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The Biofuel Dilemma for Brazil: Food or Fuel

Introduction

One of the leading causes of poverty and food insecurity in Brazil is land inequality. The amount of food that a subsistence farmer can produce depends on the amount of land they have access to cultivate. The subsistence farmers in Brazil own very little of the land compared to the "Agribusinesses". The average United States farmer owns a midsized mechanized family farm. There are relatively few giant Agribusinesses or small subsistence farmers in the United States. Because of this relative equality of land among farmers, all farmers may compete and profit in the farm markets. The land inequality in Brazil prevents this opportunity from occurring. The few Agribusinesses who own most of the farmland in Brazil have virtually monopolistic control over production and farm markets, preventing the average farmer in Brazil, a subsistence farmer, from competing in the markets or profiting.

Brazil and the United States produce comparable amounts of biofuels, yet the production of these fuels creates different scenarios principally caused by land and income inequality. Crops used in biofuel productions tend to be cultivated mechanically putting the subsistence farmers with few modern tools at a great disadvantage. The subsistence farmers currently have no foothold in the biofuel industry because of their inability to sell large quantities of grain in the farm markets which the ethanol industry demands.

Typical Subsistence Family Farm in Brazil

In general, subsistence farmers in Brazil are poor and make up a significant portion of the nation's poor. According to a 2007 analysis, 40 percent of the nation's poor are from the agriculture sector (Sims). The women, young people and ethnic minorities among the rural poor in Brazil are the most vulnerable to effects of poverty. Twenty-seven percent of the rural poor households are headed by women while their husbands travel the country looking for seasonal work. Discrimination towards women exacerbates the poverty in these homes ("Rural Poverty in Brazil"). On a small plot, subsistence farmers may grow corn, bananas, cassava, papaya, or chickens to eat with little left over to supplement their income at market ("Brazil--The Economy--"). Fifty percent of the population lives on less than US\$2 per person a day. Brazil ranks second in the world to South Africa in income inequality ("Rural Poverty in Brazil").

Population growth has been reduced greatly since 1975 with the implementation of one of the world's most successful family planning drives. "[Twenty-seven] percent of women of child-bearing age have been sterilized, and 26 percent use birth-control pills [1997 data]"("Brazil-Country Profile-"). The Family planning law of 1996 states that family planning is a right of every citizen. In 1995 about 2.3 children were born per woman. By 2007 about 1.88 children were born per women, showing the success of the drive. Smaller families reduce demand for food and, therefore, enable more families to meet their food needs adequately.

Formal education is rarely accessible to the rural poor ("Rural Poverty in Brazil"). "Primary school [is] free and compulsory for children between ages of seven and fourteen"("Brazil-Country Profile-"). "Primary and secondary schools enroll only 88 percent of Brazil's children...Only about a third of students enrolled in primary school finish eight-year 'mandatory' schooling. [1997 data]." About 25 percent of the poorest children do not attend schools, part of this is the lack of rural schools and necessity for help on the family farms. Nineteen percent of Brazilians over fifteen are illiterate (1991 data), and it was estimated that illiteracy would be 16% in 2000. Over the last 20 years illiteracy in Brazil has fallen (2007 data) but Brazil still has the highest illiteracy rate in the region (Sims).

"[T]he majority of the 4 million farms in Brazil are very small, and most are dedicated to subsistence production"("Rural Poverty in Brazil"). The subsistence farmers are able to produce only enough food to feed themselves and maybe a family. Only a few farms are owned and operated by farmers who are able to produce more food than is needed to sustain a family. These farms are typically under 25 acres and have few modern tools or conveniences. The subsistence farms and small family operated farms make up 51 percent of all farm operations, yet occupy less than 4 percent of the available farm land ("Brazil--The Economy--"). Most of the farm land belongs to wealthy land owners who employ tenant farmers to work their farms. Farms in excess of 2500 acres, "agribusinesses," constitute less than one percent all farm operations, but own 39 percent of Brazil's farmland. "Wealthy landowners have been a fixture of Brazilian society since colonial times...their slaves have been replaced by tenant farmers." The average tenant farmer still labors on someone else's land and lives on a small plot of land provided by the landowner. On this plot he is able to grow some of his own food including corn, bananas, cassava, papaya, and chickens. Tenant farmers must labor for long hours and little pay to keep their small plots of land.

Along the southern rim of the Amazon basin, the "frontier," the land has been deeded for generations to absentee landlords. These properties are being cleared and planted to crops by Brazilian pioneers who rarely have any stake or claim to the land ("Brazil--The Economy--"). "One of the main causes of poverty in Brazil is the extreme inequality of land tenure, especially in the North-East and in the country's central regions"("Rural Poverty in Brazil"). The lack of and high price of land on which to grow crops also puts the rural at a disadvantage.

Difficult climate conditions and a limited natural resource base along with poor soils in the semi-arid regions add to poverty. In Brazil 6.93 percent of the land is arable and 0.89% is planted with permanent crops including orchards and vineyards. Recurring droughts in the northeastern regions make farming very difficult (United States). The Amazon Basin is in danger because of deforestation and the wildlife trade. Every effort should be made to protect this biodiversity while increasing land access for the rural poor.

The Factor: Securing Property rights and access to finance, and improving farm marketing infrastructure and institutions.

Access to land is limited and many farmers are landless migrants working as tenant farmers for little or no pay and grow their food on a small plot given to them by the landowner. This meager existence is barely sufficient to feed a family and there is nearly no opportunity for a tenant farmer to break out of poverty. "Rural poor people have limited access to basic and social infrastructure and to appropriate technologies and markets . . ." ("Rural Poverty in Brazil") They have limited opportunity for education and training, little access to the police or a legal system to address crimes and injustices against them, and poor transportation systems to market any excess food they may be able to produce. "[A]s a result they have no opportunity to capitalize on farm production or other income-generating enterprises." Also, landless farmers have no real job security. The labor market focuses on those with skills which makes it hard for the uneducated to find a job ("Economic Survey of Brazil 2006").

The situation of land inequality in Brazil is very severe. "According to the Pastoral Land Commission, 3.5 percent of Brazil's landholders own nearly 60 percent of the best farmland, while the poorest 40 percent of farmers have a mere one percent"(Frayssinet). Demand for land paired with investors with money to spend is causing the price of land to elevate above subsistence farmers means. In some areas the land prices have increased by 70 percent just in 2006. The subsistence farmers cannot compete with the large "Agribusiness" farms which have large amounts of disposable capital. The subsistence farms are getting pushed out of the land market. Foreign investors from the United States and other countries are putting large amounts of capital into the purchase of Brazilian farmland for the purpose of ethanol production for export. This takes land out of food production and eliminates jobs as

the agribusiness farms are mechanized. In a further blow to the local economy, the profits will be exported rather than reinvested to the Brazilian economy.

The lack of policies that help the rural poor gain access to finance and the opportunity to purchase land is causing some farmers to resort to deforestation of the Amazon basin to acquire farmland. This deforestation, largely slash and burn, creates expanses of dead areas as the soil is poor and the farmers must move on after a few growing seasons. Some of these farmers are also using chemical fertilizers to enrich the soil. The runoff from these chemicals is polluting rivers and other water sources. "In many ways they [the rural poor] are more disadvantaged than poor people who live in urban areas. Education and health facilities are more readily available to urban than to rural populations, and water supply and sewage systems are generally inadequate in rural areas"("Rural Poverty in Brazil"). The rural poor have no other alternative than to continue to work on their subsistence farm or as a tenant farmer on someone else's land.

Government policies to stabilize the Brazilian economy have led to improved productivity overall. Beginning in the mid-1990s, reforms in trade, investment, and free market regulations have improved the country's economic stability. Greater growth would be possible with further reforms ("Economic Survey of Brazil 2006"). Few of these improvements have been enjoyed by subsistence farmers. Financing for the rural poor still does not adequately exist. The income gap in Brazil has widened during the 1980s and 1990s.

The rising cost of farm land is making the purchase of farm land even more inaccessible to poor farmers. Many tenant farmers will be pushed off of their small plots as mechanization of the large agribusinesses replaces the need for laborers. With little education and few labor skills tenant farmers are largely unemployable in sectors beyond agriculture. For the poorest of the poor the situation is worsening.

If the distribution of land was more comparable between the subsistence farmers and the agribusinesses, the subsistence farmers would be able to increase their income with the greater harvests and rising food prices. If the subsistence farmers had greater access to financing and finance counseling, including micro loans, they would be able to more efficiently use their income to generate profits and gain access to land. With greater access to land, fewer farmers would have to resort to deforestation of the Amazon Basin to obtain land on which to grow crops.

Education could also improve the financial situation of the rural poor. If they could get an education they could join the skilled labor with greater job security, and they would no longer be dependent as tenant farmers. With education on farming techniques, especially on the efficient use of fertilizer and pesticides, farm chemical runoff could also be diminished and river pollution reduced.

How Could Biofuels Production Affect the Status and Trends of this Factor or Improve/Harm the Yield or Livelihood of Subsistence Farm Families

The demand for petroleum is increasing faster than available supplies (Runge). Supporters of corn based ethanol claim that the rising demand can be sustained with an increase in acreage and yields. The United States corn yields have risen by less than two percent each year during the previous decade; doubling of these yields still could not meet current demand. Brazil is in a similar situation; presently Brazil cannot produce high enough yields to provide for food and biofuels. "In 2005, global ethanol production was 9.66 billion gallons, of which Brazil produced 45.2 percent (from [predominantly] sugar cane) and the United States 44.5 percent (from corn)." The demand for land created by the biofuel industry, and the displacement of subsistence farmers by agribusinesses has forced the subsistence farmers to clear land previously left unfarmed. As more land is taken from environmentally fragile areas biodiversity will be put at further risk.

The global energy consumption is estimated to increase by 71 percent between 2003 and 2030, which will permit ethanol and biodiesel producers to pay much higher premiums for feedstock than was previously possible. If oil rises to US\$80 per barrel, ethanol producers could afford to pay over US\$5 per bushel for corn (Runge). The increased value of crops would translate into higher profits for farm owners. Brazil began its quest for alternative energy in the mid-1970s. The government has offered incentives, set technical standards, and invested in supporting technologies and market promotion." The government support creates more profits that could be distributed among all farmers – but that is unlikely to occur for the reasons discussed below.

If the price of oil remains high, people in countries that suffer food deficits and import petroleum will be the most vulnerable to the price hikes caused by the biofuel boom. The price of corn is rising with the demand for ethanol production. This is affecting the prices of other food grains also because the fields that used to grow wheat and rice are now being planted with crops such as corn to be turned into biofuels. "The world bank has estimated that in 2001, 2.7 billion people in the world were living on the equivalent of less than \$2 a day; to them, even marginal increases in the cost of staple grains could be devastating."

If oil prices declined to \$30 a barrel, ethanol production would no longer be profitable unless corn sold for less than \$2 a bushel and that would translate into dangerously low profits for all farmers putting them at risk for abject poverty. This decline in oil prices could be caused by a slump in global economy or if organizations like OPEC had a leap in production. "By putting pressure on global supplies of edible crops, the surge in ethanol production will translate into higher prices for both processed and staple foods around the world." Food security is already fragile in many regions including Brazil.

Recommendations as to how biofuels production should be implemented to also improve food security and incomes of impoverished family farmers in the region. Suggestions for appropriate roles for corporations, national governments, and other organizations

I believe biofuels are not a viable conduit to improving food security in Brazil. The detrimental effects of rising food costs and land inaccessibility far outweigh the benefits of biofuels in this region. "[R]esorting to biofuels is likely to exacerbate world hunger"(Runge). This will be particularly true in Brazil. One of the main causes of food insecurity is lack of access of arable land. The introduction of biofuels worsens this situation with a triple blow to the subsistence and small farmers. Biofuels create a demand for large mechanized agribusinesses which replace tenant farmers with modern equipment, the agribusinesses drive up the cost of land placing it further out of reach of the poor farmers, and the diversion of land from food production to feedstock for biofuels leaves less land for food production resulting in increased food costs.

In a July 2007 conference in Brussels the European Union Brazil, "that the country must protect its farms and forests domestically if it seeks to export biofuels in the global community"(Sims). Peter Mandelson, EU Trade Commissioner, stated that, "We can't allow the switch to biofuels to become an environmentally unsustainable stampede in the developing world. Europeans won't pay a premium for biofuels if the ethanol in their car is produced unsustainably by systematically burning fields after harvests. Or if it comes at the expense of rainforests." Mr. da Silva, the president of Brazil, will end his term in 2010, completing sixteen years of stable democracy. Brazil is still in the infancy of democracy but it is time for them to begin placing more focus on improving food security and the lifestyle of its population. In response to Mandelson, Silva stated that, "The solution is in encouraging the establishment of an international market for ethanol and for biodiesel... We cannot send out contradictory signals. The very governments who reiterate their commitment to sustainable development, to the reduction of greenhouse gases, cannot then turn around and create obstacles to turning biofuels into international commodities." Guilherme Cassel, the Minister of Agrarian Development in Brazil, admitted

that with the expansion of ethanol production, "there have to be regulations to ensure that production is not based on the expansion of the latifundio [(large estates owned by a few wealthy families)] at the expense of the environment, family [subsistence] farms and agrarian reform"(Frayssinet). The Minister agreed with the Landless Workers Movement (MST) that "the best one for the Brazilian countryside is the one based on small landholdings, with large numbers of people working, generating jobs and income, with diversified production that protects the environment." This viewpoint is opposed by the actual situation "that has concentrated land and has caused unemployment and marginalization among people in the countryside, deforestation, slave labor and violence."

Government initiatives towards land reform have been unsuccessful up to this point. The large estate owners and the Agribusinesses have no incentive to sell and distribute their land because there is no great cost to holding it even if it is not in production. A property tax or an estate tax would encourage the sale of land. With a property tax land owners would have to make an annual payment based on a percent of the value of the land owned. This would make the cost to hold land greater and would encourage the sale of land not in use. With an estate tax, upon death of the owner, a tax based on a percent of the value of the owners equity (wealth) must be paid. This would make owning large estates very expensive and would encourage the breaking up of and selling of the estate. These taxes would create another obstacle for the subsistence farmers to overcome unless a graduated tax system was imposed. With a graduated tax system, the lowest income bracket would be exempt or have significant tax breaks; this would lessen or eliminate the burden from taxes for the subsistence farmers.

Conclusion

Under the current conditions in Brazil, the expansion of biofuels production is causing the displacement of subsistence and tenant farmers along with the further concentration of wealth in the large estates and Agribusinesses. The situation of land inequality will not improve unless market forces or political reform force the price of land to decrease and the subsistence and tenant farmers are given greater access to land financing. With greater land equality, the subsistence farmers would be able to compete at a greater advantage in the farm markets. Once participation in the farm markets has been leveled, biofuels may be able to find a stable niche in the Brazilian economy.

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