to the principles of *non-harm* and *frugality* to highlight the ethical concerns associated with wasting food. The non-harm principle states that we have a moral obligation not to perform an act that unnecessarily causes or contributes to harm (Gardiner 334). When you waste food, it is excess food that could either be given to food insecure individuals or you could have not spent the money on it in the first place. That money, in turn, could have been used to buy them food. Food waste thus unnecessarily contributes to the physical and mental harms that are correlated with food insecurity, because these are harms that could be avoided by not wasting food. There is also a good, namely feeding other people, that could be achieved by not wasting food. Therefore, wasting food when other people are food insecure is morally wrong.

Environmental concerns. Even if there was no food insecurity, wasting food would still be wrong. Wasting food is equivalent to the unnecessary destruction of nature. The harm goes beyond just an individual piece of food. Anything that we can consume has a significant impact on the environment that created it. Crops must be watered, fertilized, and tilled. They also contribute to the depletion of the soil that grew them. Livestock must be fed and watered long-term to be fit for slaughter and consumption. Some resources are then

transported to a facility for processing. Others go straight to the super market, where they are then kept in a controlled-climate. All of this requires fossil fuels, which lead to a host of environmental harms that I will discuss shortly. But to put it briefly, agriculture causes climate harm, which harms people. When we waste food, that agricultural harm becomes unnecessary. Based on the non-harm principle, this is not morally justifiable. Therefore, we have an obligation not to waste food, as it is equivalent to the unnecessary harm of the environment.

The concepts of virtues and vices are universal in philosophy. We learn that virtues are inherently good, while vices are inherently bad. Of course, different cultures emphasize different virtues. The virtue of frugality is not quite as universal as the idea that unnecessary harm needs to be avoided. But throughout most of American history, frugality was regarded as a positive virtue. However, this has changed.

Historically, frugality was a virtue that was economically justified. In "Toward the Revival and Reform of the Subversive Virtue: Frugality," the ethicist James Nash claims that "frugality was a rejection of vanity and envy and an expression of fidelity and relationality" (138). But, modern day U.S. consumers tend to forget about the virtue of frugality: entailing little expense and requiring few resources. This has become an American problem, because Americans have been taught that they live in the greatest country in the world. America, we are taught, is the most innovative country and the wealthiest. It has led Americans to view overproduction, the waste it creates, and the lack of concern over these things, as a sign of wealth and prosperity. It is a sign of wealth and wealth is seen as a positive thing, but that does not make waste a positive behavior.

Frugality denies the now popular assumption "that humans are insatiable creatures, ceaselessly acquisitive for economic gains and goods and egoistically committed to pleasure maximization" (Nash 140). It is based on the fact that humans are not incapable of controlling their appetites; we are not animals. Humans, as rational creatures, "have the moral capacities to control and distribute consumption" (Nash 140-141). Furthermore, it rejects the idea that humans are simply manipulable consumers.

As I mentioned above, early American conceptions of frugality had to do with being economically responsible. It was a very practical virtue and it was reasonably justified. However, James Nash makes an excellent argument for the present-day justification of frugality, as a virtue, and we would be wise to heed his advice. Nash argues that, under present conditions, it is especially important to come back to the virtue of frugality, but with a different understanding of it. Frugality still has economic connotations; "both for individuals and societies, frugality means ethically disciplined production and consumption for the sake of higher ends" (Nash 144). It can be understood to be founded, at least partially, on the principle of non-harm, because we are leaving more for others and having a less harmful impact on the environment when we act frugally. Nash argues that the virtue of frugality

> arises in response to several basic questions about the adequacy of material provisions. These questions include: What is a good 'quality of life,' and what kinds and amounts of goods are necessary or valuable for it? Are various luxuries and conveniences significant benefits or liabilities to personal, communal, and ecological enhancement? How should we distinguish 'needs' and 'wants'? How much is 'enough' in quantity to sustain a reasonable quality of life, *and* to ensure

> that the rest of humanity and other species, present and future, have similar opportunities? (151).

Nash argues that we must now consider frugality to be an "earth-affirming and enriching norm" that allows us to take pleasure in knowing that when we consume less we are bettering the lives of other people and animals "that only a constrained consumption and production can make possible on a finite planet" (152). Frugality is sparing the scarce resources that other humans and species need "that are both values in themselves and instrumental values for human needs" (Nash 152), It minimizes harm to humans, animals, and the environment, allowing all to live better lives. Therefore, Nash claims that the virtue of frugality can be described as "hedonistic self-denial" or "a true materialism that does not just care *about* things, but cares *for* them" (152). This is why frugality is a virtue and we should act frugally.

Some may object that acting frugally would be detrimental to the American economy. The standard response to my claims in favor of frugality is that the more we consume, the more the American economy grows, which benefits everyone. Although this response is true, we still have a moral obligation to act frugally. Some may argue that the effect less consumption would have on the economy could also be considered as a "harm", because it could hurt people in the lower class who depend on food company jobs, which could be cut due to drops in sales. But all that means is that you have a moral obligation to help them with food or monetary donations and those who make the most in food companies have moral obligations to take the hit from sales' decreases instead. At the end of the day, people have a moral obligation to behave virtuously in regard to consumption, but also in regard to all other aspects of their lives.

Frugality's corresponding vice is waste, which is unnecessary and reflects a character flaw. It applies to the character of people who waste, because they are not sensitive to the harms they are causing. Waste "presumes the practical inexhaustibility of the products and capacities of nature as well as human independence from the rest of nature" (Nash 143). It demonstrates a lack of control on our appetites and a lack of consideration for the bigger picture. Being that it is a vice, waste of any kind, including food and environmental waste, is morally problematic. As a nation, we must work to avoid it.

Environmental Problems

Food has a significant impact on our environment through fossil fuel emissions. The long-term effects of greenhouse gas emissions will likely harm many future people. They will create a harsher environment that will make people's day to day concerns quite different from ours. Heat and natural disasters will displace many people and many more will die. However, it is the poor who will suffer the most. They will not have the economic means to combat the harsh future environment, so they will either be stuck suffering or killed in the homes that they cannot afford to leave. What is even more concerning is that it is too late to stop global warming; we have been pumping fossil fuels into the environment for well over 100 years. However, we can mitigate global warming. But the cultivation of food contributes to the degradation of our environment. Of course, some of this cannot be helped, because food production is necessary for the survival of human beings. Furthermore, we could not produce enough food to feed the large population without using at least some fossil fuels. But, given the negative impact food has on our environment, it is alarming that so much of this food ends up going to waste. In this section, I will specifically discuss the environmental problems that food cultivation and waste create.

Farm to fork. Before food even reaches your plate, it has already significantly impacted our environment. First, it has to be grown. This takes a significant amount of resources: water, possibly fertilizer, often pesticides, antibiotics for animal products, and farm equipment fueled by gas or diesel.

Agriculture uses nearly 70 percent of the freshwater supply (Chow 1). Furthermore, the average farm uses about three kilocalories of fossil fuel energy to produce one kilocalorie of food. Additionally, crop cultivation erodes the soil over time, making it difficult to grow crops there in the future. The processing and transportation of food requires even more fossil fuel use. It pales in comparison to the fossil fuel use required for production of food. About 83 percent of food emissions come from production, seven percent from supply-chain transport, five percent from wholesale and retail transport, and four percent from final delivery transport ("The tricky truth about food miles" 1). However, processing and transportation still has a big impact. Do not let the seemingly small percentages fool you. When we waste food, all of that freshwater, fossil fuel use, and soil erosion is for nothing! Scholars have estimated that food that ends up wasted in the U.S. accounts for one quarter of total freshwater use and 300 *million* barrels of oil per year (Chow 1). That is roughly a barrel of oil per person.

Solid waste and methane. For this subsection, there are two important things to keep in mind. As I mentioned earlier, space within landfills has been shrinking at an alarming rate. In addition, fossil fuel emissions are harming our environment. In the 1970s, the amount of available volume in U.S. landfills sharply decreased, indicating an American waste crisis. Since then, total volume nationwide has increased, as new landfills have been opened and old ones have been expanded. But this landfill volume is quickly being used up, and it is largely due to American food waste.

A lot of solid waste *is* food waste. A 2013 study done by the Environmental Protection Agency (EPA) found that "more food reaches landfills and incinerators than any other single material in municipal solid waste (MSW)" (Haley 1). In 2010, the U.S. produced 250 million tons of MSW, with food waste accounting for 34 million tons. Moreover, with a recovery rate of less than three percent, food waste is the least recovered MSW material. Once you subtract all of the MSW that is recovered, "food waste contributes 20.5 percent of all materials that have the landfill as their final destination" (Haley 1).

Again, we must remember that the long-term effects of greenhouse gas emissions will likely harm many future people through climate change. The second most harmful gas is methane, the most potent greenhouse gas, which stays in the atmosphere for 12 years (Gardiner et. al 6). Methane comes second to carbon because it stays in the atmosphere for far fewer years, but it has 21 times the global warming potential of carbon dioxide (Haley 1). Therefore, Methane emissions reduction measures "would have large benefits to global and regional climate, as well as to human health and agriculture" (Amann et. al 187).

Food, as MSW, is especially problematic, because its decomposition produces methane. Landfills actually account for over 20 percent of all methane emissions in the United States! Furthermore, methane accounts for roughly 10 percent of all human greenhouse gas emissions. Of course, some portion of the food we eat is also converted into methane, released both directly by the body and also at sewage plants. Also, if spoiled food is composted, methane results. However, Americans could avoid purchasing food that will eventually be wasted in the first place. If there is less demand, then there is the possibility that less food will be produced. Hypothetically, there would then be less organic matter to contribute to methane emissions. Given the U.S. market structure, more research would be necessary to determine whether or not

consumer habits could significantly affect food production. But, the U.S. would only need to recover about 30 percent of food waste to feed the food insecure (Gunders 1). Thus, we are faced with the question of whether it would be better to donate the other 70 percent to food insecure people in other parts of the globe or to decrease food production to eliminate that other 70 percent. But answering that question would be quite difficult. We would have to determine whether or not it would be feasible to transport this food to other nations. Would it spoil before it got there? Would it be better to avoid producing it and donate money to those nations instead so that they can produce it themselves? Are their political and agricultural environments compatible with the growth of that food? These are just some of the things it would take to answer our initial question. Although they are difficult to answer, they are still important. But anyways, as you can see, food waste is not just problematic because it could be going to those who are food insecure, but because it significantly harms our environment thus contributing to climate change.

IV. Solutions

Congress first tried to address the problem of food waste in 1990 with the passage of the Model Good Samaritan Food Donation Act. It was intended to encourage states to adopt laws that protected donors from liability, but only one state did so (Morenoff 118). Unfortunately, the act did not have the full force and effect of federal law, and it was unsuccessful.

In 1990, a bipartisan group of cosponsors offered Amendment Number 1283 to the National and Community Service Act. The amendment included the Model Good Samaritan Food Donation Act (Model Act). Although the amendment explicitly stated that it would not have the force of federal law, it:

> the amendment expressed the sense of Congress that each state should adopt the Model Act and thereby protect food donors against both civil and criminal liability unless an

> injury resulting from a donation was caused by their gross negligence or intentional misconduct (Morenoff 117).

Senator Don Nickles, a Republican from Oklahoma, was the main advocate for the bill at the time. During floor debate on March 1, 1990, he argued that states needed to adopt food donation laws that were uniform in liability protection. He stated that any food donation laws that the 50 states had in effect differed significantly. For example, "the California law protect[ed] only food donors against liability, while the Oregon law also extend[ed] such protection to donee organizations" (Morenoff 116). Additionally, "13 state Good Samaritan food donation laws either specifically did not provide liability protection for donees or did not address the issue" (Morenoff 116). Another difference among the state laws was "the level and description of their liability thresholds" (Morenoff 116). To cite just a few examples of the differing language, some states protected donors from liability except for injuries "resulting from gross negligence or willful act" (Morenoff 116). Others were not liable for any injuries except for those resulting from "willful, wanton or reckless act" (Morenoff 116). Moreover, the various liability thresholds were either ill-defined or varied significantly in definition. Finally, a third difference regarded criminal and civil liability. Some state laws only protected donors from one or the other. At the time of the Nickles amendment, "33 of the state laws protected donors against both civil and criminal liability, while 17 states covered only civil liability" (Morenoff 117). Not only did these differences confuse potential donors, but the significant amount of effort that was necessary to determine their liability protection deterred them from donating. Nickles argued that the most probable potential food donors were national entities; therefore, "the standardized liability protection that would result from every state's adoption of the Model Act would give corporate

counsel greater confidence that their companies could donate food anywhere without encountering complicated legal questions" (Morenoff 117).

The fate of Nickles's amendment rested on Senator Edward Kennedy's reaction to it. Many were unsure of whether or not he would approve, because he had taken the lead on defeating another amendment that pertained to liability and nonprofit organizations just one day earlier. However, Kennedy, a Democrat from Massachusetts, enthusiastically accepted it. He was pleased with the fact that it only encouraged states to enact the Model Act, instead of federally requiring them to. The Model Act became Title IV of the National and Community Service Act. On November 16, 1990, President Bush signed it into law (Morenoff 120). However, the success of the act, in increasing food donation, depended upon whether the states would each adopt the standardized liability protection that Congress suggested. Five years passed, with only state adopting it. Once again, advocates for food recovery were left frustrated.

The Bill Emerson Good Samaritan Food Donation Act

Members of Congress went back to the drawing board. They decided that it was time to introduce a bill that would have the full force and effect of federal law, since states were not taking the initiative themselves. The Bill Emerson Good Samaritan Food Donation Act was created in 1996 "to encourage the donation of food and grocery products to nonprofit organizations for distribution to needy individuals by giving the Model Good Samaritan Food Donation Act the full force and effect of law" (Congress 1). It was signed into law by President Clinton on October 1, 1996. But unfortunately, it has also had little to no effect, because most people do not know about it. In fact, few even know of its existence. However, in the paragraphs below, I will discuss the history behind the Bill Emerson Act and explain the liability protection it offers.

In 1996, Representative Pat Danner, a Democrat from Missouri, introduced H.R. 2428 to the House of Representatives to give the Model Good Samaritan Act the full force and effect of federal law. Representative Danner recruited Representative Bill Emerson, a Republican from Missouri, to cosponsor the bill. Representative Emerson had a long history of supporting efforts to feed the hungry and he became a huge asset. The addition of Representative Emerson made the sponsorship of the bill bipartisan, allowing it to become popular among members of both political parties. Had it not been for this comity, the bill may never have passed. Representative Emerson passed away in June 1996 and the bill ended up being named in his honor.

The Bill Emerson Good Samaritan Food Donation Act was construed to create a federal minimum liability protection for food donors. It partially preempts state liability laws, meaning that when the state and federal law conflict over the Emerson Act, the federal law will trump state law. So, state good Samaritan food donation laws can only increase a donor's a liability protection; they cannot decrease it to less than that stipulated by the Bill Emerson Act (Haley 1). The Bill Emerson Act protects a donor from liability "if a food donation that was made in good faith later causes an injury" (Haley 1). A donor can only be found civilly or criminally liable for injuries if the act is found to be done with gross negligence or intentional misconduct. Congress defined "gross negligence" as "voluntary and conscious conduct by a person with knowledge (at the time of the conduct) that the conduct is likely to be harmful to the health or well-being of another person" (8). Congress defined "intentional misconduct" as "conduct by a person with knowledge (at the time of the conduct) that the conduct is harmful to the health or well-being of another person" (8).

As I mentioned earlier, donors must abide by just four requirements to be exempt from "'civil or criminal liability arising from the nature, age, packaging, or condition' of the donated items" (Haley 1). These requirements are as follows:

1. The donated item must be either an "apparently wholesome food" or an "apparently fit grocery product";
2. The covered party must donate the items in good faith;
3. The donation must be made to a nonprofit organization; and,
4. The nonprofit must distribute the donated items to needy individuals (Congress 8).

Congress defines the term "apparently fit grocery product" as "a grocery product that meets all quality and labeling standards imposed by Federal, State, and local law and regulations even though the product may not be readily marketable due to appearance, age, freshness, grade, size, surplus, or other conditions" (Congress 8). It defines "apparently wholesome food" as "food that meets all quality and labeling standards imposed by Federal, State, and local laws and regulations even though the food may not be readily marketable due to appearance, age, freshness, grade, size, surplus or other conditions" (Congress 8). It defines "nonprofit organization" as "an incorporated or unincorporated entity that—

(A) is operating for religious, charitable, or educational purposes; and

(B) does not provide net earnings to or operate in any other manner that inures to the benefit of, any officer, employee, or shareholder of the entity" (Congress 8).

For a donation to fall outside of liability protection due to findings of gross negligence or intentional misconduct requires several factors. These factors include the type of food involved, the recommended sell by date, and the end user of the donated item. Congress acknowledged that the "sell-by" date alone is not sufficient for gross negligence or intentional misconduct. As

mentioned earlier, food dates are inaccurate and confusing. Therefore, they must be considered in light of the type of food involved. While processed food that is nearing or beyond its suggested date is perfectly safe for consumption, fresh milk or poultry that is beyond its suggested date is not. Non-processed foods must be donated just before or on their suggested date and they must be prepared and served immediately by a nonprofit, such as a soup kitchen (Haley 1).

It is important to note that by "food donors" the act pertains to "persons", "gleaners", and "nonprofit organizations" (Haley 1). Moreover, the Bill Emerson Act's definition of "person" is incredibly broad. Per the act, "person" includes an:

1. Individual;
2. Corporation;
3. Partnership;
4. Organization;
5. Association;
6. Governmental entity;
7. Retail grocer;
8. Wholesaler;
9. Hotel;
10. Motel;
11. Manufacturer;
12. Restaurant;
13. Caterer;
14. Farmer;

15. Nonprofit food distributor; or,

16. Hospital (Haley 1).

Additionally, for entities two through six, "the term 'person' also 'includes an officer, director, partner, deacon, trustee, council member, or other elected or appointed individual responsible for the governance of the entity' (Haley 1).

As you can see, the Bill Emerson Good Samaritan Act covers a lot of ground when it comes to food liability. The liability is quite broad in scope and its creators made extensive efforts to fill in any possible legal gaps. But despite the far-reaching protection from liability, many still are unaware that they are protected from food donation liability, and for some fear of liability serves as a barrier to food donation. Therefore, in the section below I will suggest plans for increasing awareness of and revising the act.

My Plan

Since wasting food is morally problematic, we have an obligation to avoid it to the best of our abilities. However, as I have mentioned, I will not focus too heavily on the individual and family levels here. Instead, I will primarily focus on the large-scale, federal, national, corporate, and retail levels. The behavior of individuals is certainly morally relevant, as individuals make up the whole. But for my purposes, the biggest difference could be made if large-scale change occurs. This change can be the result of two types of solutions: private sector solutions and government solutions.

Private sector solutions. Most food is wasted by retailers, restaurants, fast food outlets, and foodservice establishments (Haley 1). Those who waste the most food can make the biggest difference in decreasing food waste. Earlier, I established that wasting food when other people are food insecure is morally wrong. I also established that wasting food is equivalent to the

unnecessary destruction of natural resources, and that therefore, wasting food, even in the absence of food insecurity, is still morally wrong. Moreover, the mid-level philosophical principles supporting these moral conclusions do not just apply to individuals, but also collective bodies. So, the moral conclusions reached earlier apply to these food entities that consist of groups of people. It is important to remember that any company is made up of individuals who still have individual moral duties, even if they do not have total control. Acting as part of a group does not remove these moral duties. So, to avoid wasting food, companies, and anyone for that matter, can either avoid the production and/or purchase of excess food in the first place or donate the excess food to those who are food insecure.

Since there are roughly 41 million people in the U.S. who are food insecure, we should not entirely avoid the production of "excess" food ("Reduce Wasted Food by Feeding Hungry People" 1). By excess food, I mean food that historically would have been wasted. However, with 41 million Americans being food insecure, not all of the 96 billion pounds of food wasted per year is actually excess. So at least part of the decrease in food waste must come from food being donated to food insecure people instead of being thrown away.

As I have mentioned, roughly 80 percent of food companies that do not donate food are unaware of the fact that there are federal laws protecting them from liability for injuries from donated food (Ahmann, Hall, and Hamilton 1). One could argue that these food companies should have felt concern over food waste to the point that it led them to do research that made them become aware of the Emerson Food Act. However, it is not the responsibility of food companies to be legal experts. Their responsibilities have to do with food. Furthermore, it is difficult to hold someone morally responsible for something they are unaware of. Luckily, there are people in this world who are legal experts: attorneys. Practically every major food company

has an attorney who advices it on all legal things related to the business. It is difficult to find a major food company that does not have an attorney. Even smaller food companies, which do not have in-house attorneys, have at least been advised by an attorney at some point. Nearly every entity in the food business will need an attorney early on. An attorney provides "vital assistance in almost every aspect of your business, from basic zoning compliance and copyright and trademark advice to formal business incorporation and lawsuits and liability" (Ennico 1). In sum, virtually every food entity has or has had contact with an attorney, who is or was responsible for educating corporate officials on the liability risks of their business practices. Furthermore, attorneys are legal experts. It is their job to know the law and advise their clients. In short, attorneys are responsible for understanding the risk of liability behind food donations and have an obligation, which stems from the power of their clients, to educate their clients on the Bill Emerson Good Samaritan Food Donation Act.

However, in the U.S., we would only have to reduce food waste by less than 30 percent to feed Americans who are food insecure (Gunders 1). Furthermore, according to the Food and Agricultural Organization, just one fourth of global food waste would be enough to feed every food insecure person in the world ("Food Waste in a Food Insecure World 1"). So, while we could possibly donate some unconsumed food outside of the U.S., unless the amount of global food production is decreased, there will be at least some global food waste. Individuals and food companies have a moral obligation to not purchase and waste the truly excess food thus they have an obligation not to create it in the first place. But given the current American market structure and consumer mentality, this could take some time. Furthermore, even if we do significantly decrease excess food production and waste, we certainly will not be able to eliminate it entirely. Of course, we must encourage companies to recover and donate as much

food as they can, but it seems inevitable that some food waste will be non-edible. So, it is important to consider a way that we could at least make use of food waste, particularly non-edible food waste.

Among other things, food waste is composed of lipids and carbohydrates, which can be recovered for other uses. Non-edible food waste:

> can be converted into a spectrum of bio-commodity chemicals and bio-energy by employing bioprocesses. Bioconversion of [food waste] into sustainable platform chemicals offers new resource recovery alternatives for fossil-based chemicals to [a] certain exten[t] (Chatterjee et. al 2).

Moreover, "new technologies that use anaerobic digestion are rapidly emerging to convert food and organic wastes to energy and to mitigate greenhouse emissions" (Franchetti 42). "Lipids derived from food waste can be converted to biodiesel. Additionally, complex carbohydrates such as cellulose and starch in food wastes can be hydrolyzed into glucose and fructose. Subsequently, these sugars can be fermented to bioethanol or technical ethanol" (Grycová et. al 1203). One economic and environmental analysis based on the food services at the University of Toledo demonstrated that waste to energy technologies are both technologically and economically feasible. Over a ten-year period, the cost to purchase, install, operate, and maintain the necessary waste to energy technologies, would be about $65,000. However, the cost to continue the use of the current waste system they use would be about $73,100 for that same ten-year period. So, recovering the food and using it for energy production makes more economical sense than disposing of it, as it would result in a total cost benefit of $8,100 over ten years (Franchetti 48).

Government solutions. The best thing the government can do to decrease food waste and food insecurity is to *increase public awareness of these problems and the Bill Emerson Good Samaritan Food Donation Act.* As I have previously noted, most people are unaware of the problems of food waste and food insecurity. Americans are taught to function as greedy consumers, so food waste does not seem to concern them. But that is exactly why it is important for the government to educate people on just how much food we waste and the negative repercussions of that.

Americans also need to be educated on food insecurity. Most Americans know what hunger and malnutrition are, but food insecurity is more complex. Yes, hunger and malnutrition fall into the domain of food insecurity, but food insecurity also addresses the causes of them. Food insecurity accounts for social, physical, and economic barriers that prevent people from having access to a variety of nutritious foods at all times. Maybe if more Americans knew that 15 percent of people are food insecure and understood the complexity of that concept, then more people would become activists for food donation.

Of course, to substantially increase activism for food donation, Americans must become aware of the Bill Emerson Good Samaritan Food Donation Act. Liability is a concern that serves as a barrier to donation for many food companies. And while I am dismayed that few have taken the time to determine their actual risk of liability, I see their lack of awareness as a major shortcoming on the government's part. I find it concerning that members of the United States government took the time and money to draft, reform, amend, and pass an act, but then never thought to tell people about it. We must hold the government responsible for educating the American people on the Bill Emerson Good Samaritan Food Donation Act!

I believe that the government must provide public education on food waste, food insecurity, and food donation liability in a number of different arenas: schools, communities, the national news media, and informational sessions for food companies. Schools are the most important places to increase awareness. We, as Americans, have abandoned the virtue of frugality to adopt the vices of waste and greed. But we have not always been this way and we do not have to stay this way. We can break this cycle by teaching our children differently. The government should make it mandatory for students to be taught the statistics for food waste and food insecurity and the harms that they result in. The government should also try to educate people through community leaders. It should encourage governors and mayors to educate their citizens on the statistics, serve as activists for food donation, and implement local food recovery programs. The government could also work more with churches and religious organizations. Churches and religious organizations can be powerful advocates, because they can morally encourage their community members to participate in food donation. This could best be achieved by encouraging more coordination between local governments and church programs that help the needy. And, of course, the government should make use of the national news media to educate people. That may be the fastest and easiest way to increase awareness. Anything we see on the news spreads like wildfire. It would only take a few news interviews with a few politicians to increase national awareness of food waste, food insecurity, and food donation liability.

*Increase incentives.*Once the government has tackled public awareness, it must increase incentives for food donation. Many food companies view the need to transport food donations to non-profit organizations as a big hassle. To remove this burden, the government could provide food companies with government funded transportation. The local government could implement a system that has a food donation pickup schedule. The frequency of pickups would depend upon

the demand. So, food donations might be picked up every day or once a week. The transportation would follow the most time and cost-efficient route. Food companies can call those in charge of transportation and inform them when they have a large quantity of food that needs to be picked up. Since some food is perishable, it is important to have an alternative to the established schedule. Additionally, food transporters can call and solicit companies on their route to ask if they have food to donate. This solicitation can make them more aware of the food donation transportation and hopefully improve turnout. Furthermore, food companies can be incentivized to donate by offering them tax write-offs that are proportional to the amount of food they donate.

An additional way to discourage food companies from wasting food is to implement fines and taxes for wasting food; fines and disposal taxes "raise the economic costs associated with waste-generating behavior and improper food disposal" (Katare et. al 500). Food insecurity and negative environmental effects are not felt in the consumer market, so the government must intervene "to provide the correct prices through a disposal tax, and government incentives" (Katare et. al 502). While there are currently no federal fines or taxes for food waste disposal, "a number of counties and U.S. localities have instituted policies (disposal taxes) directed toward reducing this waste" (Katare et. al 499). Seattle, for example, has implemented disposal taxes that have resulted in a decrease of waste. Some may object that it is not obvious that this would work elsewhere. Others may object that disposal taxes can produce undesirable side effects and are difficult to enforce, but France would say otherwise. In 2015, a law was passed by the French Senate that made it illegal for grocery stores to waste or destroy unsold food. Under the law, French supermarkets are required to donate unsold edible food to non-profit organizations and spoiled food to farms for agricultural purposes (Delman 1). Stores that are larger than 4,305 square feet must sign donation contracts with charities. Those who fail to do so face "fines

reaching upwards of $83,500 or two years in prison" (Dvorsky 1). Additionally, stores can be fined $4,500 for each food waste infraction (Beardsley 1). The law has only been in effect for a few years, but it appears successful. Over 5,000 French non-profit organizations depend on food donations. Since the law was passed, they now get nearly half of their food from supermarkets (Beardsley 1). Moreover, the quantity and quality of their donations have significantly increased. For example, before the law, one food manufacturer did not allow supermarkets to donate the sandwiches it made for them, but now a single non-profit will "get 30,000 sandwiches a month from them – sandwiches that used to be thrown away" (Beardsley 1).

The success of French food waste laws seems to indicate that similar laws could be successful in the U.S., especially if the government will arrange and fund the transport of food donations. Food companies would not want to risk disposing of food on their own property, due to expensive fines and the ease with which it could be discovered. To protect themselves, they would have to take this food someplace else to dispose of it. However, collecting and transporting food to be disposed of or dumped illegally would require more effort than allowing for it to be collected and donated! So, it seems as if food waste taxes and fines could be successful in the United States.

To make good use of food recovery, governments should address some of the social barriers that are part of food insecurity. Specifically, I suggest that governments should install community fridges in areas that have a high rate of food insecurity. Community fridges are simply refrigerators that are outside and accessible to all members of a community. Anyone can put food in the fridge and anyone can take it out. Although you might sometimes have an audience, accessing the fridge is a much more private experience. It puts a lot less social stress on those who are food insecure. Non-profit organizations can simply stock the fridges with

healthy recovered food that is transported with the government funded transportation. Community fridges have had great success in impoverished areas of Europe (Weinbren 6).

V. Conclusion

In this thesis, I have established that the U.S. has a severe food waste problem: 40 percent of food in the U.S. is thrown away every year ("Study: U.S. Food Waste Occurs Across the Food Chain"). I have explained that this problem is largely the result of consumerism and a cultural focus on prosperity and wealth. I have noted that food waste occurs across the food chain, but primarily at the retail and restaurant levels, making these levels important to focus on. I have argued that food is wasted due to: 1) misconceptions about legality, 2) inconvenience, 3) lack of awareness, and 4) misconceptions about marketability. I have explained that the food waste problem persists in the face of food insecurity problems. 15 percent of homes in the U.S. experience food insecurity, which is defined as "a situation that exists when [not] all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life" (Barrett 825). This is bad, because food insecurity is correlated with a number of physical and emotional health problems. Food waste unnecessarily contributes to these harms. Based on the non-harm principle, wasting food in the face of food insecurity is morally wrong, because those harms could be avoided by not wasting food and either donating it to food insecure people or donating the money you would have wasted on food to food insecure people instead.

But even if there was no food insecurity, wasting food would still be wrong, as food production contributes to a host of environmental problems including soil degradation and climate change caused by fossil fuel emissions. When we waste food, we unnecessarily contribute to these environmental problems. Not only does this directly harm our environment, but it indirectly

harms future people, because climate change will force them to live in much harsher environments that are plagued by heat and natural disasters. Once again, based on the non-harm principle, we have a moral obligation to not waste food to avoid contributing unnecessarily to these problems. We must abide by the virtue of frugality, which encourages us to spare the scarce resources that other humans and species need "that are both values in themselves and instrumental values for human needs" (Nash 152).

Given the moral implications of food waste, we must find solutions that attempt to combat this problem. But, I thought it was important to first describe previous efforts that have failed: The Model Good Samaritan Food Donation Act and the Bill Emerson Good Samaritan Food Donation Act. I explained that Congress first tried to address the problem of food waste in 1990 with the passage of the Model Good Samaritan Food Donation Act. It was intended to encourage states to adopt laws that protected donors from liability, but only one state did so (Morenoff 118). Unfortunately, the act did not have the full force and effect of federal law. As a result, the Bill Emerson Good Samaritan Food Donation Act was created in 1996 "to encourage the donation of food and grocery products to nonprofit organizations for distribution to needy individuals by giving the Model Good Samaritan Food Donation Act the full force and effect of law" (Congress 1). But, unfortunately, it also has had little to no effect. Many are not even aware of its existence.

This brought me to suggest my plan for solving America's food waste problem. The first part of my plan focused on private sector solutions. I argued that virtually every food company is represented by or has been advised by an attorney at some point. Attorneys are responsible for advising their clients on how to avoid liability and educating them on laws that pertain to food. I argued that attorneys should, and have a moral obligation to, educate their clients on the benefits

of food donation and inform them that when they donate food they are exempt from liability. However, for food that is non-edible and thus ineligible for donation I suggested a different type of recovery. Non-edible food waste can be converted into a spectrum of bio-commodity chemicals and bio-energy by employing bioprocesses. Lipids "from food waste can be converted to biodiesel. Additionally, complex carbohydrates such as cellulose and starch in food wastes can be hydrolyzed into glucose and fructose", which can be fermented to bioethanol or technical ethanol" (Grycová et. al 1203). Furthermore, the conversion of non-edible food waste is quite feasible, because "new technologies that use anaerobic digestion are rapidly emerging to convert food and organic wastes to energy and to mitigate greenhouse emissions" (Franchetti 42).

The second part of my plan focused on government solutions. I first argued that the government must increase awareness of food waste, food insecurity, environmental problems related to food production, and food donation liability. This can be done through school curriculum, community programs, and news media coverage. Once the government has increased awareness, it must increase incentives for food donation and recovery. It can provide government funded transportation to take food donations from food companies to non-profit organizations. It can also implement fines and taxes for wasting food, which the French government has shown to be successful. Finally, it can provide and install community fridges in communities that have high rates of food insecurity to combat social and geographic barriers to healthy food.

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