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United States Agricultural Policy: Subsidy Structures & Unintended Consequences

Molly Ann Sullivan
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UNITED STATES AGRICULTURAL POLICY: SUBSIDY STRUCTURES & UNINTENDED CONSEQUENCES

**A thesis submitted to
Regis College
The Honors Program
in partial fulfillment of the requirements
for Graduation with Honors**

BY

MOLLY ANN SULLIVAN

May 2013

Regis University
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Honors Thesis
Final Thesis Project Approval Form

Advisor/Final Project Faculty Approval Form

Student's Name: Molly Ann Sullivan Program Politics
PLEASE PRINT

Honors Thesis Title: United States Agricultural Policy: Subsidy Structures and Unintended Consequences
PLEASE PRINT

Advisor Name Terry Schmidt, PhD
PLEASE PRINT

Project Faculty Name Kristi Penhaker, PhD.
PLEASE PRINT

Advisor/Faculty Declaration:

I have advised this student through the Honors Thesis process and approve of the final document as acceptable to be submitted as fulfillment of partial completion of requirements for the Politics Degree Program.

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Abstract

There are few elements of public policy as important, or as deeply personal, as food policy. Government intervention in agriculture has been an expected norm in the United States since the Agricultural Adjustment Act of 1933, but how has their action affected the individual rights of the consumer? This thesis aims to address the effects of eighty years of policy through direct impacts of legislation in the areas of biofuels, genetically modified foods, and corporate welfare.

The agricultural industrial machine has made the United States one of the world's top exporters for food, but at the cost of competition in the marketplace and personal freedom. Implications of US policy are both domestic and global, in today's world and pending in the future.

I. INTRODUCTION: AGRICULTURE IN THE UNITED STATES

The two things all Americans, and really any citizen of humanity, have facing them as a constant need, regardless of socioeconomic, cultural, or governmental influence is the need for food and water. Living in the United States comes with a litany of benefits, from a long line of independent-minded rebels not willing to settle for the standard, but always striving for a little more. These benefits include access to food. For most people in the country, save the very bottom percentages on the wealth scale, basic caloric intake isn't really ever out of reach. We are fortunate to have historically very low percentages of total income spent on food, especially when compared to the staggering amounts the world's poor spend on food out of their entire household income; access is further bolstered by federal, state, and private programs to aid those people that need the most in our society.

Food is cheap, tastes good, and comes in such large quantities it can actually be a little frightening to visitors. This is where the first question comes into play: can a system that provides so much, for such relatively little cost, have negative consequences? The obesity epidemic is a potential indicator of a problem. I've always been the first person to say that personal choice, not government decision

making, should dictate the way people live their lives. Obesity can be a great chunk attributed to the personal choices of people.

However, the government *has* dictated major agricultural policy and directed the way the food industry is to grow, what they can grow, how they can grow it, and who can grow it, and how much it will cost. What started out as emergency policy during the Great Depression has evolved into an essentially government-controlled food market, with many players, motives, and outcomes- all seeming to focus solely on the short-term benefits. The greatest irony of the potential for problems in the food industry is that no one can truly escape the effects, especially future generations.

Corn is the primary crop driving the US economy, the natural landscape of the Midwest and part of the heart of this nation in image and lifestyle. Through corn derived additives, feed-grain, and fuel, there is little in the food industry that corn doesn't impact. Given that only a small percentage of corn in the US is non-genetically modified/engineered, there is also a potential major problem of biodiversity and the potential for unknown long-term effects of modified food products that could invite of host of problems to the economy and health of the country.

It's clear the government presently has far reaching effects on food policy, raising an important question-- In a heavily subsidized and regulated food industry; does this role of government improve the product on the shelf and on the table of

Americans and as well as those abroad? Or has the food industry turned into pleasing political donors that reinforce with the status-quo instead of reflecting market-based, consumer-oriented solutions?

This thesis aims to uncover the government's direct role, historically and currently, in the food industry. Instead of a government that is supposed to be by the people and for the people, has a series of special interests turned what should be the most basic and fundamental choice of every person into decisions by an elite, above the people, for the highest bidder?

While I won't advocate throwing away a safety-net for the agricultural industry, for food is a major player in the web of security issues, I believe the current system of US policy is and has been failing the US consumer, free enterprise, and global ecology. The evolution of US policy, especially the farm bill, has been one from emergency, to welfare, to pork-barreling, to political suicide for those who speak against the allegedly "natural" market evolution. In this new state of emergency, our ever-present debt crisis and fallacies of solutions produced by lawmakers, it's time to take a step back and evaluate the causes, conditions, and effects of these questions, and assess the puzzle of the current food industry.

II. GOVERNMENT INTERVENTION: LEGISLATIVE HISTORY

Government Influence: 1789-1916¹

The U.S. Constitution became the supreme law of the land in 1789, without enumerated powers involving the agricultural sector². The US government's involvement in farming began with the creation of an agricultural committee in the House of Representatives and Senate, in 1820 and 1825, respectively. Abraham Lincoln established the US Department of Agriculture (USDA) in 1862, referring to it as the "people's department". From 1862-1914, various other bolstering of the Federal government's role in agriculture, especially research expanded the breadth of the USDA's capabilities.

From 1916 to 1930, there was a fairly substantial growth of intervention in the agricultural sector. These were the first attempts to directly regulate the functioning of the network of farmers. 1916 presented the creation of the Federal Farm Loan Act, which created "cooperative 'land banks'"³, the precursor to the Farm Credit System. It was a way to provide loans and assistance to farmers.

¹ Edwards, Chris. "Department of Agriculture." *Downsizing the Federal Government*. Cato Institute. <<http://www.downsizinggovernment.org/agriculture>>.

² Edwards

³ Edwards

The 1929 Federal Reserve System decision to decrease the U.S. money supply by one-third over the following four years deeply affected prices of commodity crops. The prices for staple crops dropped significantly, causing many farmers to be in extremely perilous situations. While sales plummeted, interests on mortgages and property taxes remained high, causing many to be on the verge of losing their land.

With the economy in depression, and calls for protection of US markets including farming, growing, President Hoover agreed to the Smoot-Hawley Act in 1930⁴. This act increased tariffs for farm and industrial goods. Much of the international community responded with similar tariffs, causing exports to fall 60% by 1933⁵.

Great Depression and the AAA

The Great Depression wrought the first true test run of Keynesian economics in the United States. The clamoring for something, anything be done was heard loud and clear by Roosevelt. True to its theory of deficit spending, Franklin Delano Roosevelt put forth a slew of government-induced demand. One of the largest monetarily, and in-purpose programs, was the Agricultural Adjustment Act of 1933

⁴ Edwards

⁵ Edwards

(AAA). Considered to be a “cornerstone”⁶ in the New Deal, the primary goal was to enact a “centralized food policy”⁷.

At the time, twenty-five percent of Americans were living on farms⁸. External factors, i.e. extensive droughts and the global depression of food prices, created a situation where one quarter of the U.S. population was in one of the most volatile areas of the market, a staggering realization that led to staggering demand for action. The 1933 Act declared a national state of emergency in the farming industry, which was also crippling the ability to garner typical capital necessary for farm management throughout the system. Commodity crops were especially hard hit. A commodity crop in its most basic definition is a crop that is traded⁹. Generally, these crops are nonperishable and able to be stored and/or transported. Commodity crops in the context of US food policy are the ones directly regulated by the federal government¹⁰

The difference between the farm industry and any other industry being exposed to the business cycle is the basic human need, regardless of preference or socioeconomic class, to have sustenance. The AAA attempted to “stabilize the

⁶ Kwan, Charlene C. "Fixing the Farm Bill: Using the "Permanent Provisions" In Agricultural Law to Achieve WTO Compliance." *Environmental Affairs* 36 (2009): 571-606. Print.

⁷ Kwan 575

⁸ Kwan 575

⁹ Braun, Lois. "What Are Commodity Crops and Why Do They Matter?" *Hampden Park Co-op*. 03 Apr. 2012. Web.

¹⁰ Braun

agricultural sector”¹¹ in two facets: price and production. The 73rd Congress wanted to make up for the inability of farmers to purchase/pay for their “extraordinary expenses,”¹² like machinery and labor costs.

The 1933 Act was explicitly built with language that ensured no measure in the act could be carried forth if it violated current Anti-Trust Laws¹³. This measure was in place to ensure that the small farms this act intended to protect weren't wiped out by the subsidy structure or potential conglomerates eager to buy up defaulted land.

Outlined in part two of the Act, under General Powers, the appointed Secretary of Agriculture quickly became one of the most powerful leaders in the United States. The general overtures of the Secretary's powers were outlined in three main points. First, reduction of current commodity production, through “rental benefit payments”¹⁴, essentially the government renting out the land to ensure crops are not grown and the physical storing of those crops that were deemed non-perishable¹⁵. It boils down to paying farmers not to farm their land to control production levels. Secondly, the Secretary was to manage the agreements with individual farmers, again reiterating that antitrust laws could not be broken

¹¹ Kwan 575

¹² United States. Cong. House of Representatives. 73rd Congress, 1st Session. *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31. The National Agricultural Law Center: United States Farm Bills. Web. Accessed August 2012. <<http://nationalaglawcenter.org/farmbills/#33>>.

¹³ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

¹⁴ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

¹⁵ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

and that these agreements would be nullified once the act had passed its time limit. Lastly, the Secretary was also responsible for issuing and revoking licenses when appropriate¹⁶.

Loan rates were determined by the Secretary of Agriculture, “in light of current supplies and anticipated demand”¹⁷. Crops such as corn, wheat, and cotton were under mandatory loans, in the believing that the only way to stabilize across the system in this emergency state was to ensure everyone was under the same price structure for the most important crops, but provisions allowed for other crops to be included as seen fit¹⁸.

A 1933 executive order established the Commodity Credit Corporation (CCC)¹⁹. The Delaware based corporation’s purpose was to provide emergency loans in cases where there was a substantial chance the farmer might put their crops on “already flooded markets”²⁰. This allowed the government to control market supply directly. Virgil W. Dean of the CCC argued that the nonrecourse loans the CCC provided allowed for the market to still have stable prices when they began to fall to low levels²¹.

The CCC originally was conceived to be a temporary government entity, to dissolve when the aggregate domestic economy was in a more stable position. Not

¹⁶ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

¹⁷ Kwan 577

¹⁸ Kwan 577

¹⁹ Kwan 577

²⁰ Kwan 576

²¹ Kwan 577

surprisingly, as with most government programs, the CCC quickly became a permanent bureaucratic entity, far surpassing its initial sixteen month charter²².

Nonrecourse loans allowed the farmers to use their commodities as collateral, wherein the farmer could chose to reclaim the crop if the price increased to profitable levels, or to not reclaim. Not reclaiming the crop allowed the government to keep the commodity crop and be considered in full payment of the loan²³. Between 1935 and 1936, farm income had risen dramatically, approximately fifty percent²⁴, seen as a direct accomplishment of the Roosevelt Administration.

As with all government programs, there needed to be a provision on how this would be paid for. The result was a “processing tax”²⁵ on those commodities outlined as ones that would be a part of this subsidy structure. The tax would be collected during the “first domestic processing and paid by the processor”²⁶, at a rate determined by the difference between the market value farm price and the “fair exchange value”. The “Fair exchange value” gave the commodity in question the same value as it would have been on the market between 1909 and 1914, the “prewar” period, excluding tobacco, which would be valued in the post-World War I period²⁷.

²² Kwan 577

²³ Kwan 577

²⁴ Kwan 577

²⁵ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

²⁶ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

²⁷ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

“Processing” for wheat, rice, and corn entailed milling or any other post-harvesting measures to get the product ready for the market²⁸. However, processing tax excluded cleaning and drying, along with any commodity that was to be changed into a product for feeding livestock. The processing tax figures were to be made public by the Secretary of Agriculture. There would be no tax on the processing of crops deemed for export.

Section 11 of the Act defines what crops will be counted as “commodities”. These primary staple crops included: wheat, cotton, field corn, hogs, rice, tobacco, and milk (including by-products like milk and cheese²⁹). Section 12 was where the money numbers started to pour out. The Secretary of Agriculture was to have \$100,000,000³⁰ that he would be able to use “until spent”³¹. This section also left open for possibility more money if it was used for the “expansion of markets and removal of surplus agricultural products and various administrative costs”. Adjusted for inflation, the base rate available to be spent today, at the discretion of the Secretary, would equal US\$175,000,390,667 (2012 dollar value)³². The money made available was significant because this was considered and treated as a national emergency.

²⁸ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

²⁹ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

³⁰ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

³¹ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

³² "The Inflation Calculator." *The Inflation Calculator*. Web.

The Act had written in that it was to be terminated when the crisis was considered to be over. Roosevelt in his executive, power-wielding wisdom said that it was up to him, as the head of state, to determine when the crisis was considered “over”. One of the last pieces of the AAA, under “Miscellaneous” states that the “Authority of the president is unrestricted as long as salaries of personnel stay under \$10,000 per year”³³.

\$200,000,000³⁴ additional US dollars would be made available to the Farm Loan Commissioner. These loans were to be used for the “reduction of debts and redemption of foreclosed farms”³⁵. In today’s dollar figures, this would be a fund worth US\$3,508,771,929.82.

1936 Supreme Court of the United States: United States v Butler³⁶

The ability of the Secretary of Agriculture to determine contracts, the nonrecourse loans, giving farmers direct payment for not producing and not placing crops on the market had to be paid for in some form. The money came from a congressional act that imposed a tax on domestic processing of certain commodities. The first person to process the product would be responsible for paying the tax, with exemptions for crops to be exported- another step to try and bolster the economy. The tax was deemed to be outside of the federal government’s scope, and

³³ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

³⁴ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

³⁵ *H.R. 3835 Agricultural Adjustment Act of 1933*. Pub. L. No. 73-10. 48 Stat. 31.

³⁶ *United States v. Butler*. 297 U.S. 1. Supreme Court of the US. 1936. Legal Information Institute, Cornell University Law School. Web. September 2012.

in direct violation of the 10th amendment, breaching state's rights by way of the ever-popular commerce clause.

1938 Agricultural Adjustment Act: Revision & Extension

The described purpose of the post-*Butler* farm legislation was to regulate and manage conservation efforts and land use to create a “balanced flow” of commodity products between states and through exports. The 1938 Act at first seems to be primarily focused on conservation and ensuring healthy soil to continue good growth rates for the marketplace, but quickly starts throwing out significant dollar amounts to various crops and government agencies making it clear that the “national emergency” wasn't over by the President's standards. A safeguard was put in place ensuring that the act as a whole would still remain effective, regardless if one element was deemed unconstitutional and/or illegal per the courts³⁷.

Acreage allotments became much more specific, in regulation and by crop. Corn had quite a few more standards placed on it, including the “tillable acreage, type of soil, topography, and crop rotation practices”. Section 102 outlined the way payments were to be made³⁸. Still in the age of sharecropping, payments had to be

³⁷ United States. Cong. House of Representatives. 75th Congress, 3rd Session. *H.R. 8505 Agricultural Adjustment Act of 1938*. Pub. L. No. 75-430, 52 Stat. 31. The National Agricultural Law Center: United States Farm Bills. Web. Accessed August 2012. <<http://nationalaglawcenter.org/farmbills/#33>>.

³⁸ *H.R. 8505 Agricultural Adjustment Act of 1938*. Pub. L. No. 75-430, 52 Stat. 31.

made proportionally to “owners, tenants, and sharecroppers”³⁹. No total farm payment could exceed \$10,000 in one year⁴⁰.

In yet another expansion of the Secretary of Agriculture’s power, he was now “authorized to make complaints to the Interstate Commerce Commission”⁴¹ in regards to rate changes for moving food throughout the market. There was now federal control over production, production levels, prices, exports, and the cost of moving product.

The 1938 AAA gifted to the American society the first major permanent provision of farm legislation. The act was substantial, covering a vast amount of food related issues including, but not limited to: mandatory loans, payment of benefits, production control, crop insurance, and soil conservation”⁴². Marketing quotas were now permissible when established the price support programs. Price support programs are a basic crutch of the food industry for years that supply isn’t as high as the government and/or current demand would like it to be. Import duties and tariffs are in place until a set production demand is met. Producers get to sell for a higher price, without international competition⁴³. The marketing quotas created a “more stringent means of controlling output”⁴⁴, established by the Secretary of Agriculture.

³⁹ *H.R. 8505 Agricultural Adjustment Act of 1938*. Pub. L. No. 75-430, 52 Stat. 31.

⁴⁰ *H.R. 8505 Agricultural Adjustment Act of 1938*. Pub. L. No. 75-430, 52 Stat. 31.

⁴¹ *H.R. 8505 Agricultural Adjustment Act of 1938*. Pub. L. No. 75-430, 52 Stat. 31.

⁴² Kwan 578

⁴³ Edwards

⁴⁴ Kwan 578

Corn, defined as “field corn”⁴⁵, would have loans made available when the year’s crop yield was more than what was predicted, based on the previous year’s figures. This would also occur if the price of corn fell below 75 percent of the parity price of that year⁴⁶.

The 1938 Act also explicitly put in place consumer protection elements. The primary focus of these safeguards was to ensure production would meet the demand of normal consumption, keeping with “consumer demands”⁴⁷. Also, all acreage allotments and marketing quotas were to be made available to the public by the Secretary of Agriculture⁴⁸.

1938 ensured also that the CCC⁴⁹ would be around at least for another five years. Congressional members began to favor the CCC as a permanent entity, not just one for emergency situations as originally envisioned⁵⁰. The act also allowed the Secretary of Agriculture to not only set CCC rates, but from 1938-1940 to set various other commodities such as butter, figs, barley, wool, peanuts, and tobacco⁵¹.

Title V of the bill focused on crop insurance⁵². The idea behind the crop insurance was to “maintain farmers’ purchasing power” and ensure “national welfare” by preventing disasters in commodity crop, especially wheat and corn

⁴⁵ *H.R. 8505 Agricultural Adjustment Act of 1938*. Pub. L. No. 75-430, 52 Stat. 31.

⁴⁶ *H.R. 8505 Agricultural Adjustment Act of 1938*. Pub. L. No. 75-430, 52 Stat. 31.

⁴⁷ *H.R. 8505 Agricultural Adjustment Act of 1938*. Pub. L. No. 75-430, 52 Stat. 31.

⁴⁸ *H.R. 8505 Agricultural Adjustment Act of 1938*. Pub. L. No. 75-430, 52 Stat. 31.

⁴⁹ *H.R. 8505 Agricultural Adjustment Act of 1938*. Pub. L. No. 75-430, 52 Stat. 31.

⁵⁰ Kwan 578-579

⁵¹ Kwan 579

⁵² *H.R. 8505 Agricultural Adjustment Act of 1938*. Pub. L. No. 75-430, 52 Stat. 31.

crops. The Federal Crop Insurance Corporation was created. This corporation would have US\$100,000,000 in “capital stock”⁵³, with an oversight board hand-picked by the Secretary of Agriculture. As an added bonus, the FCIC was tax-exempt. The crop insurance program was present, but mostly experimental until 1985⁵⁴

1948 and 1949 Agricultural Acts

Although the 1948⁵⁵ and 1949 acts were essentially the same, the 1949 bill enacted yet another provision to affect any and all forthcoming legislation. They were built on the established theory that high fixed price-supports⁵⁶ were the best way to stabilize the market, not only through the Great Depression, but moving into the post-war years. Price supports, aiming for the 70-80 percent parity range, became *mandatory* for commodity crops, optional for others⁵⁷.

Price supports were now determined by a number of factors. Interestingly, number eight was the “ability and willingness of producers to keep supply in line with demand”, yet another factor subject to the desires of the Secretary of Agriculture.

With all the excess unclaimed crops in federal storage, the federal government decided to put the crops to use in various other forms, as a means of

⁵³ *H.R. 8505 Agricultural Adjustment Act of 1938*. Pub. L. No. 75-430, 52 Stat. 31.

⁵⁴ "History of the Crop Insurance Program." *History of the Crop Insurance Program*. USDA Risk Management Agency.

⁵⁵ United States. Senate. 80th Congress, 2nd Session. Pub. L. No. 80-897, 62 Stat. 1247. *H.R. 5345 Agricultural Act of 1948*. The National Agricultural Law Center: United States Farm Bills. Web. Accessed August 2012. <<http://nationalaglawcenter.org/farmbills/#33>>.

⁵⁶ Kwan 579

⁵⁷ Kwan 579

preventing waste⁵⁸. The legislation dictated who had first pick. Access was granted to these three groups (in order of first choice to last): (Category 1) School lunch programs, Bureau of Indian Affairs, Federal, State, and local public welfare programs for Indians and other needy person; (Category 2): Private welfare organizations for the needy in the US; (Category 3): Private welfare for those organizations outside of the US⁵⁹.

The way parity was calculated also changed. The new calculations added the 10 years, 1938-1948, to the years used for base calculations, 1910-1914⁶⁰. Two other items were also added into the process of creating a parity index: labor costs and payments to commodity producers⁶¹. In effect, since commodity growers could use this new formula when it was *convenient*⁶² for them, also known as a higher profit, the parity prices went up greatly benefiting those producers.

1970 Agricultural Act & Agricultural and Consumer Protection Act of 1973

Per usual, the primary purpose of any agricultural act was to extend the life of the previous structure. For the 1970 Act, the 1954 Act was extended, as had

⁵⁸ United States. Cong. House of Representatives. 81st Congress, 1st Session. Pub. L. No. 81-439, 63 Stat 1051. *H.R. 5345 Agricultural Act of 1949*. The National Agricultural Law Center: United States Farm Bills. Web. Accessed August 2012. <<http://nationalaglawcenter.org/farmbills/#33>>.

⁵⁹ United States. Cong. House of Representatives. 81st Congress, 1st Session. Pub. L. No. 81-439, 63 Stat 1051.

⁶⁰ Kwan 579-580

⁶¹ Kwan 580

⁶² Kwan 580

happened previously with the bill⁶³. For the years 1971, 1972, and 1973 payments per person were not to exceed US\$55,000. Corn, as a feed grain was subject to parity pricing (1368), not to exceed the 90% threshold.

1973 was a volatile time in the world market, just after the first oil embargo, the US stock market crash, and the Yom Kippur War. All of this together sparked a renewed interest in protecting commodities. Since there were food shortages abroad and inflation had also hiked up the prices at grocery stores⁶⁴, the pressure was on to renew the system.

In steps Secretary of Agriculture Butz. He demolished the previously used system “Ever-Normal Granary”, the mechanism to stabilize the grain market, opting instead for a more streamlined agricultural system. The new emphasis was on “fencerow to fencerow”⁶⁵ crops and instead of controlling production levels, Butz encouraged “maintaining or increasing output”⁶⁶.

The major change to the price-support system was the elimination of the parity index⁶⁷. Instead, target prices and deficiency payments became the gold standard. Congress would set the target prices, and if the market prices ended up being under, farmers would get a deficiency payment to make up for the price

⁶³ United States. Cong. House of Representatives. 91st. Congress, 2nd Session. Pub. L. No. 91-524, 84 Stat. 1358. *H.R. 18546 Agricultural Act of 1970*. The National Agricultural Law Center: United States Farm Bills. Web. Accessed August 2012. <<http://nationalaglawcenter.org/farmbills/#33>>.

⁶⁴ Kwan 580

⁶⁵ Kwan 580

⁶⁶ Kwan 580

⁶⁷ Kwan 581

differences⁶⁸. Low income households continued to be fed with excess commodities, and disaster relief payments became commonplace after the 1973 bill.

Food Security Act of 1985

The primary focus of the 1985 act was to “encourage exportation” of commodity crops through the Export Enhancement Program⁶⁹. The focus of the program was especially exportation of corn, as feed grains⁷⁰. This was to be encouraged as much as possible, as long as it didn’t plummet the world prices. In line with Butz, the food system was growing. Instead of simply adding more price supports (although still in full swing), the idea was to export as much of the excess as possible.

Before the passage of this bill, the Reagan Administration had introduced ideas to substantially cut subsidization, but since farm finances weren’t in good shape in the 1980s, it just wasn’t politically feasible. Also passed was Conservation Reserve Program⁷¹, whose purpose was to pay farmers not to farm, for production or soil preservation reasons.

1990: The 11 Part Act⁷².

⁶⁸ Kwan 581

⁶⁹ Edwards

⁷⁰ United States. Cong. Senate. 99th Congress, 1st. Session. Pub. L. No. 99-198, 99 Stat. 1354. *S. 2830 Food Security Act of 1985*. The National Agricultural Law Center: United States Farm Bills. Web. Accessed August 2012. <<http://nationalaglawcenter.org/farmbills/#33>>.

⁷¹ Edwards

⁷² United States. Cong. Senate. 101st Congress, 2nd Session. Pub. L. No. 101-624, 104 Stat. 3359. *S. 2830 Food Agriculture Conservation and Trade Act of 1990*. The National Agricultural Law Center: United States Farm Bills. Web. Accessed August 2012.

The dramatic increase in money floating around and the influence of government in the agricultural sector is evident simply in how long the bills gradually became. In part three of the 1990 bill, the focus was squarely on produce. Section 1303 commissioned a study to evaluate the “state of domestic fruits and vegetables”⁷³. It specifically wanted to look into the “scientific and technological advances” in regards to genetically modified foods, biotechnology, and pesticides.

Labeling policies were central to the debate. The most crucial element of labeling was regulation of organic food. The “National Organic Production Program”⁷⁴ outlined the program determining products qualifying organic foods for labeling. There would be federal standards, but each state had the right to create their own program for additional certification. The National Organic Standards Board would be the final word, appointed by the Secretary of Agriculture.

The standards for organic food were composed of three factors: no synthetic chemicals, granted a few provisions, no synthetic chemicals used on the land three years prior (excluding livestock), and that the handling is in compliance with the Board. These requirements would be in place starting October 1st, 1993.

The most incredible aspect of about the requirements was the exemption section for processed food. With approval of the National Organic Standards Board

<http://nationalaglawcenter.org/farmbills/#33>.

⁷³ United States. Cong. Senate. 101st Congress, 2nd Session. Pub. L. No. 101-624, 104 Stat. 3359. *S. 2830 Food Agriculture Conservation and Trade Act of 1990.*

⁷⁴ United States. Cong. Senate. 101st Congress, 2nd Session. Pub. L. No. 101-624, 104 Stat. 3359. *S. 2830 Food Agriculture Conservation and Trade Act of 1990.*

and the Secretary of Health and Human Services, the following was stated about processed foods, and how they could be labeled organic⁷⁵:

Exemptions FOR PROCESSED Food.-Subsection (a) shall not apply to agricultural products that-

1. *contain at least 50 percent organically produced ingredients by weight, excluding water and salt, to the extent that the Secretary, in consultation with the National Organic Standards Board and the Secretary of Health and Human Services, has determined to permit the word "organic" to be used on the principal display panel of such products only for the purpose of describing the organically produced ingredients; or*
2. *(2) Contain less than 50 percent organically produced ingredients by weight, excluding water and salt, to the extent that the Secretary, in consultation with the National Organic Standards Board and the Secretary of Health and Human Services, has determined to permit the word "organic" to appear on the ingredient listing panel to describe those ingredients that are Organically produced in accordance with this title.*

A group completely exempt from organic food labeling is any small farms that produce less than \$5,000 of agricultural products annually⁷⁶. Therefore, in a

⁷⁵ United States. Cong. Senate. 101st Congress, 2nd Session. Pub. L. No. 101-624, 104 Stat. 3359. S. 2830 Food Agriculture Conservation and Trade Act of 1990.

welcomed turnaround for the processed food industry, there were great incentives to hire the best lobbyists to ensure that any processed food, as long as it was accepted by the board and the Secretary, could be labeled organic. A win for the food industry was a big loss for the consumer unaware of this legislation.

1996: Federal Agriculture Improvement and Reform Act (FAIR)⁷⁷

Regulation put forth in 1996 focused on letting farmers have greater flexibility in production and maneuvering with market demands, referred to as the "Freedom to Farm" law. This new version of subsidization was predicted to cost \$47 billion dollars from FY1996-FY2002⁷⁸. Quickly destroying the progress of realistic and market-based commodity crops, Congress passed supplemental farm bills every year. The actual cost from 1996-2002 was \$121 billion dollars⁷⁹. As a part of this process, target prices were eliminated deemed to grant the most flexibility to farmers⁸⁰, due to the ability to decide what to be planted in a given growing season.

The farm population has been dwindling since the 1930s, but agriculture still remains one of the most heavily subsidized areas of the entire US economy⁸¹. An

⁷⁶ United States. Cong. Senate. 101st Congress, 2nd Session. Pub. L. No. 101-624, 104 Stat. 3359. *S. 2830 Food Agriculture Conservation and Trade Act of 1990.*

⁷⁷ United States. Cong. House of Representatives. 104th Congress, 2nd Session. Pub. L. No. 104 127, 110 Stat. 888. *H.R. 2854 Federal Agriculture Improvement and Reform Act of 1996.* The National Agricultural Law Center: United States Farm Bills. Web. Accessed August 2012. <<http://nationalaglawcenter.org/farmbills/#33>>.

⁷⁸ Edwards

⁷⁹ Edwards

⁸⁰ "1996 FAIR Act Frames Farm Policy For 7 Years." *USDA Economic Research Service*. USDA, Apr. 1996. Web.

⁸¹ Edwards

easy push for legislators from farm states to swing urban-based legislators to be in favor of farm bills is that food stamps are also included-- an important issue for urban areas. Also, lobbying for the farm industry is incredibly strong, increasingly able to push for higher USDA budgets.

2002 Farm Security and Rural Investment Act & 2008 Food, Conservation, and Energy Act

Farming won the political game again in 2002. The Bush Administration offered some mild reform options, but was quickly shut down in Congress. President Bush went so far to veto the 2002 farm bill, but was overridden. The “counter-cyclical”⁸² price support system, the target-prices eliminated in the 1996 bill, which paid farmers directly for the difference between the pegged “target price” and the actual market value was implemented⁸³. The program itself turned out to be incredibly expensive and illogical. Farmers are still able to time the marking of a target price at the peak of the year, and hold onto commodity crops (since they don’t perish) until market prices are lower, then flood the market to obtain the best payout. The 2002 Act also increased existing programs to cover even more crops. Estimations at time of implementation for the next ten years was a whopping 74% increase in payments⁸⁴

Food Conservation and Energy Act: 2008.

⁸² Edwards

⁸³ Braun

⁸⁴ Edwards

2008 legislation ended in the same manger⁸⁵. Amazingly, even more farm subsidies were increased, and were implemented, despite another presidential veto. The bill passed in June, when the financial center's downward spiral started to become unavoidable, and the market was unstable. Essentially, it was perfect maelstrom for garnering support to protect the domestic food supply and major exports, the clear repetition, and public desire of avoidance, repeating itself.

Although the US did go over the fiscal cliff for a day, and all of farming America was up in arms about the possibility of not having a farm bill to thrive off of, the American Taxpayer Relief Act⁸⁶ will continue the 2008 Farm Bill until September 30th, 2013⁸⁷.

Covering All Bases: Other Areas of US Government Expenditures in Farm Subsidization

Through decades of legislation, the US Federal Government covers virtually every angle of the farming industry. The basics for staying competitive that most industries in America must fund themselves are heavily covered and historically

⁸⁵ United States. Cong. House of Representatives. 110th Congress, 2nd Session. Pub L. No. 110 246, 122 Stat 1651. *H.R. 6124 Food Conservation and Energy Act of 2008*. The National Agricultural Law Center: United States Farm Bills. Web. Accessed August 2012. <<http://nationalaglawcenter.org/farmbills/#33>>.

⁸⁶ United States. Cong. House of Representatives. 112th Congress, 1st 2nd Session. Pub. L. No. 112-240, 126 Stat. 2313. *H.R. 8 American Taxpayer Relief Act of 2012*. GovTrack.: Congress. Web Accessed January 2013. <<http://www.gpo.gov/fdsys/pkg/BILLS-112hr8enr/pdf/BILLS-112hr8enr.pdf>>.

⁸⁷"Title I: Commodity Programs." *2008 Farm Bill Side-By-Side*. USDA.

funded more and more by federal funds. These areas include insurance, disaster aid, exports, and research.

Crop insurance programs have been growing significantly over the decades. The rationale is that it “reduces farmers’ dependence on emergency bailouts”⁸⁸. While insurance is a practical entity of any industry, the federal government’s coddling of the food industry has created a living moral hazard. Congress is rapid when declaring states of emergencies for even relatively minor crop damage. Many farmers receive two payments when “emergencies” strike: one from their subsidized insurance plan and a second time from federal disaster relief funds⁸⁹. With the intention of being able to reduce as-needed disaster-relief, the 2008 insurance expansion implemented a permanent disaster program. Crops that don’t fall under the umbrella of insurance subsidization, Christmas trees, mushrooms, ginseng, and turf grasses⁹⁰ now have their own permanent disaster coverage, courtesy of the federal government Noninsured Crop Disaster Assistance Program⁹¹. The constant attention to the “security” of the food industry reduces incentives for it to seek its own protection or play by the market rules.

In addition, the federal government pays the tab for approximately \$3 billion dollars annually for USDA research⁹², \$200 million for a range of activities under the

⁸⁸ Edwards

⁸⁹ Edwards

⁹⁰ Edwards

⁹¹ Edwards

⁹² Edwards

Market Access Program for agricultural producers, including advertising campaigns⁹³, and the Foreign Market Development Program, with an approximate annual spending of \$35 million⁹⁴. While government is commonly looked to for research and development costs, the intensity of involvement in agricultural marketing shows just the tip of the depth of the trench the government and the industry are in together.

⁹³ USDA Fact Sheets

⁹⁴ Edwards

III. CORN AS KING. FOOD AS FUEL: THE BIOFUEL DILEMMA

Since 1933, corn has been one of the primary foci of the US government to ensure the security of the food industry. More and more, the emphasis has been on corn as a feed grain. Corn has become king in the United States, and consequentially globally. The US is the current primary “producer and exporter of corn grain”⁹⁵. As of September 2010, eighty million acres of US farming land are dedicated to corn, with twenty percent of crop yield being exported⁹⁶. In recent years, the use of corn has exploded; it’s not simply a product for human consumption, but for feeding livestock, biofuels, plastics, adhesives, and even medicinal uses⁹⁷.

Between 1995 and 2005, \$37 billion US dollars went to corn subsidization⁹⁸. The United States was not alone on the trend⁹⁹, although it was 44.5% of the market in 2005¹⁰⁰. Brazil began producing 45.2% of global biodiesel output from sugar cane and other parts of the world, particularly Europe, produced it from oil seeds¹⁰¹.

⁹⁵ Simmons, Kay. "A Systems Approach to Corn." *Agricultural Research* 58.8 (2010): 2. Print.

⁹⁶ Simmons

⁹⁷ Simmons

⁹⁸ Bhat, Kiran. "Misplaced Priorities Ethanol Promotion and Its Unintended Consequences." *Harvard International Review* (2008): 30-33. Print.

⁹⁹ Runge, Ford, and Benjamin Senauer. "How Biofuels Could Starve the Poor." *Foreign Affairs* 86.3 (2007): 41-53. Print.

¹⁰⁰ Runge 41-53

¹⁰¹ Runge 41-53

Projected EU rapeseed and US corn-maize biofuel production is to skyrocket in production over the next ten years¹⁰².

One of the most interesting developments in subsidization of food in the United States has been biofuels. Corn ethanol first appeared in 1974, just after the first oil shock, with a country ready to be rid of energy dependence. Scientists were able to take corn and turn it into a working fuel. The possibilities were endless, and the idea was loved by business, farmers, voters, environmental watchdogs, and politicians alike. It could be the future of renewable energy, and the US would have the capability to mass produce it. There were steps in Congress to aid the industry, as a replacement for the lead being phased out of gasoline, which was to be replaced by ethanol¹⁰³. This trend continued rapidly, especially into the early 2000s as new oil price spikes and a renewed determination to cut oil import dependencies on OPEC nations were reinforced by 9/11 and other international tensions. Both sides of the aisle saw biofuels as the darling, of legislation and source of Midwest votes.

Legislation enacted in 2005 made biofuels look like a savior yet again. Encouraging domestic creation and use of ethanol, the US government provided a US\$0.51 cent tax credit for ethanol-petrol users, and a trade tariff of US\$0.54 cents

¹⁰² “2011 World Food Report”. Food and Agriculture Organization of the United Nations. Banerjee, Arindam. "Food, Feed, Fuel: Transforming the Competition for Grains." *Development and Change; The Institute of Social Studies, the Hague* 42.2 (2011): 529-55. Print.

¹⁰³ Runge 41-53

on any and all imported ethanol¹⁰⁴. To make matters even sweeter for corn producers, many states have their own layer of subsidization for the production and use of corn ethanol¹⁰⁵.

Expanding EPA standards for increasing gas mileage and decreasing emissions for new cars also made biofuels incredibly attractive. This was increased even more when methyl-*t*-butyl (MTBE), a chemical additive in gasoline to help meet emissions standards, was determined to be a “health risk” and removal of it from the market gradually began¹⁰⁶. That meant 7.5 billion liters¹⁰⁷ of product needed to be replaced, and biofuels looked to be logical filler. While biofuels can be produced from a number of substances, including also heavily grown soy, corn thus far has remained king.

The three primary benefits asserted by pro-ethanol advocates are the reduction of oil importation, more farm revenue, and lower greenhouse emissions. However, the impact of corn in the global marketplace has had far greater and far more reaching effects in the highly interconnected, interdependent world market. The nature of the systemic environment creates economic and environmental risks associated with each of the primary goals.

¹⁰⁴ Odling-Smee, Lucy,. "Biofuels Bandwagon Hits a Rut." *Nature* 446.7135 (2007): 483. Print.

¹⁰⁵ Tyner, Wallace E. "The US Ethanol and Biofuels Boom: Its Origins, Current Status, and Future Prospects." *BioScience* 58.7 (2008): 646. Print.

¹⁰⁶ Odling-Smee 483

¹⁰⁷ Odling-Smee 483

With a food supply so dependent on corn, and the subsidization of it, there is increasingly the potential for real competition between the food and fuel industries¹⁰⁸. In 2007, corn feed prices were double what they had been the year before, partly because of the quick increase in demand for biofuels from both the private and public sectors¹⁰⁹. Food producers are not only battling the needs of natural human consumption, both domestically and internationally, in a highly populated world, but now are indirect competition with energy as well¹¹⁰.

This competition invariably leads to the cost shift to the consumers, especially in the third-world¹¹¹, where slight food price increases have far deeper and far more reaching consequences than in the global north. The bottom percentages of income globally spend 50-80%¹¹² of total household income on food. Any price spike can lead to not being able to eat or afford healthcare and education. Consequently, malnutrition-related diseases can increase, potentially leading to more instability and a more aggravated population.

At the same time, production of wheat and rice has been much lower due to the profitability of biofuels. In 2000, approximately five percent of the total corn yield was being used for biofuels. By 2007, that number was twenty percent¹¹³. The land needed for corn production increased, decreasing production of wheat and rice.

¹⁰⁸ Odling-Smee 483

¹⁰⁹ Odling-Smee 483

¹¹⁰ Bhat 31

¹¹¹ Bhat 31

¹¹² Runge 41-53

¹¹³ Odling-Smee 483

This problem is compounded even further given that wheat and rice are more and more often used for ethanol production as well. The Energy Independence and Security Act of 2007¹¹⁴ called for the total renewable fuel standard to be 36 billion gallons, with 1 billion gallons being biodiesel, by 2022.

The hope and belief in biofuels quickly turned into a variety of consequences tougher for investors. Capital costs for plants, due to shortages, have increased approximately 80%, as of July 2008¹¹⁵. Engineers were harder and more expensive to hire, the price of corn began a steep upward climb, as did the machinery¹¹⁶ needed to produce and keep up with growing demand. There are significant advantages to investing in biofuels, but it's a future's market that depends heavily on subsidization, dependable legislation, and natural production.

Biofuels have a major efficiency problem: they were, and are, heavily produced and subsidized in a highly political environment of high oil prices. The price of biofuels became its own monster, dependent on the price of oil. If oil prices decline, ethanol loses its profitability¹¹⁷. Ethanol production is driven by the market scarcity of oil, but the price of oil isn't only due to the free marketplace, either¹¹⁸. The delicate balance between oil, corn prices, and ethanol production is driven primarily by the government. Instead of the market generating ethanol production,

¹¹⁴ Tyner 647

¹¹⁵ Tyner 649

¹¹⁶ Odling-Smee 483

¹¹⁷ Runge 41-53

¹¹⁸ Runge 41-53

it is driven by a few companies, their lobbyists, and the government. In a normal market situation, the bubble for biofuels would have already burst, unless new technology quickly developed. However, direct government support, especially in the U.S., ensured their presence and continued support.

Incentives remain readily available and highly attractive to the farming sector. In 2007, there was a \$0.51 per gallon tax credit available for ethanol producers. Smaller quantity producers would receive an additional ten-cent per gallon tax reduction for their first 15 million gallons produced¹¹⁹. Biofuels, also protected by tariffs, circulate in an essentially competition-free market. In these terms, the consumer will lose. Considering how far reaching corn is throughout the US market, the consumer has the potential to lose far more than can ever be truly predicted, be it at the pump, the grocery store, or deficit-spending induced inflation and eventual decline of purchasing power.

The conundrum has become keeping production levels high enough to produce the ethanol to run the factories that create the ethanol while keeping food supply high enough. If biofuels are more subsidized, the price of corn skyrockets, as has been seen, and the need for proportional payments would decline. The aggregate government spending for corn, however, would still increase, due to the greater amount of acreage dedicated to corn production. In 2007 alone, corn

¹¹⁹ Runge 41-53

acreage jumped from 78 million to 92 million acres¹²⁰, directly due to higher corn prices because of the dramatic increase in corn ethanol production. In the political game of today, corn subsidy removal is a task few, if any, in Washington are willing to take on.

The bigger problem facing biofuel production is that it is unlikely to be enough to be a true “solution” many believed it could be. If all the possible farmland in the world were used to grow high-yield crops for biofuels, only 20% of current energy demand would be satisfied¹²¹. This is partly due to lagging technology and inefficiencies, and partly due to the ideological pipe dream from politicians, environmentalists, producers, and voters. OECD studies show that it would take 70% of Europe’s farmland growing for biofuels to barely reach 10% of transportation fuel demand¹²².

There are plenty of other materials that would be useful, and better, for ethanol production than corn, like grass and woodchips¹²³; but the research and development along with the crucial lobbying aren’t there like they have been for corn. This is partially due to the dynamics of reactionary democracies, particularly in the U.S. electoral system. Party polarization, rampant across the country, and presidential elections coming down to a few swing states, create an environment

¹²⁰ Tyner 648

¹²¹ Anslow, Mark. "Biofuels - Facts and Fiction." *The Ecologist* 37.2 (2007). Print.

¹²² Anslow 215

¹²³ Runge 41-53

perfect for pork-barreling on all levels of government. Iowa¹²⁴, as a swing state, and a major corn producer, has benefited greatly from its electoral sway. Keeping the present system is an easy political sell to keep Iowa happy and producing for both sides of the aisle.

The subsidization of corn ethanol production would probably be an easier pill to swallow if it wasn't a blatant form of corporate welfare and the squashing of competition. Archer Daniels Midland Company, thanks to significant lobbying efforts, is the largest producer of ethanol in the US¹²⁵. Starting as a small factor in the market, by 1980 it was a major player in corn due to the dramatic increase in the use of corn syrup. By 2006 ADM produced the most ethanol in the US, four times more than the second largest producer¹²⁶.

The sheer amount of government demands for higher production, coupled with the federal checkbook, has had plenty of companies attempting to jump into the game; the result is higher capital costs. The third player, aside from the government and big corn producers, in the growing demand for biofuels has been the environmentalists pushing for alternative energy sources. Many investors, producers, politicians, and environmentalists are still willing to take the risk despite

¹²⁴ Bhat 30

¹²⁵ Runge 41-53

¹²⁶ Bovard, James. "Archer Daniels Midland: A Case Study in Corporate Welfare JAMES BOVARD /CATO 26sep95." *Archer Daniels Midland: A Case Study in Corporate Welfare JAMES BOVARD /CATO 26sep95*. Cato Institute, 26 Sept. 1995. Web. 22 Oct. 2012. <<http://www.mindfully.org/Industry/ADM-Corp-Welfare.htm>>.

the negatives that have surfaced¹²⁷. The difference between many new-fuel advocates in the past and today is that they are throwing their own money, by the millions, into new ethanol companies¹²⁸. Their investment essentially ensures their support for more government support, and therefore less likely to shift support to more viable options that could develop in the future.

The end result of the biofuel subsidization epidemic has already created consequences reaching far outside of the United States. Again, the price of biofuels and oil is inextricably linked in current markets. Countries in the developing world which are also oil importers will be the hardest hit by skyrocketing of food prices¹²⁹. Mexico City, in 2007, amidst high corn prices, saw severe rioting over increased prices. The main food consumption, especially for their large, impoverished class, is tortillas, a corn based product, logically skyrocketed in price, nearly doubling, as corn went up¹³⁰.

The first generation of biofuels, still most predominantly used, is the most inefficient. There is promise with the next generations, but they are still in developmental stages. In addition, the United States has been criticized for their corn-ethanol because of the high emissions that come from the manufacturing

¹²⁷ Vanderkam, Laura. "Biofuels or Bio-Fools?" *The Journal of the American Enterprise Institute* (2007): n. pag. Print.

¹²⁸ Vanderkam 6

¹²⁹ Runge 41-53

¹³⁰ Runge 41-53

mechanisms along with the destruction of land¹³¹. The environmental damage of first-generation biofuels, at current predicted production levels, is seemingly unavoidable.

The more positively promoted and subsidized biofuels become, the more land that will be deforested for growing soy, and especially corn for ethanol production, therefore creating more carbon dioxide. Soy is an incredibly profitable product to grow, and any void in the market would most likely lead to greater production elsewhere to fill the market demand, especially in South America¹³². Land and resources that may be needed in the future is being used now to fill the desire of government to accomplish two outcomes: publicly respond to environmental issues and please the corn industry.

Biofuels in the end could counter-act the very premise of their creation. The International Food Policy Research Institute, in August 2010, estimated that the end carbon-emission impact, direct and indirect, would be greater due to biofuel usage than current petrol consumption. They describe the benefits as “ambiguous” and highly dependent on “parameters governing land use change”¹³³.

Land use changes, taking natural land and converting it to crop-growing land, is the area of biofuels with significant carbon-emission impact. Specifically in the

¹³¹ *2011 Global Food Policy Report*. Rep. International Food Policy Research Institute, 23 Apr. 2012. Web.

¹³² Kruglianskas, Ilan. "Soy Production in South America: Key Issues and Challenges." *ProForest*. Web.

¹³³ *2011 Global Food Policy Report v*

U.S., corn and soy typically were on an alternating growing schedule, since soy adds nitrogen, which is necessary for corn growth¹³⁴. However, because of the enticing nature of corn, the rotation isn't occurring, and more nitrogen-based fertilizer is being used. This leads to a greater runoff problem than already existed¹³⁵.

Further, carbon caps in OECD countries can lead indirectly to the increase in carbon-emissions in other countries¹³⁶. Exporting carbon-emissions still leads to a negative aggregate of higher carbon emissions. Current methods of production of corn ethanol creates three elements: ethanol, distillers dried grains with soluble (DDGS) (used as animal feed), and carbon dioxide, approximately one third each. Prices in DDGS were a tug of war between soy and corn prices, but recent years have seen corn become the far more dominant determinant in prices.

Another major factor that has been a big attributor to government support and funding of biofuels is the way energy costs and uses are calculated. Many of the statistics don't include animal feed or carbon dioxide gas¹³⁷. The total energy costs, i.e. a "cradle to grave" calculation¹³⁸, the "off-set" pieces of the calculation are a significant factor in determining the true ability of biofuels to reduce carbon emissions¹³⁹.

¹³⁴ Runge 41-53

¹³⁵ Runge 41-53

¹³⁶ Msangi, Siwa. "Biofuels and a Green Economy." *Biofuels and a Green Economy*. International Food Policy Research Institute, 17 May 2012. Web.

¹³⁷ Anslow 213

¹³⁸ Anslow 214

¹³⁹ Anslow 214

The transportation of ethanol and biofuels is another nightmare, in cost and environmental impact. Biofuels, especially ethanol, cannot be transported by the existing pipeline infrastructure. Instead of being able to ship biofuels directly to the processing markets, blending in to the refined gasoline, ethanol and ethanol blends must be transported through truck, rail, and barge¹⁴⁰, all of which have significant fuel cost¹⁴¹. The deluge of increased production, and consequently demand, has already been causing problems for the transport industry, adding a further limitation of ethanol.

The 2011 G20 summit¹⁴² explicitly had biofuels as a part of the discussion of food security issues. They especially focused on biofuels in relation effects on food prices and encouraging adjustments to domestic policy mandating increased production of biofuels in relation to food supply. However, the summit was careful to not explicitly emphasize the links between biofuels and increased food prices, due to the heavy producers of biofuels, i.e. Brazil, and heavy food importers sensitive to global food prices, i.e. China, in attendance¹⁴³. The discussion also revolved around internal policies, including US and EU tariff protectionist policies against importers of ethanol.

Brazil actually became a net importer of biofuels from the US in 2011. Due to the combination of consistently increasing output from US producers, backed by

¹⁴⁰ Tyner 648

¹⁴¹ Vanderkam 3

¹⁴² 2011 Global Food Report

¹⁴³ 2011 Global Food Report

government initiative, and the flexibility of Brazilians plants to craft sugar cane for food or for biofuels, compounded with increased sugar demand in India, the biofuel market became much less competitive in 2011. Although China in 2001 had intensively started to bolster ethanol production, with four state-owned plants in operation, the rising of domestic grain prices caused them to quickly slow production. In 2007, China was the third-largest net biofuel producer in the world, but production had been slowed by government policy capping the amount of cereal “feed grains” that could be designated for biofuel production¹⁴⁴.

Environmental impact was the second major topic discussed in relation to biofuel production, tied in with farm-land use especially. The EU and US lead the way being the largest consumers and producers of biodiesel, but the rising environmental costs tied in with food price increases set up future debates and policy to be framed at least partly around environmental issues¹⁴⁵. If not the sometimes unpopular environmental concerns, the debate comes down to the question of energy-efficiency and how much is truly garnered for all the effort and money spent on biofuel production and distribution.

While biofuels are not discredited internationally; there has been a call for more sustainable practices and greater attention to new technology. This was introduced through calls for on more specific guidelines on carbon-emission

¹⁴⁴ 2011 Global Food Report

¹⁴⁵ 2011 Global Food Report

comparison to other fuel sources. For example, there was a committee established focused on creating a certification process similar to that of “fair-trade coffee”, intent on reducing the “carbon intensity of biofuels”¹⁴⁶.

The findings of the 2011 Global Food Report conclude that if prices continue to increase in 2012 as they did in 2011, US biofuel producers will have significant profit increases; but livestock producers will have significant feed-grain price increases to match. In order for feed-grain prices not to rise, ethanol made from second-generation products, e.g. switch grass¹⁴⁷, may be a way to ameliorate, but not solve, price increases.

Biofuels have the potential to be a viable part of the future of energy. However, the bold moves by government to subsidize without fully understanding long-term consequences have made biofuels unattractive at the systemic level, and in many ways a mirror image of food policy in the United States. The pervasive attitude of technology as a savior shines bright in the legislation and sponsored by conglomerate producers.

However, until biofuels are a part of the normalized, competitive, marketplace, they are economically unviable. The dramatic increase in US role in the biofuels market, especially with other countries opting out for various reasons, could very well be said to have been an intended, direct consequence of US policy. In

¹⁴⁶ 2011 Global Food Report

¹⁴⁷ 2011 Global Food Report

the United States, the intense focus on output, with biofuel production significantly up, takes away from the focus on energy and food policy. Creating another essentially state-run system to compete with the heavily state influenced food industry clearly isn't the end solution, and isn't promising in long-term, nor the short-run either.

The connection between food, oil, and land use create a complex network of subsidization and interdependencies that ultimately hurt consumers everywhere, but especially in the developing world. If ethanol production were left to the market, it's possible that the technology could be better, since it wouldn't be tied to primarily to corn with so much of its weight, and the other viable options, even new ones, could have a chance.

It is noteworthy that biofuels were present in two major sections of the American Taxpayer Relief Act, Energy and Agriculture. Funding is continuing and expanding to include research for cellulosic biofuels, produced from lignocellulose, a major component in most plants. This means more funding for switch grass and woodchips. However, corn was still the big winner with the continuation of their major tax credits. The fact that government research money seems to be never-ending for biofuel production leaves little motivation for the private sector to be working on anything but subsidized sources of energy. The moral hazard that companies will continue to work on inefficient, at least in the long run, energy

sources instead of real innovation and market-based solutions is a potential negative consequence for taxpayers and global citizens.

Clearly, these products have a lot of potential, but government intervention in clean energy hasn't proven to be generally successful in the United States. Projects such as the American Recovery and Reinvestment Act 1603¹⁴⁸, that invested in various forms of clean energy, has turned up many failed projects, mostly extensions of corporate welfare, encouraging the status-quo.

As prudent as the idea is to keep searching for new sources of ethanol, with food and water being put in jeopardy, and a lot of petroleum going into the production and distribution of these products, it's time to reevaluate the role of government. There is a lot of money to be made in developing the next big source of energy, but as long as the government is dictating who and what will be the winner, the results are unlikely to be positive outcomes.

¹⁴⁸ Sullivan, Molly A. "1603: Corporate Welfare by Another Name." Web log post. *Energy Policy Center*. Independence Institute, 27 Apr. 2012. Web.

IV. GENETICALLY MODIFIED/ENGINEERED FOOD: EVOLUTION. REGULATION. AND CONTROL

Genetically Modified Foods: All the best intentions

Genetic changes in food are a part of evolution. Natural changes and hybrids of plants, both naturally and through careful seed selection by farmers, have been occurring since the beginning of time, but with the discovery of DNA, there was new opportunity for humans to be able to modify organisms¹⁴⁹. Agriculture hooked on to this new technology- seeing it as a way to lower the need for pesticides, increase yields, and increase the quality of food on the supermarket shelf. The modifications could be done with unbelievable speed, and with specific intentions playing out in a single generation.

Three of the most popular ways historically to modify food are radiation breeding, embryo rescue, and transposon mutagenesis¹⁵⁰. These manners of modification require no regulation or safety tests prior to their release on the market¹⁵¹, due to their pervasive nature and general positive outcomes throughout

¹⁴⁹ Wholers, Anton. "Regulating Genetically Modified Food." *Politics and the Life Sciences* 29.2 (2010): 17-39. Print.

¹⁵⁰ Harlander, Susan. "Safety Assessments and Public Concern for Genetically Modified Food Products: The American View." *Toxicologic Pathology* 30.1 (2002): 132-34. Print.

¹⁵¹ Harlander 132

history. True genetic engineering changes to food “allows for the transfer of a few genes in a much more precise, controllable, and predictable manner”¹⁵².

Immediate suspicions were raised, especially outside of the US, of the potential crossing of a threshold: how much influence can man truly have over nature without causing great harm¹⁵³? With the ability for humans to genetically engineer food came a shift from “natural hazards” to “manufactured hazards”¹⁵⁴. Repercussions now have a direct link to human causation. Biological engineers believe that because the environment is so much more controlled than typical genetic changes to food that it is an inherently better mechanism, even though it goes through much more rigorous safety examinations.

GMO legislative framework was established in 1992, with precursors in the 1990 legislation defining organic foods. Policy makers believed that the potential economic and social benefits outweighed the potential risks enough to push the modified foods to the market. The USDA, EPA, and FDA were the agencies deemed capable of controlling safety and administration. Safety of GMO foods was based on the “substantial equivalence” of food already in place¹⁵⁵. To put a genetically modified tomato on the market, it would have to have the equivalent of a tomato,

¹⁵² Harlander 132

¹⁵³ Wohlers 17

¹⁵⁴ María Rosa Martínez-Larrañaga, et al. "Risk Analysis And GM Foods: Scientific Risk Assessment." *European Food & Feed Law Review* 4.4 (2009): 235-250. Academic Search Premier. Web. 24 Apr. 2013.

¹⁵⁵ Harlander 132

nutritionally, by the level of toxins, and allergens¹⁵⁶. All GMO products on the market have been determined to not be “inherently less safe” than non-modified counterparts¹⁵⁷.

The policy differences between the European Union and the United States can be partly attributed to the general stances on technology, with the US being the far more accepting. Policy makers in the US looked at the cost-benefit analysis of GMO products¹⁵⁸, seeing the high-yield possibilities and more food on the market as better for consumers. In the EU, on the other hand, precaution reigns supreme¹⁵⁹, typical of their tendency to lean on history and problems that have occurred in the past. For the EU, there simply isn't enough data that the food is the equivalent to allow it to be largely available to the public.

The idea that technology is a savior, and would develop quickly enough to truly solve pressing domestic and global issues, entered the US food market fairly easily. The possibility of technology solving the problems of food quality and quantity was a satisfying thought and could be really important reality once GMO foods became readily available.

The core of the differences between US and EU policy are two primary safety concerns: allergens and toxins¹⁶⁰. There isn't significant correlation, currently, to

¹⁵⁶ Harlander 132

¹⁵⁷ Harlander 133

¹⁵⁸ Martínez-Larrañaga 251

¹⁵⁹ Martínez-Larrañaga 251

¹⁶⁰ Falkner 100

real risk in humans to warrant their complete dismissal. Part of the issue of research is how little time GMO products have really been dominant in the market. Their ascent was unbelievably quick, but the full effects of a life eating primarily GMO foodstuffs can't truly be understood or declared until those born around 1995 up to the present are well into their adult lives. There hasn't been exposure long enough to secure hard evidence about how GMO foods affect humans.

The problem with regulation of GMO and determining policy is that we simply don't know the long-term effects. What the impact will be on biodiversity and the systemic ecosystems could be positive (not likely according to most academics), could be negative, or anything in between or more extreme. The general consensus is that the reduction of biodiversity could have major consequences, from single crops being wiped out completely to the development of superbugs from crop modifications that could transfer to humans¹⁶¹.

2006 saw spiking of intermingling of GMO and non-GMO crops. Illegal planting in Mexico and Japan especially of GMO crops have seen worldwide spread of GMO crops to places like the UK, France, and Germany who have specific bans on the products¹⁶².

Regulation: Keeping up with the Times

¹⁶¹ Falkner, Robert. "The Global Biotech Food Fight." *The Brown Journal of World Affairs* XVI.1 (2007): 99-110.

¹⁶² Falkner

The debate about the safety of genetically engineering crops dates back to the 1970s, when rDNA technology, the connection between two different pieces of DNA, was discovered in 1973¹⁶³. The potential for solutions and possible problems was immediately recognized, so much so that the US National Institutes of Health (NIH) created an advisory committee to oversee and regulate the technology. The USDA, EPA, and FDA quickly followed with their own regulations¹⁶⁴. Once the idea of engineering crops came into play, there was serious consideration in the United States and abroad about various environmental, health, and potential regulatory issues brought into the discussion¹⁶⁵.

The OECD was the first to define biotechnology in 1982, and by 1983 NIH had released their risk assessment plan¹⁶⁶. The first bioengineered product released into the environment was ice-minus bacterium¹⁶⁷, bacteria reducing the frost on plants, the potential for crops to be able to withstand non-optimal weather. There were studies published in 1983 about engineered tobacco, and the future super GMO seed producer, Monsanto, had engineered petunias to have resistance to kanamycin¹⁶⁸, an antibiotic, as a “marker” of the engineering, without real purpose.

¹⁶³ McHughen, Alan, and Stuart Smyth. "US Regulatory System For Genetically Modified [Genetically Modified Organism (GMO), Rdna Or Transgenic] Crop Cultivars." *Plant Biotechnology Journal* 6.1 (2008): 2-12. Academic Search Premier. Web. 24 Apr. 2013.

¹⁶⁴ McHughen 3

¹⁶⁵ McHughen 3

¹⁶⁶ McHughen 3

¹⁶⁷ McHughen 4

¹⁶⁸ McHughen 4

This is part of the concern of antibiotic resistance in plants and livestock transferring to humans, creating superbugs we are incapable of curing¹⁶⁹.

The sheer speed in which the developments were occurring demanded equally firm companion policy for government to remain prevalent and effective. The White House established committee, Office of Science and Technology Policy (OSTP), recommended that the new technology be regulated primarily by the finished product, not by the process to make them, because they believed rDNA was not a significant risk by itself¹⁷⁰.

The USDA, EPA, and FDA were each given specific monitoring tasks, all looking out for risk factors. The USDA was to take the lead on ensuring GMO agriculture didn't harm the rest of the sector, FDA regulating the potential threat to feed and food supply, and the EPA to evaluate products modified as pesticides¹⁷¹. The divide-and-conquer method of approaching GMO products was well received. Scientific panels had consensus on three basic principles: modification can lead the way to hazard, both by human engineering and traditional breeding, biotechnology isn't more of a threat than the traditional manners of breeding, and that risk evaluation should be focused on the finished, marketed product¹⁷².

¹⁶⁹ Falkner 101

¹⁷⁰ McHughen 4

¹⁷¹ McHughen 4

¹⁷² McHughen 4

Bringing a newly bred crop to the market isn't a complex process in the US. The Plant Variety Protection Act of 1994¹⁷³ allows cultivators that can produce a "genetically stable genotype"¹⁷⁴ over several generations, taking into account soil, yield potential, and reaction to current relevant diseases, the product will probably be able to make it to the market. As long as the plant isn't a "noxious weed" or interfering with general biosafety (the two overarching ways to get rejected), genetically engineered food permits are attainable. After it was discovered, and publically broadcast, that there were blatant field trials without permits in 2003, the Animal Plant Health Inspection Services (APHIS) strengthened the regulations, with larger buffer zones around trials and longer trial periods.

Deregulation of the system began in 1992, where plants deemed benign environmentally could be released commercially¹⁷⁵. In 1993, Flavr Savr, the modification that keeps tomatoes ripe, a viral disease-resistant squash, GE cotton, and a GE soybean from Monsanto were the first GMO products placed on the non-regulated status list. By 2006, 100 genetically engineered products had made the non-regulated list.

Defining "organic" in the new biotechnology food world

Mostly due to the pervasive nature of GMO foodstuffs in the market, there are misunderstandings in the mass public and huge scientific problems identifying

¹⁷³ McHughen 2

¹⁷⁴ McHughen 3

¹⁷⁵ McHughen 6

GMOs, their consequences, and exactly how “organic” or “modified” a product is¹⁷⁶. Consumers that prefer to buy organic generally would describe organic food very ambiguously, such as “better for you” or “doesn’t have chemicals”¹⁷⁷. The typical organic purchaser buys thinking of themselves and their family, unaware of the greater policy and global effects at play¹⁷⁸.

The majority of “organic” food purchased by consumers in the US is not from mom and pop style farms. They are actually from subsidiary productions of the conglomerate agricultural producers¹⁷⁹, the same companies stocking the non-organic section at your local grocery chain. This stems from two realities facing farming today¹⁸⁰. First of all, it’s usually part of a large operation, looking for a boost in sales by dedicating a portion of their large farming area to organic production, with no intention of adapting the process as a whole. The second reality is that most farmland is rented. When farmland is rented, there isn’t a big personal push to retain soil and practice sustainably.

The pervasive nature of GMO food in the US is staggering; as of 2010, the total number of genetically modified corn, cotton, and soy on the market totals 90%. Corn is at 86% genetically modified¹⁸¹, soy and cotton are both at 93%. The

¹⁷⁶ Chrzan, Janet. "The American Omnivore's Dilemma: Who Constructs “Organic” Food?" *Food and Foodways* 18.1 (2010): 81-95. Print.

¹⁷⁷ Chrzan 82

¹⁷⁸ Chrzan 84

¹⁷⁹ Chrzan 85

¹⁸⁰ Chrzan 85

¹⁸¹ "USA: In 2010, More Genetically Modified Crops Once Again." *GMO Compass*. GMO

difficulty in distinguishing GMO and organic food begins here: when 90 percent of corn is genetically modified, all the potential by-products are therefore modified as well. Common corn derivatives used in processed food are corn oil, cornstarch, corn flour, cornmeal, dextrose, and the ever-popular high-fructose corn syrup¹⁸², all a family of high volume presence on the shelf. Establishing a chain-of-custody for corn based derivatives in processed foods becomes incredibly difficult, especially when considering that corn products will change hands an estimated 14-17 times, ending with an estimated 70%-80% of processed foods having GMO products¹⁸³.

Since labeling of GMO food is a voluntary process, and producers willing to go through a labeling process are typically those not genetically modifying their food, it's a demanding process to establish that all products in the distribution chain can remain pure of modified products and by-products. Natural cross-pollination of genetically modified seeds and non-GMO seeds is virtually unavoidable¹⁸⁴. Because of this, non-GMO labels typically mean that there will be a presence of genetically modified food, but only up to a certain threshold set by the producer. The bigger problem than attaining certification in the movement of products is the testing for GMO products. The technology isn't great, with many resulting in false positives and negatives when testing for GMO presence. A 2001 study showed that 16 of 20 tested items labeled non-GMO had, in fact contained GMOs.

Compass, 30 June 2010. Web.

¹⁸² Harlander 133

¹⁸³ Harlander 133

¹⁸⁴ Harlander 133

The cost of testing, and lack of accuracy across the board, is quickly passed on to the consumer. Since the conception of GMO food products in the marketplace, the FDA has made it clear that foods that are not “materially different”¹⁸⁵ from their “natural” counterpart do not require labeling. The FDA believes that labeling non-GMO products would inherently be misleading, especially if there are no other versions of that food that are bio-engineered and due to the non-trustworthy nature of current testing mechanisms¹⁸⁶. Regardless, companies are labeling products, even in light of the odds that the food has been GMO “contaminated” are very high.

The nature of creating non-GMO food products in the United States is tenfold more difficult given how the food industry has been riding the wave of GMO foods. Companies generally do not have the separate storage capabilities (or desire to do so) due to the fluctuation and hard-to-predict nature of the non-GMO food market¹⁸⁷.

Inefficiencies and Deficiencies: How the subsidized structure picking corn as king made the consumer the loser

Looking at the most basic element of food subsidization in the US, money, it’s clear that staple crops like wheat, soybeans, and particularly corn, are the big winners. Inherently, there is less acreage, and less incentive to grow fruits and

¹⁸⁵ Harlander 133

¹⁸⁶ Harlander 134

¹⁸⁷ Harlander 134

vegetables¹⁸⁸. In the general supermarket setting, excluding the extreme so-called “food deserts” in urban settings with low access to fresh fruits and vegetables, most of this disparity is made up for through imports, especially from Mexico.

Corn is used heavily in many, if not most of the types of additives that make food easiest to sell, by making them taste good. With corn so subsidized, and so prevalent, of course it’s used heavily in feeding livestock and for these additives. The price gap between high-sugar and high-fat foods, with many corn and soy derivatives, makes a theoretical case that Agricultural policy in the US can be considered a contributing factor to rising obesity¹⁸⁹. Obesity is heavily associated with poverty¹⁹⁰. The fat foods are cheaper, and poor people eat the cheaper, heavier fat content foods. Obviously, there are many other factors associated, but the simple costs of healthy versus heavily processed, corn-likened foods isn’t a factor to be dismissed.

Soft drinks rely heavily on the corn-starch-derived sweetener, high fructose corn syrup (HFCS). Europe escaped this trend because they traditionally used beet sugar for sweeteners, and created legislation promoting beet sugar to protect their farmers¹⁹¹. Instead of the traditional cane sugar being used, this synthetic sweetener

¹⁸⁸ Fields, Scott. "The Fat of the Land." *Environmental Health Perspectives* 112.14 (2004): 820-23. Print.

¹⁸⁹ Fields 822

¹⁹⁰ Drewnowski, Adam. "Obesity, Diets, and Social Inequalities." *Nutrition Reviews* 67 (2009): S36-39. Print.

¹⁹¹ Fields 823

use jumped 1000% in use between 1970 and 1990¹⁹². 40% of all sweeteners (not non-calorie versions) in the US are based on HFCS¹⁹³.

Although the research is still just correlative and not universally accepted, there are many in the scientific community questioning if HFCS, since it is synthetic, and tastes sweeter, than traditional sugar, could be an underlying cause of obesity in the US, due to an inability of the body to process the synthetic materials¹⁹⁴. Would this product have reached the US market had it not been for substantial corn subsidization? Probably. The difference is, it may not have become the most prevalent. If corn wasn't chosen as king and other sweeteners could have still been active on the market.

The primary way in which the public loses, however, isn't necessarily in the quality of product itself, but in how little choice the consumer is given. Due to the ease of corporations being able to pump their modified products into the market, without any form of labeling, average consumers truly have no way of knowing what is in their food. The faith that because a food is "substantially equivalent" to its non-engineered counterpart, and that it won't have potential long-term consequences, is a serious gamble; and one that people should deliberately have the option to decide for themselves.

¹⁹² Fields 823

¹⁹³ Fields 823

¹⁹⁴ Fields 823

V. CONGLOMERATE CONTROL. GOVERNMENT ALLOWANCE

Government: The Trust and the Trust-Buster

The U.S. federal government has created a strong connection over the last eighty plus years with the food industry. Food is treated as a matter of national security, and the industry is coddled in every facet financially and legally. Now that the food industrial machine is bigger than even Secretary Earl Butz could have imagined, is it possible to break the dependency? Trust laws are complicated with decades of standing legislation supporting conglomerates and mass production. Consumers are given an illusion of choice when it's actually the same few producers at every chain grocery store.

Archer Daniels Midland Corporation

Development

There are plenty of companies, especially conglomerates, taking fully advantage of the heavily regulated and subsidized food market in the US, both directly and indirectly. Archer Daniels Midland Company (ADMC) is one of the most blatant examples. ADMC is known for throwing money at both sides of the aisle, and reaping the benefits in huge protections in the forms of tariffs and domestic subsidization.

ADM has managed to become one of the dominant actors through its lobbying efforts and commercialized, especially through TV ads, depiction of it as a decent corporation. For subsidization of sugar or ethanol products, there is little cost and effort for ADM¹⁹⁵. Described as “one of the great financial ‘switch hitters’ of American politics”¹⁹⁶, either side of the aisle that will provide subsidization gets the monetary support. From 1979 to 1995, former chairman Dwayne Andreas, personal family members, and ADM Corporation donated US\$4 million dollars to both congressional and presidential candidates and the Republican and Democratic National Committees¹⁹⁷.

Sugar

U.S. policy in regard to import quotas and price supports induce conditions that ADM is able to produce high-fructose corn syrup in incredibly profitable conditions¹⁹⁸. ADM became a big player in the sugar industry in 1974, as world sugar prices peaked¹⁹⁹. After investment capital was put into development of HFCS by ADM, the company was able to produce nine times more HFCS than with previous technology. The price of sugar fell dramatically, from per-pound prices of 65 cents to 8 cents²⁰⁰. Paying politicians on the Democratic and Republican side,

¹⁹⁵ Bovard

¹⁹⁶ Bovard

¹⁹⁷ Bovard

¹⁹⁸ Bovard

¹⁹⁹ Bovard

²⁰⁰ Bovard

along with retaining a heavy portion of the primary lobbying force in sugar, The American Sugar Alliance, paid off with the 1981 sugar bill²⁰¹.

Misleading advertisement to the public, alleging that the US was home of the cheapest sugar prices, which actually was a false statement, prompted a domestic debate on the subject. The idea was circulated widely in newspaper ads, and allowed the passage of the Sugar Act without much public outcry²⁰². The program is brilliantly designed to look as though it's not even a part of the federal budget. A quota system was established, effectively eliminating cheaper imports of sugar, creating a constant, artificial sugar shortage in the US that consumers pay for at the checkout stand²⁰³.

When the 1981 Sugar Bill was enacted, sugar sold for 22 cents per pound, when the global price was approximately 4.5 cents per pound²⁰⁴. Defendants of the program say that it protects consumers from unpredictable global price fluctuations. However, the price floor set by the government, without a price ceiling, allows sugar prices to skyrocket, but not fall²⁰⁵- an inherent win for companies like ADM but an inherent loss for consumers' denial to open markets. The relative stability of sugar prices, lacking major spikes, is simply because the price is already spiked up.

²⁰¹ Bovard

²⁰² Bovard

²⁰³ Bovard

²⁰⁴ Bovard

²⁰⁵ Bovard

Sugar, especially in the quantity now being produced in the US, isn't economical. Importing sugar from countries with the natural climate for it takes up land that could be better suited for growing other products. Excessive growing of sugar in the Florida Everglades, which includes serious draining of water and the subsequent high levels of chemicals needed to create the right growing environment, has led to the destruction of much of the area²⁰⁶.

The effects on third-world nations, primarily in South America, are astronomical. From 1975-1995, sugar imports were cut by 80%²⁰⁷, seemingly great for American producers. However, while the economies of Central America and the Philippines (among others) were economically demolished, 17 of the United State's largest sugar producers received over half of all government subsidizations. No competition and blatant corporate welfare cost American consumers \$3 billion dollars per American sugar producer from 1980-1995²⁰⁸.

Corn

In the late 1980s, then CEO Dwayne Andreas began to hail corn ethanol as a savior, as a form of national security, both environmentally and dependency on Middle Eastern oil. Continually supporting those that supported ethanol production, ADM was able to jump to the forefront, with gas tax-breaks and much R&D

²⁰⁶ Bovard

²⁰⁷ Bovard

²⁰⁸ Bovard

supported by the government, despite adamant warnings that corn ethanol had dozens of potential environmental hazards and was cost-prohibitive.

ADM spent \$1,700,000 and \$970,000 in lobbying in 2011 and 2012, respectively. For the 2012 election cycle, ADM put out \$575,880 as a part of their investment. They spent on both sides of the aisle, including heavy contributions to both Barack Obama and Mitt Romney. It appears that the election didn't even really matter, for they were so incredibly invested- everywhere. Their returns would be safe regardless of future election outcomes. Thirteen of their fourteen lobbyists previously worked in government, and seven members of congress own shares in ADM. Everyone but the average consumer has a financial stake in their success; subsidization and regulation fits their needs.

ADM used its government influence back in the 1970s to support their own interests. The 1973 declaration of Secretary Earl Butz to ensure food supply and grow, grow, grow, and was heavily influenced by Andreas. Illegal money was heavily flowing into the Nixon Administration, as came to light during the Watergate investigation²⁰⁹. The money continued during Carter Administration, when Senator Hubert Humphrey's chief of staff David Gartner's children received \$72,000 in ADM

²⁰⁹ Krakoff, Charles. "Starvation, Obesity, and Corporate Welfare: Archer Daniels Midland and U.S. Policy." *Starvation Obesity and Corporate Welfare Archer Daniels Midland and US Policy Comments*. Emerging Markets Outlook, 13 Oct. 2010. Web.

stock between 1975 and 1977²¹⁰. David Gartner was the head of the Commodity Futures Trading Commission until these “gifts” were discovered.

The money continued through campaign after campaign, and was especially heavy for Bob Dole’s presidential campaign. Although unsuccessful, Senator Dole still held much weight in the senate, ensuring the lucrative \$0.54 tax credit per-gallon of ethanol was passed, critical since ADM produces 60% (2010) of all US produced ethanol.

Monsanto

History

Monsanto technically has been around since 1901²¹¹, although their focus has shifted quite dramatically since the beginnings of the company. A chemical company, whose first chemical was an artificial sweetener, continued to grow and pushed into the agricultural chemical world in 1945. In 1960, the Agricultural division of the company quickly started producing commercialized herbicides. Their most famous, Roundup was on the market in 1976. Throughout the 1970s and 1980s, heavy research and development helped them create the first genetically modified products, culminating in their 1987 groundbreaking, first in the industry, biotechnology field testing. The company continued to develop and patent seeds and

²¹⁰ Krakoff

²¹¹ "Who We Are." *Monsanto*. Monsanto Company, n.d. Web.

agricultural chemicals, purchasing other chemical and biological research companies along the way.

The 1990s were filled with insect-resistant research and market-ready products. In 2000, Monsanto became a “new” company after their merger with Pharmacia Corporation. Through the present, the company continues to buy and sell related companies. Monsanto is no longer a chemical company, but a producer of agricultural goods and products that help in the process. The progression into the conglomerate they have become was a slow one, a legal one, and now a painful reality of bad public policy, patent laws, and legal battles.

The true core of the problem with Monsanto, when the general population doesn't clearly hear in many popular documentaries, is that what they are doing is completely *legal*. Some of their scare tactics, legal attempts at pushing non-Monsanto seed farmers out of the business, are potentially illegal, and they have received legal ramifications, but in the grand scheme of things, it's still the government that is responsible at the end of the day.

The Seed and the Rules

The advances in technology and resulting products Monsanto has created are almost incomprehensible. Although not at the yield rates genetically modified foods were anticipated to be, their advances in herbicides and pesticides successes are partly due to the sheer amount of food available globally.

There are plenty of chemicals to kill bugs produced by other companies that produced alongside Monsanto. The ability for Monsanto to manipulate the core of living organisms so effectively elevated them to be a primary producer of agricultural products. The Roundup Ready seeds, designed to be used with Roundup, the herbicide that controls a variety of unwanted plant species, are far and away the most popular and successful. Monsanto claims using the products together can clear “an entire field of weeds and still produce bountiful soybean and cotton crops”²¹².

This “miracle”, however, comes with a very serious condition: the Monsanto Technology/Stewardship Agreement. The primary, and most significantly litigated part of the agreement, is that farmers may not practice seed saving. Naturally manipulating generations of seeds allowed farmers to be autonomous and successful, better able to determine and plan for the following season’s yields.

Patent Laws²¹³

At their philosophical core, patent laws are designed to promote free-enterprise, to encourage new development, and to spur economic growth. They are meant to protect hard-earned research and the ability to sell the product without generic competition- at least for a time period, depending on the product.

²¹² Ma, Michelle. "Anticipating and Reducing the Unfairness of Monsanto's Inadvertent Infringement Lawsuits: A Proposal to Import Copyright Law's Notice-and Takedown Regime into the Seed Patent Context." *California Law Review* (2012): 691-720. Web.

²¹³Ma 691-720

There are two crucial elements at odds with one another when it comes to patenting seeds in the current context of Agriculture in the United States. First of all, Monsanto puts its own capital into research and development, approximately \$2.6 million dollars per day, making up 29.82% of all biotechnology industry R&D. Considering that research from concept to market time frame ranges from six to thirteen years *per product*, and that the probability of successfully launching a market product hovers at five percent, Monsanto takes serious risks. This front-loaded risk gives Monsanto a lot more power in the patent realm, fitting neatly into the purpose of regulations on intellectual property. There must be a way to protect this kind of investment, or technological advancements wouldn't happen.

In reality, seed patent laws, public policy, and Monsanto practices contradict the core spirit of entrepreneurial patents. Intimidation tactics, a strong legal team, and consistent court precedent have allowed Monsanto to virtually dominate the market. Heavy investment and the heavily debated practice of patenting living organisms create a delicate situation, and a potential floodgate of deeper levels of bio-patents.

The Plant Patent Act of 1930 (PPA), the Plant Variety Protection Act of 1970 (PVPA), and the Patent Act, Title 35²¹⁴ are the key components to biological patent laws. The PPA isn't useful for Monsanto, however, because it applies to asexually

²¹⁴ Ma 696

reproducing, primarily ornamental (grown for beauty as its “end use”²¹⁵). It is the PPA and the Patent Act that are the keys. The PVPA, although covering a rather broad spectrum of patent rights and much easier to fall under its protection, includes two critical exceptions: a purchased seed that a farmer saves future generations of to be replanted, and for “bona fide research” purposes²¹⁶. The Patent Act has tougher requirements to fit under, but only three purposefully universal exceptions to coverage: “abstract ideas, laws of nature, and natural phenomenon”²¹⁷. For this reason, Monsanto, and similar corporations, lean on the Patent Act, and completely within their legal right to do so.

Monsanto is capable of utilizing two types of patent infringement suits: “purposeful infringement” and “inadvertent infringement”²¹⁸. However, there is no documentation of inadvertent infringement cases thus-far. It is acceptable, and feared. The problem is nature can blow Monsanto seeds to people that haven’t purchased them. There is not an intent requirement in patent law, thus a person could be in breach of a contract they didn’t know they were a part of, and legally Monsanto can take action.

The maximum time for patent protection is twenty years, in any case. However, with seeds, it has been a constant trouble in the Federal Circuit to

²¹⁵ Ma 697

²¹⁶ Ma 697

²¹⁷ Ma 699

²¹⁸ Ma 695

determine when Monsanto's "enforcement rights" are exhausted²¹⁹. Farmers have consistently lost on this front, tying it in with anti-trust violations that could negate their patent rights. The two elements that qualify for anti-trust in a contractual purchase of a patented product are price fixes and creating another necessary product that would thus monopolize the market, a tie-in²²⁰. Since Monsanto has a clear agreement upon purchase that prevents farmers from planting a second-generation seed, and *recommends*, not mandates Roundup be used with the Roundup Ready seed for optimal growing, they are not violating anti-trust or patent laws.

The Reality: A Dirty, Legal Game

If the agricultural industry were operating in a free-market, free-trade environment, all of the patent and much of the anti-trust legislation would make perfect sense. But the government wanting more and more planted, regardless of natural stipulation, has led to one type of seed virtually taking over. Genetically modified seeds are meant to be resistant and stronger than natural seeds, thus making it much easier for them to become even more dominant, without any other interference²²¹. But it is imprudent to let Monsanto have a guaranteed continued market, especially with corn. Legislation, especially biofuels, pushes for more corn; Monsanto pushes more seeds.

²¹⁹ Ma 705

²²⁰ Ma 706

²²¹ Ma 705

Monsanto has spent \$5,970,000 on lobbying since 1998. Campaign contributions of \$908,017 were provided for the 2012 election alone. The real power is in the placement of very important people; in many important public positions, who also worked for Monsanto²²². Many persons in the White House, especially in the most critical to genetically modified products continuing in the market, were previous Monsanto employees who have also become the people in charge of approval processes. From President H.W. Bush to the current Obama Administration, Monsanto people have been in very crucial positions.

Although adamant in 2007 while campaigning that agriculture wouldn't continue to be controlled by conglomerate interests, President Obama's choices for many important positions reflect precisely the opposite. Starting at the top, USDA Secretary Tom Vilsack had been a vocally pro-biotechnology governor of Iowa, pure corn country. The FDA Commissioner for Food? None other than former Monsanto Vice President. Roger Beachy, former director of a plant research center, Monsanto-funded of course, is currently the director of the USDA National Institute of Food and Agriculture²²³. Part of his job is determining the areas of agricultural research which should be federally funded. Put simply, from the bottom to the top, Monsanto has managed to have their product dominating the market- in a mere twenty years.

²²² "GMO Food Fight: Round Two 2013." *Organic Consumers Association: Millions Against Monsanto*.

²²³ "GMO Food Fight: Round Two 2013."

Conclusions

It's easy to point to corporations using both classic and incredibly sophisticated techniques to get their product approved and increase shareholder dividends. Popular food documentaries have pointed to the corporate world as the primary source of food problems in both the United States and globally. The reality of the problem is far more complex. The interconnectedness nature of the US government and food costs through regulations and funding is the true root of the problem. With the government and the food industry so mutually dependent on one another, both believing they cannot survive without the other, it's difficult to pinpoint a single critical flaw between private industry and government intervention.

The depth and width of corporate welfare is far beyond what most people would expect. Between campaigns, lobbying, judicial processes, and putting their people in the government, these conglomerates act more like enabled drug cartels, with legislators gladly dipping into the dope supply. Archer Daniels Midland and Monsanto Corporation invested large amounts into the 2011-2012 campaign cycles, and saw their return with the continuation of heavy biofuel subsidization. Monsanto breeds the seeds that grow the corn and ADM produces the biofuels. The result is a heavy loss for both consumers and taxpayers.

On November 30th, 2010²²⁴, a group of fifteen bi-partisan Senators rose above party lines to support biofuel tax credits and tariff provisions. They were all geographically relevant to corn, and all received PAC campaign contributions. On the surface, this was in the interest of keeping taxpayer money from the “hands of unstable or unfriendly governments” as well as the reduction of foreign dependency on oil.

In addition, these Senators included “stability and certainty for producers and consumers of renewable fuels” as the basis for continued support. Biofuels are the easiest sell and the easiest way to ensure a lucrative relationship with the conglomerates. The average gift received per election was five-thousand from Monsanto, \$4,100 from ADM, and \$1,600 from the National Corn Growers Association, each an average gift to each of these fifteen senators in the previous six years. The exception was Sam Brownback who took no contributions (although was also retiring to become governor of Kansas)²²⁵. The result has been higher food prices, a step backward in renewable fuel, and continuing the incestuous relationship.

²²⁴ Conrad, Kent, Christopher Bond, Chuck Grassley, Tom Harkin, Amy Klobuchar, Sam Brownback, Tim Johnson, Mike Johanns, Debbie Stabenow, Claire McCaskill, Ben Nelson, John Thune, Byron Dorgan, Al Franken, and Mark Kirk. "Senate Biofuel Support." Letter to Majority Leader Reid and Minority Leader McConnell. 30 Nov. 2010. United States Senate, Washington, D.C.

²²⁵ Beckel, Michael. "Senators Supporting Ethanol Subsidies Reap Riches From Corn Interests." *OpenSecrets Blog*. OpenSecrets, 3 Jan. 2011. Web.

The problem is deep, with no simple solution. Corporations provide seemingly cheap food, “renewable resources”, and keep legislators happy in a tangled web of deceit, in which the both the consumer and the environment lose.

VI. PREDICTIONS FOR THE FUTURE OF THE US FOOD INDUSTRY

Summary: The Broken Industry

The U.S. food industry is broken. Decades of government intervention have created dramatic dependencies from every angle, from production all the way to the supermarket. Yet ironically, American Taxpayer Relief Act of 2012, provides no relief from the status quo of elite decision makers. The depth of this mutual dependence can be primarily traced back to the original piece of legislation, the Agricultural Adjustment Act of 1933, which was designed to address an emergency situation. This experiment with Keynesian economics has continued, even as it has created problems, including corporate welfare, modified foods, and balanced budgets.

Food is, and has been, a major factor in national security. It also seems unclear to policy makers that it simply isn't 1933 anymore. In today's world, the majority of farm families don't rely on farming as their primary source of income. The subsidization they receive from their land, makes the average farm household income actually significantly higher than the average U.S. household²²⁶.

²²⁶ Edwards

If the world was the embodiment of classical liberalism, with free trade and competition, the food industry wouldn't need any sort of financial support. Shortages in some places, surpluses in others, combined with the efficiency of transportation in the 21st century would have created a global food market where consumers had real options, reliable food sources, and efficient means of attaining them. But the crops that receive subsidization in the current state of affairs inevitably become the cheapest on the shelves, and the most purchased, skewing the advantages a free market could provide.

In the real world, free trade of foodstuffs is nonexistent. Many governments provide a financial bubble for their food producers. They are told, at least in part, what, where, and when to grow, provided insurance, tax breaks, and leniency, with regulations and interpretations of constitutional rights from food safety to free speech. Competition has been systematically eradicated within the US; this invites nations to mirror restrictiveness through tariffs and stricter requirements for market entry. The mercantilist tendencies of many state governments, particularly in the emerging economies, in the majority of their decisions and state-funded projects have extended a giant hand to the food industry.

While the World Trade Organization (WTO) has been very adamant about discussing tariff and trade issues related to agriculture. But there always seems to be some new "market access" negotiation that results in countries being able to pursue protectionist policies without international scrutiny. A nation need not

demonstrate a “serious injury is being caused” in order to implement said policies²²⁷. Agriculture free-trade policies are a hypocritical given of the nature of the market. Governments want to be involved, in essence violating free-market values. Mercantilist nations have always, and will continue to manipulate their currency as a part of their agricultural and broader trade policies. It’s not a simple game of political assertion to change these dynamics, they are a reality to be dealt with, not debated. Playing the pseudo-free-market game creates a zero-sum game where the consumer, and the aggregate economy, loses.

The “good” intentions of policy makers past in the US have created the harsh reality of a monopolizing, vote-grabbing, lobbying, pork-barrel platter of debt and health issues that seems likely to remain in place. Taxpayer money is redistributed- not to the small farmer, or the startup business, but to the conglomerate producers. Between 1995-2003, the average distribution of subsidy payments was 72% of the total funds available going to the top 10 recipients²²⁸. These companies are more than capable of insuring their own crops, buying new machinery, and determining growing patterns. However, the handholding between the private and public sphere runs so deep that there is a clear concern even from the idea of separation.

The environmental impact the food industry has had in the last hundred or so years has been partially unavoidable, a natural toll taken on the land to support

²²⁷ "WORLD TRADE ORGANIZATION." *Market Access: Special Agricultural Safeguards (SSGs)*

²²⁸ Edwards

the jump in global population. The mechanisms for agriculture logically needed to adapt, as chemicals were introduced and better, more efficient means of growing grew alongside. Ecologically, the earth is quite capable of maintaining and healing itself. However, if this pattern of continued wasteful practices continues, the earth won't be able to keep up, and the population will have a far more difficult time sustaining itself. Government has been called upon to be the solution to these future problems, even though many of the causes can be circled back to ineffective legislation.

The US federal government encouraged overproduction, overuse of land, improper land use, which was followed by increased use in pesticides and fertilizers to make up for the dramatic decrease in viable topsoil. The monetary incentives to grow the top funding-receiving staple crops encourage many to particular crops are inefficient or simply aren't suited to grow in that area. Political clout takes precedence over the natural consumer need.

State of the Global Food Industry: Outside Influences

The global nature of the current political economy is a factor that can't be ignored in regards to evaluating the future of global food policy. Economic changes from many places around the world clearly effect systemic forecasts and current market conditions, including commodity prices, like food. Few are willing to blindly accept US proclamations of "free trade" food, especially seeing historically how it actually plays out given that the US market is incredibly manipulated. Emerging

BRIC nations are willing to participate, but by their own rules of mercantilist, protectionist policies.

2012 was the perfect maelstrom of events to create a precarious situation for the global food market. One part was the dramatic drought and high temperatures that wrecked North America in the summer. Corn truly is king in the US system, and relying heavily on one crop did cause some shock through the system. Speculation ran rampant, with corn futures still looking bullish in early 2013. The combination of increased global demand for ethanol production (specifically corn-based in the United States), high summer oil prices, and the speculation means that many more will want to plant corn. Such potential market flooding will push out even more of the few small producers left, and propel upward the cost of production. With the increase in land used for corn production, there will inevitably also be shortages in other staple crop areas, especially wheat, and food prices in the aggregate will be driven up as well.

The pressures that environment, government, and the global food industry will face in food price increases and shortages will not help the economic situation in the Global North. It will be more dramatic for the developing world, where so much more of their income is devoted to buying food. Any increase can cause dramatic changes in lifestyle for many families. This is compounded with the growing tensions in some of the poorest parts of the world, and could escalate into increased tensions and conflict. Non-diversified domestic markets, falling into the

bullish times of certain crop production, will be hit a second time when the market begins to wane and production is cost-prohibitive. The constant up and down puts the world food market in even more uncertainty. Such conditions make it more likely that authoritarian ideas and leaders will make an emotional and appealing case to the people impacted.

Food Demand, Limited Supplies

The unprecedented and intense world population growth has already increased the problem of feeding the world population. With the technology and environmental manipulation available, the possibilities seemed endless in the early 1990s. Not anticipated were the inefficiencies in the government-mandated food market. Growing where plants aren't supposed to, pesticides running into freshwater sources, and the hefty amount of petro-chemicals and oil needed to get products to the shelves have ensured the global food supply is as precarious as it previously was, just with a lot of additives and compounded problems.

The technology for desalinization plants to make salt water drinkable has always been seen as a future resource. However, at the moment freshwater is a commodity. It's a commodity that isn't being used efficiently, and will quickly start to cost dramatically more. On the other side of the equation, oil is expensive, and probably won't be significantly cheaper in the future.

Heavy oil-exporting countries will pull back the supply once the Keystone Pipeline and more deep-water drilling come to fruition. There will still be the

appearance of scarcity, and there will still be a significant cost factor. Allowing more of the market to be involved in food production, essentially allowing competition to have a chance is a necessary step in efficiency so desperately needed in the food industry. Oil is a tough, also subsidy ridden, key to the global economy, of course greatly effecting agricultural production. Although the problem of oil may not be solved for a long time, allowing true competition to allocate resources will inherently be more efficient than government intervention.

Current Policies and the Future

Based on 2012 national election results, it's clear that deficit spending isn't going away. The precarious situation of the early 2013 Fiscal Cliff and inability of representatives to make anything but last minute robberies of the American people's futures makes it's clear the food industry will remain one of conglomerates. The inability of the right to effectively evaluate military spending and the blatant disregard for reality pretending to do business in monopoly money shows that there will have to be a rock bottom before any real change will be seen. The bottom will consist of a Europe broken and financially crumbled, deadweight pension deficits in the US, and a thriving combination of export and internal consuming BRIC nations rising. At the current rate of threats from North Korea, the potential for a second Cold War looms heavy in future predictions of the global balance of power.

Since the staple crops have evolved into highly traded futures' commodities, speculation on food prices will grow. The clear need for more and more food will

make it a hot product in the global financial markets, kept stable only by constant intervention by governments. At the current rate of investment and pressure for more, I predict a food-futures bubble much like the 2008 global financial meltdown.

The scale of this potential crisis would be impacted by droughts, oil prices, availability of water, global tensions and control by conglomerates. The more these futures are seen as reliable and lucrative, the more they have the potential to be heavily bundled, as were mortgages, also federally backed, “safe” investments. The volume of food produced both in the US and globally, is another reason food commodities are deemed safe. With the increase in demand for corn ethanol in the US, it seems the bullish times will continue. However, the more futures markets are depended on, the tougher the fall can be.

Assuming current Frank-Dodd legislation holds up, there will be much less available capital in the market since banks must hold on to much more liquid capital, protectionist policies and bailouts would provide another crushing blow to the potential the free market could bring. The safety net of government intervention means another round of highly produced commodity crops, and more power to the state-backed conglomerates to ensure food supply never runs out. If there are any small producers left, they would easily be bought out during a financial food crisis with limited capital availability for loans, the necessary capital to keep day-to-day, or seasons of growing, viable.

Conclusion

Oil price increases, water becoming more expensive, inflation, and the creation of virtual cartels of food will ensure prices keep going up in the supermarket. The crux of the problem comes down to the intervention of government in such an enormous entity of the US economy. The massive amount of federal and state money available to the food industry, paired with the desire for a conglomerate-style food industry in the 1970s perpetuated and deepened the core problems with the food industry. The cornerstone of American food production isn't competition, or market demand; it has instead become corporations and politicians toeing the line of self-interested law.

Nutrition, our most basic need for subsistence, has been turned into a bidding war between big companies, big commodities, and powerful legislators for who gets to attain a larger share of the chemically-dependent public. The real problem is not the simple "greed" of business or the lack of understanding of the public; it's the unwise policies of the desperate, bid-seeking, elected representatives and appointed officials. Food policy is broken. The government not only perpetuates it, clearly less concerned with the future than with instant gratification. This will not be sustainable in the long run, and it certainly isn't what people would ultimately choose for themselves, and their families, if individual rights were upheld.

The United States is known for its wonderful ability to appreciate and accept new technology and the promises it can bring. While this still holds true, government invention in technology alongside botched Keynesian economic policy

fundamentally altered what the food industry could have been. Without significant, meaningful action to reduce government's role in agriculture in the next few decades, the American people, and the global population will face great challenges in our most basic need: for the agriculture to be reliable producers of sustenance.

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