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A Political Economy of Food Security: Initial Analysis of the "US Model" of Agriculture

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Abstract: This paper only begins analyzing the political economy of US food security, but even at this early stage clear vulnerabilities emerge from investigating the social structure of food production in the US. The United States is among the most food secure countries in the world, so much so that US citizens face the opposite problem of consuming too many calories, leading to adverse health effects of obesity and related diseases. Yet, there are surprising vulnerabilities to US food security embedded in the political economic structure of the agribusiness-government-consumer chain, not to mention critical ecological vulnerabilities. Political economic vulnerabilities include the asymmetrical distribution of 1) simple calories and 2) critical nutritional components to calories where "food deserts" and "food swamps" exist among communities where children may have their only meal at school. This meal is subsidized through the US Department of Agriculture and supplied by a very few large corporate interests and stabilized by legislative support for heavily processed food rich in fat. This corporate-legislative-agency iron triangle in US food politics favors high yield productivity, simplification and homogeneity, and still results in food insecurity for more than 49 million people. This paper analyzes the "choke points" in the US food system that sheds light on the overall global food system inasmuch as both the food that the US produces and the political economy it has exported are globally important. Chokepoints include water use, monoculture, oligopolistic corporate agents, climate change, and inequality. Each of these variables explain mechanisms for food security vulnerabilities both for the US and other countries that adopt the US model.

Keywords: Food Security, Agriculture, Political Economy, Inequality, Neoliberalism

1. Introduction

What we are calling the “US Model” of agriculture has generated a tremendous amount of food that some experts indicate has produced much stronger food security because agribusiness is robust (Southgate et al., 2007). The US Model incorporates two main strategies: implementation of Green Revolution-type cropping, and a combination of both a neoliberal political-economic structure and beggar-thy-neighbor subsidies for the agricultural sector. The essence of the US model is not in the contradiction between neoliberal state austerity and heavy-handed subsidies, but in the unified interests for large corporations that both of these strategies embody.

In this paper, *begin* to identify both the food security and insecurity that this model produces and identify a few obvious but still surprising choke points that the US model produces, mainly through forces of homogenization of the social-food nexus at every level. In other words, the US model homogenizes the corporate benefits and opportunity structure for all but a few consolidated firms, homogenizes the available distribution points for consumption, and it homogenizes the food itself. While food security through the over-abundance of calories in the US makes obesity a national epidemic, food insecurity still affects the country in patterns that are predicated on the operation of the food system itself.

2. Food Security in the US, an Overview

The US Department of Agriculture releases annual reports of US food security. These trends have not changed much after food insecurity increased considerably in 2008, the year the Great Recession began. The USDA reports that the vast majority of American households (85.5%) have enough food for an active and healthy life, while the remaining 14.5% of households, or 17.6 households have this security threatened at least part of the year[1]. Further, most children are food secure, but households with children, still face this threat since parents will often skip meals to provide enough food for their children(Ibid). Low and very low food secure households must use coping mechanisms, such as food pantries or government assistance, as well as alter their diet through eating less variety and nutritious foods (Ibid).

However, food security is deeply asymmetrical, with some households faring much worse than others, particularly African American and Hispanic households (American Indian households are not counted but are undoubtedly in the worst conditions), and households with children led by single-mothers—where 35 % are food insecure.

Food “deserts” and “swamps” are also of increasing concern. These are areas where it is difficult to access healthy food, where the closest food source in these often poor urban areas, may be a convenience store or fast food outlet. Access to large grocery stores with fresh produce is all-but impossible without inordinate opportunity costs of time and travel cost. Related to this structural problem is the availability of cheap, high calorie, high fat foods. Research shows that the markets provide twice as many calories as the average person needs at 3900 calories on average for each person (as an average many are still left out of this calculus), but since 1970-2000, the average intake of fats for U.S. residents has increased 38%, and sugars by 20%; further, part of the reason for this shift has been the nature of US farm subsidies that are partly responsible for the US obesity epidemic [2]. This

obesity contributes to the most important causes of death, such as coronary heart disease, as well as diabetes and other chronic illnesses.

On the other hand, US farm policy, usually formed in the so-called Farm Bill, also includes funding for the most important social safety net policies for hunger: direct food assistance through the Supplemental Nutrition Assistance Program (SNAP) and the free and reduced school lunches for children. Some food experts argue that these programs are a direct reason why we do not see extensive wasting or malnutrition in the US [3]. Interestingly, in 2012, the US House of Representatives passed a Farm Bill that stripped out SNAP benefits for the poor, but paid corporations well [4].

3. The US Model

We argue here that the US model is made up of two components: Green Revolution cropping and corporate favoritism where the central goals of US political economic food structures are to increase revenues to agribusiness through a seemingly contradictory condition of neoliberalism policies and corporate subsidies. While this model has undoubtedly produced more yield per acre, it also has produced the conditions of surprising vulnerabilities in a very powerful industrialized wealthy nation. Green Revolution technologies in addition to corporate favoritism emphasize scale and homogenization, at the cost of environmental and social resilience, but these costs are largely hidden from the majority of the US public.

The USDA [5] reports, “Large farms now dominate crop production in the United States” (p. iii). The structure of farming in the US is changing toward consolidation: “Although most cropland was operated by farms with less than 600 crop acres in the early 1980s, today most cropland is on farms with at least 1,100 acres, and many farms are 5 and 10 times that size” (Ibid).

This structural shift has been profitable, as larger farms perform better because they can use both labor and equipment and other assets like land more intensively for larger gains in productivity and lower per-acre costs:

Labor-saving innovations—from bigger and faster capital equipment to information technology, chemical herbicides, seed genetics, and changing tillage techniques—have substantially reduced the total amount of labor used in agriculture and facilitated the shift to larger crop farms [5, p. 1].

Consolidation of US farms from the family to the firm, have led to larger acre, more intensively cropped, economies of scale that lower the price of specific food. This is part of the Green Revolution approach to agriculture, with increased industrial inputs for higher yield per acre.

In addition to a cost-driven consolidation where the lower seller wins in the market, so too do corporations that control important commodity chains. For example, the seed market had been mainly constituted by small family farms but over the last forty years it has radically transformed to one that is dominated now by three companies: Monsanto, DuPont, and Syngenta [6]. While some, especially in the financial sector [7], see this as a positive change that increases profits and lowers consumer prices

(to those specific commodities), there are clearly some costs to this strategy that open up future vulnerabilities for food security.

As the more profitable varieties are more and more singularly sold and planted, other plants are eliminated from cultivation. Consequently, declining rate of seed saving and replanting of non-proprietary crops—e.g., the rate of saving soybean seeds was 63% in 1960 but only 10% in 2001[6]. Reduced cultivation of diverse crops leads to declining biodiversity and culture through the replacement of cultural capital, which may be irreversible once those with the memory of how to plant different varieties die [see 8]. Research and development also shifts to the proprietary lines, and development of non-proprietary lines receive much less intellectual development [6].

Other important components of the US Model are the apparently contradictory policies of heavy farm subsidies alongside neoliberalism. This requires some explanation. First, it is well known that the US heavily subsidizes agriculture, and since the above shows that US agriculture is dominated by corporations, these subsidies are mostly going to large agribusiness firms and not the family farms that most people envision comprise the backbone of US food production. Even though the US has agreed to limit its subsidies under the World Trade Organization's conditions, the US has shifted how it categorizes the subsidies so that they are not counted as violations. The bottom line is that the US subsidies typically top \$20 billion a year.

At the same time, the US prefers a neoliberal political economic model, how can this be? Neoliberalism is a policy framework that favors de-regulation and attempts to strip social controls from the economic sphere—and in this way, the US Model is not neoliberal per se. However, as a form of political power, neoliberalism's favoritism of the private over the public sphere, which began in the 1970s and strengthened in the 1980s[9], facilitated the consolidation of agricultural firms and the shift of US agriculture through privileging the commodification of intellectual property rights central to transgenic patents and the centralization of corporate power. The neoliberal regime, while pressing for deregulation, also requires the state to impose market logics across social arenas. Indeed, Pechlaner and Otero[10] place US agriculture into a neoliberal "food regime" that has and will extend and increase inequalities and food insecurity, especially at the international level.

The neoliberal food regime has increased food yield, but it has come with important, often hidden costs. These are the focus of the next section.

4. Chokepoints

US food production is faced with several challenges that will affect broad areas of US food security. One is in the social conditions of the US, where for example, social inequality determines vulnerabilities by social stratification. Another is the political economic structure noted above of agribusiness, which has become more and more inflexible and more vulnerable to outside disturbances. In addition, another obvious chokepoint is environmental change. Several of these chokepoints come from the lack of political control over corporations who attempt to socialize and spread out costs to areas that are less noticeable (environmental spheres) and to groups who have less power to resist or create other opportunities.

Environmental changes are becoming more pronounced with more attention on climate change, however a few lesser known problems face US agriculture and food security. One of the most important of these vulnerabilities is in the changing climate for water and heat, at the same time that major aquifers, such as the Ogallala, are being depleted. The Ogallala Aquifer is the largest in North America, and the Midwest bread basket has subsidized the cost of large scale, water intensive farming, through this abundant but limited resource. Current agricultural practices are now tapping this High Plains Aquifer beyond its natural replenishment rates to grow corn and maintain cattle stocks[11]. This resource is now being depleted to the extent that future farming will not be able to rely on this source and will need to shift to a renewable or dry farming way [12]. Projections indicate that unless water usage is reduced in this area of the country, peak agriculture production will occur in 2040 [11]. This will undoubtedly change the yield dynamic for large acre farms and an agribusiness sector that has not developed seed lines (in fact has eliminated these) that may be more resilient in drier conditions. At the very same time, projections of future warming indicate that corn and wheat will face variations in productivity [13,14]. Indeed, corn faces important challenges because it hits a photosynthetic ceiling at 30-31 degrees Celsius that, alongside other problems of warming like changing soil moisture, and this is a tremendously vulnerable chokepoint for US agriculture as it is currently structured[15-17].

5. Conclusions

The US model has successfully increased calories for the average American, and in this way, most of the US is currently “food secure.” However, the structure of this model places important emphasis on scale and homogeneity that limit pliable responses to threats against large mono-cropped varieties in a way that has been well-known for decades in that these areas are highly vulnerable to pests and disease. Now, environmental problems of changing water supplies and climate add another level of vulnerability to these crops that have been selected for their productivity of a time now passing if not already passed. In addition, the neoliberal food regime that the US has put in place limits diversity and deepens inequalities that are points of vulnerability as well.

The US model also has built into it another problem, and that is inflexibility. Inflexibility, or “brittleness” of a system often comes from increased complexity to solve prior problems, but which lock in solutions that may be difficult to maintain in the future under emergent challenges[18,19]. The ability to shift, adapt, and take advantage of new opportunities are critical for being able to withstand an external shock to the system—here the US food system. Other scholars have also identified this problem along with other contradictions of a larger global food system[20], of which the US is inextricably linked. One of the inflexibilities is ideological where the goal of food production is consistently framed in economic neoliberal terms[20], which then embeds actors who, in the end, have little concern for overall food quality and nutrition, or ecological stability of critical life support systems, such as the Ogallala Aquifer, the productivity of the soils, pollution problems that create coastal dead zones, biodiversity loss and other problems that are shifted to others—they are socialized.

The ability to change the food regime is protected by a deeply powerful agribusiness sector that is so tied into the subsidies that it has been able to orchestrate policy. A clear iron triangle of congressional

support tied into federal agency complicity was revealed when the tomato sauce on pizzas subsidized for school lunches was “declared” a vegetable (despite tomatoes being a fruit and the amount of benefit from the sauce was clearly irrelevant)[21].

In addition, countries tied to or that replicate the US Model of agriculture will likely reproduce similar vulnerabilities, but vulnerabilities that would exist in an international division of labor. While different international contexts will be important, the US Model brings with it several structural aspects that lead us to conclude that short term increased yield will come at the cost of long term inflexibility, biodiversity loss, and deeper social inequalities where social and environmental costs are socialized to the broader public, but profits and political influence will be concentrated within agribusiness, the legislative supporters, and related elites.

As noted above, these are only initial observations and there is much more to investigate. However, the even with this preliminary work, it is clear that the literature on US and global food security warn of ominous challenges, some of which are self-made but are not easily addressed. Future work in this area will need to identify core mechanisms that detail how the US model is integrated with the global food system, empirical trends in political economic conditions constituted by a state-corporation-civil society matrix of interaction, and historical and sociological conditions that explain how the US model was formed.

Conflict of Interest

The authors declare no conflict of interest.

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