Food Security and Non-Traditional Agricultural Exports: A Case Study of Two Latin America Countries

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Abstract:
This paper describes the changes induced by the rise of non-traditional agricultural exports (NTAEs) and the mechanisms by which these changes have affected the food security of the rural resource poor. Through a comparative case study of export booms in Chile and Guatemala, this analysis seeks to understand the combination of factors that may encourage food insecurity as agricultural production becomes export oriented. This paper finds that Chile's boom, because of the sustained creation of employment in the agricultural sector, had a greater effect on improving food security than did Guatemala's, which suffered from institutional and market failures. In both cases, export led growth may not improved well-being in the long run. The author emphasizes the complex nature of food security and the fragile mix of factors that contribute to rural resource poor agricultural producers achieving sustained access to food.
Hunger is a huge problem in the world today. In lesser-developed countries, hunger undermines human development and prosperity. In these countries undernourishment and related diseases are leading causes of death, especially among children. Hunger is also not a new problem. In every community in the world, ensuring both an adequate supply of calories, as well as facilitating the equitable and necessary distribution of food is of great concern. In developing countries that are net agricultural exporters, the reality of hunger can appear a paradox. Why are these countries focusing on food production for other countries when their own people are not getting sufficient nourishment? This paradox seems especially salient in rural areas—why are people, who are themselves agricultural producers, going hungry?

To understand why this might be the case, conceptualizing hunger as an issue of food insecurity is a useful framework. Food security is specifically defined as a state of being in which all people have access to food. The concept of access is crucial because it gets at the heart of food distribution. The mere presence of food in a space or a person’s proximity to food does not determine their ability to access it. People can access food when they can grow it themselves or gain enough income to purchase it. Even when people live among abundant food production, if they are not able to purchase or grow their food, they will not have food security.

In this paper, I investigate food security among poor rural agricultural producers in two Latin American countries. I seek to understand how structural changes in food production, particularly a move towards non-traditional agricultural products for export, have affected the food security of rural producers. I consider three ways that connect the rise of non-traditional export crop production and the food security of rural producers. First, I analyze government policies that succeeded (or did not) in shaping the market to encourage agricultural exports, creating more broad based access for poor rural producers to adopt these new crops, or
developing other opportunities for the rural poor to benefit from the boom. The second set of factors are the “market effects” created by the nature of the crops themselves. This can involve how much labor and capital they require. Lastly, I consider the historical and macroeconomic conditions that created the baseline conditions of food security and agricultural production in each country.

The study focuses on export booms in Chile and Guatemala. I show the confluence of the factors described above can affect food security of rural agricultural producers. These are summarized in Table 1. Table 1 explains the three main mechanisms by which non-traditional agricultural exports interacted with food security among rural agricultural workers. It gives an overview of the potential beneficial and detrimental outcomes of the market effects associated with the crop, of the government policy that interacted with NTAEs, of the macroeconomic conditions that effected the success of agricultural exports generally, and of the historical legacies that impacted the boom. However, even understanding these conditions and connections, it is difficult to say that either Chile or Guatemala succeeded in making their movement to non-traditional agricultural exports work for rural food security.

I argue that Chile, mainly through consistent (though seasonal) employment creation in the rural sector, but also through more sustained policy intervention, beneficial macroeconomic policies, and certain historical conditions, has been able to improve the food security of its rural producers. However, this is not to say that the non-traditional agricultural sector has been completely beneficial to all rural producers in Chile or benefitted them all equally. I also hesitate to deem Guatemala’s non-traditional export boom a failure for food security among producers. On the contrary, the framework of Guatemala’s export boom had many of the components necessary to benefiting small farmers. Unfortunately, because policy was not sustained and
certain market factors were not accounted for, in addition to the underlying economic inequality that existed historically and tenuous macroeconomic instability, any gains due to adopting non-traditional crops were short lived.

Understanding the policies and the nuanced ways in which export led growth can affect poverty and food security means breaking with deterministic paradigms. In countries that rely on agricultural exports, the classic understanding of whether a country can benefit or is constrained by trade is described as the terms of trade. We can say that because agricultural exports are worth relatively less than manufactured products (that a developing country may demand through imports), the terms of trade are “against” these countries. However, this explanation does not account for the variance we see among countries, particularly in Latin America, that have adopted non-traditional agricultural exports. Clearly there is a middle ground, between export led growth and trade that simply extracts, and the benefits that can accrue to even those in the most primary phase of the production chain. Why are some countries able to still export agricultural products and change their terms of trade favorably (and thus improve their national food security), while others are still caught in inherent disadvantage?

The undercurrent to this question is the debate between modernization and dependency theories. This debate sees export-led growth and policies that encourage integration into the world economy as having very different outcomes. Modernization theory sees increased trade, in the context of a more liberal economy, as the best path to achieve the type of development that occurred in developed countries. Modernization theorists believe that engaging in global capitalism by exploiting a country’s comparative advantage is the most effective way to develop. Dependency theorists believe that export-led growth is inherently extractive and leads to continued cycles of underdevelopment and subjugation from the Global North.
Both of these theoretical understandings of growth and development are too deterministic to explain the variation and contingent successes that mark the role of non-traditional agricultural exports on food security in Latin America. Instead, I privilege the idea presented by Dani Rodrik who argues that policies and orientations of countries that have succeeded in creating growth (though not necessarily equitable growth) have been policies that are a mix of intervention and protection on one hand and free market ideology on the other (Rodrik, 1999). Countries that have done well have “been able to formulate domestic investment strategy…and those that have had the appropriate institutions to handle adverse external shocks (Rodrik, 1999). Rodrik also notes the importance of macroeconomic stability and describes how societies which have historic discord because of cleavages along ethnic, income, or geographic lines, will have a harder time in achieving growth and development (Rodrik, 1999).

My research fits into a literature that takes the middle way in understanding export-led growth and its impact on rural well-being. I take into account the situationally contingent benefits of agricultural export-led growth and its possible effects on food security. I do not see structural changes induced by NTAEs as having a single effect. I explore the reasons for the differentiation we see in my case study countries, as well as other countries around the world.

The study is structured as follows: first, I define useful terms that help narrow and clarify the scope of my study. I then review the literature on both the past scholarship on the determinants and analysis of food security as well as literature that outlines policy options and dynamics in various models of agricultural export led growth. I support my claim that Chile, through a combination of factors, was better able to improve the food security of its rural producers while Guatemala has not been able to translate a boom in non-traditional agricultural exports into increased food security among its rural population. I conclude with some reflections
on the complexity balancing the market and comparative advantage with the needs of the food insecure rural population.

**Definition of Terms**

**Food Security:** I use the World Health Organization’s definition which states that food security exists when

> “all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life. Commonly, the concept of food security is defined as including both physical and economic access to food that meets people's dietary needs as well as their food preferences (WHO, 2012).”

This definition is useful because it focuses on access and individual perspectives on need and sufficiency. This definition differs from some that define food security as the availability of calories. As I will discuss later, this limited view is not appropriate for most countries that have ample food supplies. This definition justifies the emphasis in my case studies on income volatility.

**Non-traditional agricultural exports (NTAEs):** I defer to Lori Thrupp’s definition of a non-traditional export as something that was “not traditionally produced in a particular country…was traditionally produced for domestic consumption but now is exported…or is a traditional product now exported to a new market” (Thrupp, 1995). This definition is useful because it emphasizes that crops may be a new introduction, but that they may reflect the realization that a product that was traditionally produced for domestic consumption has a high exchange value in the global economy. A prime example of this is tree fruit in Chile. A tree fruit such as apples has been grown in Chile for domestic consumption for a long time, but it was the realization that because Chile has opposite seasons than the northern hemisphere (to which it mainly exports) that it has been transformed into an important NTAE. NTAEs refer to the rise in the early 1980s of such exports; this was a time export diversification was presented as an economic development
strategy and was promoted in Latin America by international governmental organizations and the US government.

**Food Security and Export-Led Growth**

Many authors discuss the effects of exports and export led growth on well-being or look at the relationship between poverty and food security, but do not create the larger synthesis as I do in this study. I first present literature that looks at the determinants of food security. I then look at other studies that discuss the possible outcomes of agricultural export-led growth, the policies that encourage and bolster the success of exports, and the changes to well being that these market shifts and polices may induce.

Food security as a concept has shifted at different times and at different levels of analysis.³ The concept of food security first emerged from the World Food Conference of 1974, which was held in response to a sharp increase in food prices worldwide. This first explanation of food security underscored the global availability and need to control supply and prices (Maxwell, 1996). This led to a conscious effort on behalf of national governments to make self-sufficiency and smoothed consumption a priority. Amartya Sen is credited with “initiating the paradigm shift” that highlighted access to food as the main determinant of food security (Maxwell, 1996). His conception of “entitlements” identified conditions (such as social security or trade possibilities) and abilities (such as growing food or selling labor power for wages) as the main determinants of access to food (Sen, 1981). At the most basic level individuals’ positions within the legal, economic, political, and social attributes of society determined access (Sen, 1981). The level of analysis of food security experienced a shift to a more micro view that privileged the experience of the individual or the household.⁴ The concept of access and the move to understand food security as a state that varies across individuals rather than across
regions or nations was crucial to understanding how market dynamics variably affect market participants.

Several statistical studies bore out the result that poverty is the proximate “cause” of food insecurity. I highlight the word “proximate” because poverty itself has many causes and should be thought of as a confluence of conditions rather than a single state. However, these studies securely established that poverty and income equality are the main context in which to understand food insecurity. Jenkins and Scanlan (2001) tested two operationalizations of food security: calories per capita (available food supply) and child malnutrition—which they used to better represent access. They found that growth, income, and levels of development have a significant impact on their food security variables. Smith, Obeid, and Jensen (2000) studed the extent of food security in different regions and across countries with different rates of poverty. They looked at both the availability of calories and child malnutrition as operationalizations of national and individual food security to determine which is more important to food insecurity. They found that for high poverty countries both are relevant indicators of food security but for lower poverty countries food supply might increase and rates of child malnutrition could remain high (Smith, Obeid, and Jensen, 2000). They concluded that their finding was consistent with the notion that poverty was the main determinant of food security in the 1990s (Smith, Obeid, and Jensen, 2000).

Minimal literature exists that tries to directly link, with quantitative evidence, food security and agricultural export led growth. I review the few such analyses that exist: papers by Wimberly and Bello and Gacitou and Bello. These analyses are characteristic of dependency theory, which sees growth in the agricultural export sector as inherently extractive. Dependency theory sees no possibility for market-oriented growth to benefit the impoverished majority. ⁵
Wimberly and Bello use a cross sectional analysis to show that decreased export dependency has a positive effect on food consumption and the penetration of transnational corporations (TNCs) has a negative effect on food consumption (Wimberly and Bello, 1992). Similarly, Gacitou and Bello perform a cross sectional analysis of Latin American countries to show the negative effects of primary exports on food consumption (Gacitou and Bello, 1991).

The outcomes of export led growth depend on the characteristics of the specific good that is being exported, historical structures within countries, government policies that influence or discourage export growth, the involvement of foreign direct investment and multinational corporations: the list goes on. Wimberly, Bello, and Gacitou ignore that increases in gross domestic product per capita can, through increased purchasing power, increase at least the supply of food in a country (e.g., calories per capita, a common measure of national food security). While I agree that income inequality may distort the effects of per-capita income increases, one cannot write off the improvements that increased income can have on the food security for some people. Basing emphasis on aggregated country data misses the nuances and variations between regions, producers of different kinds of crops, and varying policy arrangements. Dependency-inspired studies take large aggregated regression results as ammunition to condemn agricultural export led growth as a development strategy. But this ignores regional and rural/urban variations.

When considering the linkages between agricultural export-led growth and food security, it is tempting to think that there is a tradeoff between food grown for urban and export markets and food grown for subsistence. Lappé and Collins (1973), early in the history of food security studies, make a case for this tradeoff. They note the dislocation, physical or economic, that subsistence producers may feel, as well as the tendency for export cropping to utilize the best land. They claim that farmers that sell cash and export crops are literally selling their food
security in the form of decreased soil fertility. However, von Braun and Kennedy (1986) find the opposite, that there is no generalizable tradeoff at the state level. At a local level these authors identify two outcomes that will likely occur as land is shifted from food to export crops. First, food supplies in local markets may decrease as a consequence of shifted production and, simultaneously higher incomes from export crops will allow rural people to demand more food. These actions may raise food prices in the short run and add to food insecurity, but, they argue, the remaining producers of foodstuffs will increase their production intensity to capitalize on high prices and marketing structures and keep up with demand (von Braun and Kennedy, 1986).

In this study, export crop adoption, agricultural employment and land use distribution associated with NTAEs are not subjected to the assumption of simple static tradeoffs. Shifts in employment and cultivation lead to changes in income for poor rural producers or laborers and these changes in income affect food security.

Main factors for determining the production of non-traditional export crops that affect well-being are the ease of adoption, labor absorption and employment, and effects on land distribution. A group of scholars, led by Carter, Barham, and Mesbah (1996), have written extensively about this dynamic. They link farm size to the ease of adoption and subsequent effects on employment to different types of agro-export opportunities. Farm size matters because “farms of different sizes vary in terms of their access to factor and product markets and the effective prices they face in them” (Carter, Barham Mesbah, 1996). Crops that benefit from labor intensity might be well suited to small farms, which can employ family labor, but these farms also may be vulnerable because they lack the resources to purchase necessary inputs or have more difficulty accessing the market (Carter, Barham, Mesbah, 1996). This may create a class divide that links scale and wealth (in land) to the propensity to benefit from NTAEs.
through direct producer involvement. Maxwell and Fernando argue that the adoption of export crop production may represent the exacerbation of existing inequalities: producers that receive market signals to change their current production type are already at an advantage because they had some access to improved information (Maxwell and Fernando, 1989).

Labor absorption plays a key role. In situations where land is highly concentrated or small-scale adoption is not an option (due to economies of scale, for instance) the amount of labor a specific crop can absorb becomes a crucial factor in determining its social welfare effects on the rural resource poor (Carter, Barham Mesbah, 1996). It is not just absorption of labor that determines a crops’ benefits, it is also the characteristics of the employment. Korovkin (2005) notes that while there may be job-creation, which can boost incomes and well being, in the long run, the stability of these jobs is in question because they depend on volatile international markets (in addition to climatic considerations) and they can also be adversely affected by international competition, which may drive down wages over time. Maxwell and Fernando (1989) note that cash crops can be associated with “negative developments” for the resource or landless poor, who experience unstable and seasonally effected employment and deteriorating real wages. However, there is some evidence to suggest that certain crops, which have a high per unit price, require care in quality assurance, are semi-permanent, or are very labor intensive can lend themselves to contract farming and generally small holders (see Berry, 1998 or Maxwell and Fernando 1989). Contract farming involves large companies (national or multinational) that contract out their labor to many smaller producers.

Lastly, changes in land distribution, caused by NTAE booms, can affect the food security of rural producers. Carter, Barham and Mesbah speculate that there may be induced structural changes in land markets (Carter, Barham Mesbah, 1996). This means that if the patterns of land
valuation and adoption are such that the returns are greater to producers of scale, small holders will sell their land because they discount its future value or their ability to access this future value (Carter, Barham Mesbah, 1996; Carter, Mesbah, Barham and Stanley, 1995). This will generate further changes in employment, as land becomes concentrated and smallholders shift to become wage laborers (Carter, Barham Mesbah, 1996). Maxwell and Fernando also see land dispossession and exclusion from the best land as likely occurrences in the adoption of cash crops (Maxwell and Fernando, 1989).

The displacements, problems, and benefits from crop adoption, labor absorption, and land use change happen in both the short run and the long run. Because of this there are various types of policy that can correct market failures such as access to markets and land displacement and create equity in the distribution of gains. Carter, Barham, Mesbah, and Stanley (1995) describe these as “points of policy entry” and identify four broad. These policies represent theoretical options for the best possible outcome for smallholders and the rural resource poor, not necessarily phenomena that have been empirically realized. First, policy should “facilitate those crops that are most likely to generate positive impacts on the rural resource poor (Carter, Barham, Mesbah, and Stanley, 1995). These crops will be ones that favor smallholder adoption, are labor intensive, encourage labor absorption, and will succeed in creating growth given existing market and agrarian structures (Carter, Barham, Mesbah, and Stanley, 1995). Second, policies must “address imperfections in fundamental factor markets, such as capital and risk markets, which inhibit small-farm adoption of non-traditional export crops” (Carter, Barham, Mesbah, and Stanley, 1995). These policies are made in recognition of the fact that small farms (with less capital) have an inherent disadvantage in accessing market information. Improving access to information and capital, and simultaneously insurance, can help correct the bias against
small farms (Carter, Barham, Mesbah, and Stanley, 1995; Thrupp, 1995). Third, land markets and land finance must be addressed to translate “a competitive advantage in production into a competitive land market advantage” (Carter, Barham, Mesbah, and Stanley, 1995). Land reform should be considered a necessary but not sufficient policy to increase broad-based growth. Berry (1998) gives the examples of Bolivia and Mexico, whose land redistribution was not accompanied by other reforms or support so that increases in productivity and economic success were not realized by the new small holders. Fourth are policies that address transaction costs and market failures, like poorly defined property rights and land tenure, but also market and price distortions which often take the form of production subsidies to larger producers (Carter, Barham, Mesbah, and Stanley, 1995).  

There are several other types of policies identified in the scholarship that encourage broad-based growth and income increases for small-holders, thus alleviating poverty and food insecurity. Thrupp (1995) identifies a group of policies that can be termed “the cost of doing business” which includes reducing the cost and difficulty of exporting and controlling exchange rates. She also discusses institutional support, including national and international economic development agencies that in many cases were the agents that improved access to information and in some cases provided technical assistance. Thrupp expresses concern that due to a lack of funding, these agencies may become private ventures and their benefits will cease to reach the poorest producers who cannot pay for the services. Lopez (2010) analyzes government expenditure effects on promoting NTAEs though not specifically at how benefits from increased exports are distributed. She finds that production subsidies to (large) producers do not add to output, but that research and development in export crops has a strong positive effect on exports (Lopez, 2010). In an earlier study, Lopez (2009) considers the compliments that exist between
different policies and concludes that if expenditures on eliminating market distortions or increasing technology transfers means a tradeoff with social expenditures, the loss of social services may undermine expenditures in production.

How export booms are adopted and how they may change regions and markets is a complicated story, full of potential paths and possibilities. To be sure, policies that increase the income of the rural poor, whether they are laborers or producers, and reduce displacement from the structural change associated with shifting production to NTAEs will be the most beneficial to food security among the rural resource poor.

**Case Studies: Chile and Guatemala**

**Chile**

The Chilean case illustrates how export successes affect the rural poor and agricultural workers in general. There are two main ways that NTAEs have affected food security in the rural population of Chile. The first is that increased income derived from the agricultural sector increased the purchasing power of the rural resource poor. Secondly, changes in land use and the structure of land tenure changed patterns of subsistence production, which had a very mixed effect on food security. Another factor that affected food security was macroeconomic stability. These effects varied over time and were greatly influenced by the political situation, namely the inconsistency of the military governments’ economic policies.

Today, Chile is one of the richest and most developed countries in Latin America. In 2010 it became the first South American country to become a member of the Organization for Economic Cooperation and Development (OECD). Chile experienced a massive transformation in the last quarter of the twentieth century in which the majority of its citizens were lifted out of poverty. Economically, after being part of a movement of economic closure and import substitution industrialization (a period that lasted from after the great depression until the
military junta, roughly), it came under the rule of a market liberalization oriented military
dictator for almost two decades. The rise of non-traditional agricultural exports led Chile’s
economy and brought in foreign exchange and capital that allowed for agriculture and other
industries to develop.

This study of Chilean agriculture is most concerned with fruit. This is because the main
beneficiaries and losers from fruit exports occur in the rural sector where food insecurity tends to
be highest. Fruit exports have had a widespread effect on land and labor markets. To discuss the
mechanisms of NTAE development, their effects on rural well-being and policies that hindered
or encouraged beneficial outcomes, I present a chronological progression of NTAEs in Chile.
This is necessary because depending on who was in power and the macro-economic conditions
of the day, policies and practices varied.

I start with the reforms and policies of the Eduardo Montalva Frei administration (1964-
1970). Frei’s administration was the first to actively exploit Chile’s comparative and market
advantages. Because it is in the Southern hemisphere and most of its fruit is exported to
consumers in the northern hemisphere, Chile enjoys the advantage of counter-seasonality.
Counter-seasonality means that when it is winter in northern climates and domestic production of
fruit is at its lowest, exporters in Chile can receive a large premium for fresh fruit, which is in
high demand. Frei’s administration laid out specific policies for the long-term development of
the fruit export sector in the 1966 Plan Frutícola which invested in research and development,
new agricultural technologies, assisted in land clearing for agriculture, and subsidized
infrastructure to facilitate adoption of NTAE (Murray, 1997; Andersson, 2009). Two agencies
were set up to assist the agricultural sector: INIA (the Institute for Agricultural Research)
focused on researching and promoting efficient technologies and INDAP (the Institute for the
Development of Agriculture) provided credit, investment in infrastructure (particularly irrigation), and extension services (Kurtz, 2001; Andersson, 2009). Additionally, the state facilitated technology transfers through a partnership between with University of Chile and the University of California-Davis (Murray, 1999).

Another crucial part of the Frei administration, and later the Salvador Allende government (1970-1973), was land reform. Kurtz (2007), Andersson (2009), and Murray (1997) all suggest that this land reform was a catalyst in the development of NTAEs. The issue of inequality in land ownership had first been addressed at the beginning of the 1960s, but Frei intensified this push (Andersson, 2009). The Frei administration broke up and expropriated land holdings that were “excessive” in size or unproductive and created a system of cooperative holdings (set at a maximum of 80 hectares) as an intermediate step, after which co-op members could decide whether to continue collective organization or break up plots into smaller holdings (Andersson, 2009). The majority of the landed elite were removed from the source of their power and mid-sized farms, organized by a new class of entrepreneurs, began to take advantage of institutional supports. Fruit production began to rise precipitously (Andersson, 2009; Schurman, 1996). While these kinds of reforms were continued by Allende, the Socialist government also introduced severe economic inefficiencies, such as price controls and large increases in Central Bank credit (Murray, 1998). These inefficiencies led to extremely high inflation and decreases in agricultural output (Murray, 1998).

In 1973, in response to reforms it thought had gone too far, the military (with support from the upper classes) overthrew Allende. The military immediately went to work with its own set of ideologically-driven reforms. First, General Augusto Pinochet (the military dictator) finished the basic land reforms already in progress, which completely ended the *latifundido*
system (Andersson, 2009; Murray 1998). Andersson points out that Pinochet was simply riding momentum that was already there and that the fear of appropriation created during the Frei years broke the institution of land power and changed attitudes towards agricultural intensification (Andersson, 2009). This land reform was not lasting, however. The state, which was holding some of the most desirable land that had been expropriated, sold the land at auction, transferring it back to a privileged class though not the same one as before (Kurtz, 2001). The reforms of Frei, Allende, and Pinochet transferred land to the rural poor, but it was returned through the introduction of competitive land markets in which small holders were compelled to sell their parcels. By the mid 1970s, of the land expropriated in the preceding reforms 30 percent was returned to former owners and 20 percent was sold to private investors, with the remaining fifty percent maintained by smallholders and cooperatives (Andersson, 2009; Kurtz, 2001).

Throughout the Pinochet era, land was continually re-concentrated into large parcels while the rural poor were squeezed onto smaller and smaller plots (Clark, 2011). It is, however, important to put this re-concentration into perspective. The type of crops themselves provided a serious barrier to entry in that fruit production in orchards require large capital investments and small farms are not able to obtain loans (Carter, Barham, and Mesbah, 1996). Kurtz (2001) suggests that this may reflect an inherent efficient scale, but one that works against small holders.

In the 1970s until the Latin American debt crisis struck in 1982, there was very little interaction or support by the state of agriculture. Timber and fish were championed under the new regime and fruit was not, but for all three sectors, some funding and credit was available through the Interamerican Development Bank (Schurman, 1996; Kurtz, 2001). ProChile, an institution that provided information about marketing opportunities was established in 1974, though it is unclear whether its work was widespread or effectual (Schurman, 1996). One direct
action by the state was to render effectively useless, through a lack of funding, the institutional supports that had been established for agriculture under Frei: INDAP and INIA (Murray, 1999). These actions generally excluded smallholders in the 1970s. Despite minimum public support, fruit production did grow (Andersson, 2009). The military government did some macroeconomic adjustments that helped the position of fruit exports. These included: low tariffs on imports, which allowed agricultural inputs to flow into the country, the repression of labor and collective bargaining, which brought down wages, and currency devaluation, which improved the competitiveness of Chilean exports abroad (Murray, 1997). Until 1982, the development of fruit was hampered by market failures. There were no institutional provisions to correct information, manage risk, assist in marketing, or transfer technology (Kurtz, 2001).

It is possible to see how these reforms may have created food insecurity. Wages were purposely depressed in favor of furthering productive sectors. This had a direct effect on people’s ability to purchase food. A re-concentration of land, which was biased against smallholders, limited subsistence production. We have already discussed barriers to adoption, mainly having to do with access to capital. However, Andersson describes, a phenomenon that occurred in the absence of credit and capital markets. As real interest rates rose, peasants were forced to sell their non-fixed capital and try and continue to farm without it (Andersson, 2009).

Informal networks of credit also proved to be disastrous for smallholders. A common practice was to finance land and capital purchases with loans from (sometimes) former landlords. This turned into a method for land concentration however, as farmers who defaulted had their land expropriated (Kurtz, 2001). These biases and risks for smallholders likely added to food insecurity for segments of the rural poor.
One important development for smallholders in the NTAE sector occurred in the late 1970s with the use of a new kind of contracting system between smallholders and agro-export companies for whom they were producing. In this system, credit was given to a small farmer under certain production conditions (Murray, 1999). The inputs a farmer could use were specified and their use was overseen by a company agronomist. There were specific requirements—harvest dates, quantity targets, specific packing houses, quality requirements—that were set in advance by the company and producers had to fulfill these obligations. Also, the price the grower was paid was determined by the destination port prices (Murray, 1999). Services that the grower was required to use (credit, inputs, agronomist fees) were deducted. This system, called “credit/contract/consignación,” filled a void left by the scaling back of institutional support in the agricultural sector that had occurred when the military first came to power, particularly by making credit available to smallholders (Murray, 1997). However, it also constrained smallholders because it required a strict adherence to industry rules and policies and it fostered dependence on agro-export companies (Murray, 1997). This system, which was in widespread use throughout the 1980s, pushed farmers into debt as shifting international prices prevented them from paying back companies for services while still making a profit (Murray, 1999). Although the system allowed smallholders who would otherwise be unable to participate in smallholder production gain increased incomes, it reinforced a power asymmetry in which agro-export companies always had the upper hand. One example of this is noted by Murray: often, because the level of education among rural small holders was so low farmers signed contracts with out being able to read the details (Murray, 1997). Because agro-export firms controlled credit, information, and inputs, smallholders had little chance of realizing true improvements to income and stability (Murray, 1997).
While this system did not provide neutral institutional assistance to growers, macroeconomic reforms did do some good in improving incomes and eventually the government stepped in to provide assistance to small holders not already involved in contractual agreement with agro-export companies. After 1982, the military government, spurred by the debt crisis, moved away from strictly neoliberal policies towards more protective reforms. First, the currency was devalued to encourage exports (David, Dirven and Vogelsgesang, 2000). In addition, tariffs were increased to protect domestic industries and price bands for basic food staples were implemented to counteract international volatility and smooth domestic consumption (David, et. al., 2000). The government made investments in infrastructure (specifically irrigation) through subsidies to private companies and reinstated support for the rural development agencies, INDAP and INIA (Murray 1999; David, et. al., 2000). These reforms alleviated pressures on smallholders and encouraged development in the export sector generally, which was also helped by a sustained demand for Chilean fruit (Andersen, 2009). However, the rural poor were still generally left out because loans and services for inputs and production were rarely effective for the poorest people.

Throughout the 1980s, the NTAE sector for fruit continued to grow rapidly. The amounts of foreign exchange generated created new opportunities for economic development in Chile and poverty, by nearly all measures, experienced a steady decline. Despite these gains, there are several factors within the NTAE production sector that still exert strong biases against smallholders and negatively impact their well-being. The first has to do with employment. As David et. al. point out, it is a tendency in economic development for agriculture, particularly employment in the agricultural sector, to decline (David, et. al., 2000). While this has happened in Chile over time, one of the main inclusive benefits of the Chilean NTAE sector has been the
consistent absorption of rural, often landless, labor (Carter, Barham, Mesbah, 1996; Anriquez and Lopez, 2007). The actual mechanisms of this absorption require a close examination. Several authors have noted that the labor generated by the agricultural sector is seasonal and temporary, leading to labor shortages during peak production times, and huge labor surpluses, as well as income vulnerability, in the off-season (Kurtz, 2001; Murray 1997). The legacy of neoliberal labor repression left rural labor with almost no ability to organize or engage in collective bargaining, which meant that wages remained low, and even more so for women (Kurtz, 2001; Murray 1998). The issue of gendered employment can affect household food security directly. On the one hand, post-harvest processing in NTAE production became a steady source of employment for women in the rural sector, but women are also the main producers of subsistence crops for household consumption. Their employment decreased subsistence production (Murray, 1998; Kurtz, 2001; Clark, 2011).

Several factors during the 1990s contributed to long-term structural changes in land and labor relations that undermined smallholders. Increases in inequality limited prospects for poverty alleviation and food security. Inevitable declines in agricultural employment were exacerbated by increased mechanization in agriculture (Andersen, 2009). Though fruit and other NTAEs were less prone to labor displacement by mechanization than some other kinds of agricultural products (many grains, for instance), this trend disrupted labor absorption in the NTAE sector, undermining the welfare-enhancing effects of the sector (Anriquez and Lopez, 2007). Of course, the expansion in production linkages (value added agricultural goods or enhanced processing, for instance) offset some of these decreases in agricultural production employment (Andersson, 2009). But concerns about the economic sustainability of NTAEs as a competitive industry still made these benefits fragile. During the 1990s, competition and the
growth of NTAE sectors in other countries put pressure on Chilean producers and challenged the relative dominance of Chilean agricultural exports (Andersson, 2009; Murray, 1998; Kurtz, 2001). This trend reduced the effectiveness of NTAE as a development strategy. When NTAE began in the late 1970s, its novelty bestowed large profits on adopters. But as profits become squeezed by international competition, smallholders and the rural poor that depend on this income for their livelihood lost that consistent source of income and security.

Another important factor in determining how the NTAE boom in Chile affected food security is to recognize the spatial differentiations in who has gained from the boom. Murray (1998) gives a thorough description of how different regions, and even different localities in the Central Valley, benefited from the boom. The reasons for spatial differentiation of successes are many. Between regions, different levels of infrastructure (especially roads) in an area, the distance to ports, and the timing of the harvest, kept some regions from participating in NTAEs at all (Murray, 1998). Within regions, the differentiations also existed, but water availability and irrigation infrastructure, as well as simply terrain, influenced the adoption of crops (Murray, 1998).

Two case studies that were analyzed recently (both in 2011) illustrate that the long-term effects of NTAEs on rural food security are mixed and contingent upon certain conditions. The first by Clark (2011) studies how NTAEs have affected the food security of the Mapuche indigenous group. The main ways that food security has been affected is through the prevalence of seasonal employment (which creates income volatility), a loss of subsistence land (due to competition, NTAE crop adoption), and erosion of social support systems due to the encouragement of farming in a capitalist/profit context (Clark, 2011). This last point is an important example of a very socially specific effect of NTAE on food security. In Mapuche
communities, women are responsible for the family vegetable plot, which provides nutritional variation (Clark, 2011). When these women move to working for wages in fruit packing and processing plants, family vegetable production decreases or ceases to exist. The food that is purchased with wages from working in the NTAE sector is different than what the Mapuche have traditionally lived on and is often of sub-par nutritional value (for instance, instant noodles instead of a traditional grains and legumes) (Clark, 2011). Lastly, the Mapuche social structure, which relies on the support of extended family, changed because of the individuality and competition fostered by production of export crops (Clark, 2011). While there were gains from increased income, they have come at the cost of culture and traditional norms of the Mapuche.

Raspberry production, a relatively new crop in the NTAE lineup, has created many new opportunities for growers. It is more suited to small-scale production because of the need for careful monitoring to ensure quality (Challies and Murray, 2011). Government programs have adapted to specifically encourage and provide infrastructure to raspberry growers through extension agents and other education programs (Challies and Murray, 2011). Though these programs still exclude the very smallest farms, this program represents more attention paid to small-scale production than any past attempts by government to support agricultural development (Challies and Murray, 2011). There are also problems with the changing standards for production demanded by the countries that import these products and the Chilean agricultural extension agencies still faces many hurdles in distributing this information and supporting producers as they struggle to keep up with the sectoral developments and still turn a profit (Challies and Murray, 2011). However, the focus on supporting small rural producers is an encouraging sign that government policy has evolved to address to challenges of smallholders in benefiting from NTAEs, and perhaps the food security of these producers.
In the Chilean case, government policy was aimed at large producers, which, in the transition period, likely created problems of poverty and food insecurity. These effects were influenced simultaneously by changing policies of the Pinochet government and the large shifts in land ownership as reform schemes set in place by Frei and Allende (and then Pinochet) ran their course in land markets. However, what emerged was a strong export sector, supported by a dynamic agricultural extension agency, which was consistently able to create much seasonal employment. Agricultural laborers depended on these large farmers and they achieved semi-stable livelihoods. Chile’s eventual support and investment in its NTAE sector created a strong rural base that is functional and profitable. The stability of this sector and the continued support it receives from the state created income gains for the poor. Of course, there are many reasons to question how equitable and widespread these gains have been. They are without a doubt influenced by geographic and cultural factors and the inequity of these gains should not be ignored. Understanding why these differentiations in gains have arisen is useful as the government continues to evolve in its support for the rural resource poor.

Guatemala

At its outset, the rise of non-traditional agricultural exports in Guatemala appeared to be extremely beneficial to the rural resource poor and could potentially improve their food security. There were institutional supports through international organizations as well as local organizations that provided information, inputs (like seeds or fertilizer), credit, infrastructure, and insurance. The crops themselves were not only high value but were extremely suitable to small-scale production, both because they required a lot of monitoring and they could be planted sequentially for staggered harvests, a technique that is harder to orchestrate at larger scales. However, in the long run, the export boom did not greatly improve the food security of the
region that was most involved in NTAE production, nor did the foreign exchange gained from the trade of these new products trickle down the population at large. Today, Guatemala has one of the highest rates of malnutrition in Latin America (FAO, 2006).

Guatemala is a very poor country with a long history of political chaos that includes a complicated relationship with the United States. Through initiatives like Kennedy’s Alliance for Progress and later the Caribbean Basin Initiative, as well as other foreign aid, the US has encouraged particular growth strategies. One of these strategies, which began in the late 1970s, was to diversify agricultural exports with the specific goals being to generate income by producing high value and competitive exports. This strategy, in as much as it provided increased livelihoods and incomes for the rural population in Guatemala, was also considered to be a strategy of poverty alleviation. To be sure, a reduction in poverty can mean a reduction in food insecurity, assuming that the main barrier to food is insufficient purchasing power. The rise of NTAEs could also affect the cultivation of subsistence crops. Both of these alternatives were present in the non-traditional agricultural export boom of the 1980s.

Poverty and underdevelopment are not the main reasons why Guatemala’s export boom was unsuccessful for the rural resource poor. The institutions and policies that enabled NTAE production and especially the inconsistency and failures of these approaches signaled the collapse of export crops as a development strategy for the rural resource poor.

As the previous review of NTAE literature attests, these crops offer mixed benefits for the small producers who adopt them. In this case I discuss the benefits and drawbacks of NTAE adoption in the short-run and discuss policies that succeeded in supporting this development, as well as policies that were lacking. I then explore the long-term outcome of the NTAE boom in Guatemala, and find that gains were not sustained. I end by discussing NTAEs as a part of the
larger agrarian structure. I speculate that while the gains from NTAEs may be uncertain, they have more potential than other agricultural products to act as a development tool and improve well-being. Despite that, the legacy of extractive agriculture and land concentration is likely a large contributor to high national food insecurity.

The evolution of the cultivation of non-traditional agricultural exports in Guatemala has been studied extensively. In Guatemala, NTAEs refer to crops that were mostly promoted as an economic development strategy in the western highlands. This area has a large concentration of Maya Indians and has a particular temperate climate that is well-suited to growing snow peas, broccoli, cauliflower, and other cool climate vegetables (von Braun, Hotchkiss, and Immink, 1989). This area also has traditionally very high rates of poverty and a majority of the farmers in the region grow a mix of maize and beans (milpa) for subsistence (von Braun et. al., 1989). The NTAE crops represent a divergence in Guatemalan agriculture because they were mostly grown by contract farmers on small plots, while the majority of Guatemala’s main exports (coffee, cotton, sugar, bananas) are grown on large plantations and controlled by a relative few (von Braun et. al., 1989).

Guatemala’s western highlands and non-traditional agricultural exports had all the appearances of a successful development strategy. First, NTAEs, notably snow peas and cauliflower generated almost 50 percent more income than selling traditional crops like maize (Krznaric, 2006). NTAEs represented a large increase in the economic well-being of the highland population and at least in the short-run, all but the smallest farms were able to adopt and realize this increased income (Carletto, de Janvry, and Sadoulet, 1999).

Institutions both within Guatemala and also in the international community initiated the adoption of NTAEs. The US Agency for International Development (USAID), with the Latin
American Agribusiness Corporation (LAAD) funded ALCOSA (a food processing and export company and a subsidiary of the American company Hanover Brands) to “open up the export channel” (von Braun et. al., 1989). Though this happened in 1980, in 1983 the Caribbean Basin Initiative in the United States codified US support for NTAEs, providing funding and preferential trade agreements to these new agricultural exports (Carletto, de Janvry, and Sadoulet, 1999). Because plots are very small (less than one hectare in many cases) but labor was in large supply, a labor intensive crop that required careful monitoring was well-suited to the area and provided a lot labor absorption (von Braun et. al., 1989; Hamilton and Fischer, 2005; Carter, Barham, and Mesbah, 1996).

The labor for each farm was usually provided by the family, so there were incentives for careful monitoring, high productivity, and quality assurance (von Braun et. al., 1989). Although initially ALCOSA contracted labor out to big farms, in 1980-81, all production was transferred to small farms to realize this comparative advantage in product monitoring (von Braun et. al., 1989). Another advantage of the NTAE boom in the highlands was the forward and backward labor linkages and additional labor absorption that this represented. This took the form of contractual relationships with processors that resulted in employment in processing and packing plants (von Braun et. al., 1989; Carter, Barham, Mesbah, 1996). One concern was the price volatility of both input costs (i.e., petroleum based fertilizers and pesticides) and prices received. The short harvest times and successional planting mitigated this volatility, which allowed farmers to spread their risk and recoup losses from one harvest relatively quickly (von Braun et. al.; 1989, Krznaric, 2006). Another concern was the subset of farmers that were able to access loans and credit. Immink and Alarcon (1993) find that these credits were biased towards those who were literate, which represents a class discrimination. Lastly, von Braun et. al (1989)
documented the phenomenon that there was some spillover between an adoption of NTAEs and increases in maize yields, probably because of increased fertilizer use and the beneficial affects of nitrogen fixation from the snow peas. This made the tradeoff between subsistence crops and NTAEs less severe than it might have been.

There were several policy initiatives that encouraged the growth of the NTAE sector in the highlands. Besides the international aid agencies that provided funding and facilitated the private sector’s involvement with the smallholders, the Guatemalan government played an important role. In the late 1980s, the government made, with varying degrees of success, specific attempts to adjust the exchange rate to benefit the entire export sector (Thrupp, 1995). Also the government provided some technical training and infrastructure development (e.g., cold storage) to growers through the Instituto de Ciencias y Tecnologías (von Braun et. al., 1989). The Institute of Nutrition of Central America and Panama provided processing equipment and the Guatemalan Banco Nacional de Desarrollo Agrícola made farm level credit available to small holders to help manage their startup costs (von Braun et. al., 1989). Additionally, AGEXPRONT, a private organization of producers, was created specifically to facilitate communication between the state and various sectors of the NTAE boom in order to convey the demand for institutional arrangements (Damiani, 2000)

One large success story in the development of NTAEs in the highlands was the Cuartos Pinos cooperative. This cooperative (which had thousands of members at the height of the boom in the late 1980s, early 90s) was started in 1979 with assistance from the Swiss Group, an NGO from Switzerland that was doing economic development in the aftermath of the 1976 earthquake (Thrupp, 1995; Carletto, Talip, Angeli 2011; von Braun et. al. 1989). The cooperative, though not a public entity, performed all the functions that a state might to correct market failures and
provide complimentary services to ensure that gains from the boom were sustainable. To support the development of NTAEs, the cooperative provided access to credit, managed a price band system that reduced risk, and offered insurance through limited liability loans (Carletto, de Janvry, and Sadoulet, 1999; von Braun et. al. 1989). The cooperative also helped manage collection, processing and marketing—first exclusively to ALCOSA and then in the late 1980s branching out to other competitors and even directly marketing to some American supermarkets (von Braun et. al. 1989; Carletto et. al 2011). In this way, the cooperative facilitated the correction of informational asymmetries that would have otherwise plagued these smallholders (Carletto et. al 2011). This increased competition benefitted cooperative members because it increased demand (and prices) for their products (von Braun, et. al. 1989).

Another function of the cooperative was investments in human capital. This took the form of adult education, scholarships for secondary education for members’ children (specifically aimed at reducing child labor in the production of NTAEs), and the provision of healthcare workers in villages where the cooperative was active (Carletto et. al 2011). Von Braun et. al. (1989) found that though cooperative members did use part of their income to increase food consumption, this did not translate to a decrease in child malnutrition (c.f. Immink and Alarcon, 1993). The institutional support of the cooperative, for both market and social goods, was crucial to the short-run successes of the NTAE boom in the highlands.

However, problems and risks in the boom surfaced rapidly. First, there were problems associated with the use of family labor, particularly child labor and overwork. Second were the aforementioned problems in price volatility. Though the characteristics of snow pea cultivation partially alleviated this problem, income variability was fairly extreme. What was initially thought to be a pattern of seasonal price variance in the late 1980s ceased to be a pattern and
price fluctuation became a serious problem for farmers (von Braun, et. al. 1989). Another problem that exacerbated income variability were the detentions of exports as they entered the US due to pesticide residues. Between 1984 and 1994 there were over 3,000 detentions of fruits and vegetables by the US Food and Drug Administration (FDA), which were valued at over $17 million (Thrupp, 1995). The problem of pesticides and product detentions was a problem not only because it caused incomes to become variable and to fall, but also because major ecological problems developed (Carletto, de Janvry, and Sadoulet, 1999). The first of these was pest resistance, probably due to the overuse and misuse of pesticides which also contributed to detentions by the FDA (Carletto, de Janvry, and Sadoulet, 1999). As this happened, farmers, acting on inadequate information, simply increased their use of pesticides, exacerbated by the resistance problem and increasing their input costs enormously, a process that Thrupp calls the “pesticide treadmill” (Thrupp, 1995). Because of these detentions, in the 1990s Guatemala lost its competitive edge in vegetables as companies moved to other countries that had better pesticide regulation, such as Costa Rica (Julian, Sullivan, and Sanchez, 2000). Soil exhaustion and soil degradation from pesticides and other agri-chemicals put increased pressure on already scarce land (Carletto, de Janvry, and Sadoulet, 1999).

At around the time when detentions of crops due to residues was becoming a large problem (the largest amount of detentions occurred in 1993), the Cuartos Pinos cooperative began to fall apart (Thrupp, 1995; Carletto, de Janvry, and Sadoulet, 1999). The decline of the cooperative had several causes. First, it was undercapitalized due to decreased international funding and a significant default rate on loans by members, who were themselves taking losses because of FDA detentions and other pressures (Carletto, et.al. 2011). On the verge of bankruptcy, Cuartos Pinos was unable to perform its essential market functions of supplying
information, technology, and marketing assistance, let alone promote sustainable agricultural practices, which may have decreased the “pesticide treadmill” effect, or research new crops or marketing options (Carletto, et. al. 2011). Additionally, Krznaric (2006) notes that as pesticide use became a problem, processing companies shifted some of their contracting back to larger farms that had the capital to invest in phytosanitary inspection equipment. When Cuartos Pinos ceased to function, there was no other institution to correct market failures and provide the necessary support to sustain the success of the NTAEs.

For small farmers that managed to keep producing NTAEs after the collapse of the collective, there have been mixed gains over time. Several studies that have looked at the impacts of NTAEs on well-being in the western highlands have found that, in general, welfare has improved over time (see Hamilton and Fischer, 2005, Hamilton and Fischer 2003, Carletto et. al. 2011; Carletto, de Janvry, and Sadoulet, 1999). This is not necessarily an outcome that can be attributed to the presence (or lack thereof) of successful NTAEs. It is likely that the presence of NTAEs, in combination with other development strategies that have, on balance, improved income. Carletto et. al find that, as measured by income, farmers that adopted NTAE crops, whether or not they persisted through the 1990s or abandoned production after the boom as problems arose, are no better off than farmers that never adopted NTAEs, though the income of all producers surveyed has increased. This is true even though the adopters tend to consume more (Carletto, et. al. 2011). The only group that did significantly better in terms of durable assets were early adopters who then abandoned the enterprise in the early to mid 1990s (Carletto, et. al. 2011). This group may be an exception, however, in that to adopt early and abandon after the boom period suggests some access to accurate information about market trends. In general, it appears that this access to information is not widespread, leading to the interesting fact that there
was no difference, in the long-run, between adopters and non-adopters. Another troubling finding comes from Steinburg and Taylor (2009) who study maize and maize diversification. They find that, contrary to earlier studies that suggest that there is no tradeoff between cash and subsistence crops, there has been a tradeoff observed recently. They attribute this tradeoff to land being continually subdivided and a lack of viable alternatives for income generation to growing export crops. This has forced people to substitute NTAEs for maize given extreme space constraints (Steinburg and Taylor, 2009). They also point to directives from AGEXPRONT that have strongly encouraged farmers to put their best land into growing export crops (Steinburg and Taylor, 2009). They see this pressure as having the potential to negatively affect food security, which it should be underscored, is also determined by access to preferred food.

Another layer of complexity is added to our understanding of how the long run has affected by NTAE producers when we look at the surveys conducted by Hamilton and Fischer of small holders in the western highlands (2003 and 2005). Hamilton and Fischer find that while scholarship (much of it reviewed here) finds the long-term effects of NTAEs on well-being to be negative, producers’ perceptions of their well-being over time are positive (Hamilton and Fischer, 2003). They also find some other positive trends: a rebound in the market for Guatemalan vegetable markets, as seen by increased exports in the early 2000s and also the possibility that the concentration of land has weakened a bit—in their survey they found that 37 percent of their sample had purchased land since the boom (Hamilton and Fischer, 2005). Their research on perceptions of well-being roughly reflect the conclusions of the Carletto et. al. study in that most farmers seem to have had improved livelihood, made possible by NTAEs or something else. It also suggests that there may be reason to believe that NTAEs are regaining
their competitive advantage and that, in the future, they may produce more economic gains for small producers.

I want to briefly outline the historical context of Guatemala to put in perspective its high food insecurity. Guatemala has one of the highest GINI coefficients in Latin America (.483 in 2006) and also one of the most inequitable concentrations of land (World Bank, 2006). This inequality goes back to colonial legacies and to the production of traditional export crops (Gauster and Isakson, 2007). The civil war, which ended in 1996, is considered to have been fought, at its core, over control of the land by a small group of elites. Korovkin (2006) writes about the concentration in the sugar industry, and much has been written about the conflict over bananas and American involvement on behalf of the United Fruit Company in 1954. Robert Williams, writing in the 1980s in response to the (then) “new” agricultural export led growth strategy, makes parallels with the cotton and cattle booms in Central America after WWII (Williams, 1986). He notes how these strategies too were billed as essential for poverty reduction and how they created crises by expropriating land from the poor and wreaking environmental havoc, though they did increase national income (Williams, 1986). In the more contemporary literature, Gauster and Isakson’s informative piece shows how market-assisted land reform following the 1996 Peace Accords was a failure. Land remains exceptionally concentrated in Guatemala.

I also want to note that, in 2009 (the most recent year available), snow peas and broccoli/cauliflower (the latter two grouped together) were the only non-traditional agricultural exports to make Guatemala’s top twenty agricultural exports (snow peas were 15th, cauliflower/broccoli was 16th) (FAO, 2012). Traditional exports, like coffee, sugar, bananas, and spices continued to dominate heavily. These crops are all grown on huge plantations and are
controlled by elites, large national exporters, and multinational companies (von Braun, et al. 1989). Guatemala’s GDP is still dominated by agriculture, with 13% of GDP derived from agricultural products in 2010 (World Bank, 2012).

In Guatemala, the effects of the adoption of non-traditional agricultural exports on smallholder well-being, and specifically food security, are mixed. In the short-run, NTAEs raised income, and with proper institutional support, were able to engage in actual human development and improve education and healthcare, in addition to providing sustainable livelihoods. There is some evidence to suggest that increased incomes contributed to increased food security. In the short-run, food consumption (as in purchase) increased as producers moved some of their subsistence crops in to NTAEs and there were some yield increases in subsistence crops due to spillover effects. But several studies show that increased purchase did not necessarily increase food security within households. In the long-run, the benefits garnered from NTAEs were very volatile and many producers abandoned cultivation because their income needs could not be met or were too uncertain to stay with NTAEs. This suggests that institutions are crucial to successes of non-traditional agricultural exports and without this kind of support, these crops offer little as solutions for poverty and food security.

**Conclusion**

In this paper, I have shown the linkages between the rise of non-traditional agricultural exports and food security among rural agricultural producers and laborers. I explained the position that the literature has on these linkages and I have categorized these connections as acting (broadly) through policy, market effects, macroeconomic conditions, and historical preconditions. The study reviewed the histories of each of these booms and pointed out developments that either improved or were detrimental to the food security of the rural resource
poor agricultural producers and laborers through either changes to incomes or effects on subsistence production.

My conclusion, that Chile’s export boom was more conducive to encouraging food security because of sustained and widespread employment opportunities at various levels of production, is important. It suggests that if wages are sufficient, sustained employment is an excellent way to combat food insecurity. It also suggests that even if there are structural changes in land markets and a concentration of land due to increased demand (as the value of agricultural exports increase and especially, as in the case of Chile, when there are economies of scale to be exploited) food security may still improve if the landless are compensated with employment. In Guatemala, though many conditions aligned to make the boom period successful, the gains for smallholders proved to be very dependent on institutional arrangements and when these were not sustained, livelihoods could also not be sustained. All this had a detrimental affect on food security and the inability of the Guatemalan state to ensure continued support for such a development program is a testament to the low level of development in that country.

However, my conclusions leave me with more questions than answers. My argument rests on the idea that food security is consistently improved by raising incomes. However new research on the economic rationality and choices of the poor suggests that more income may not translate in to more calories consumed, even if more calories are very necessary for well-being (see my previous endnote on the work of Banerjee and Duflo). Also, the question of spatial differentiation looms large in both cases. In Chile, it seems that entire regions were left out of the export boom because of insufficient natural and built resources. In Guatemala, development of NTAEs was focused on one region. This begs us to ask, how do we understand NTAEs as a
development strategy if it is still dictated by market interests looking for the greatest return rather than broad based growth? Clearly the comparative advantage that many developing countries have in agriculture should be used to the greatest effect, but how do institutions and governments ensure that gains from this comparative advantage distributed fairly? Institutional support seems to be crucial in helping the rural poor gain the resources that promote sustained access to the gains of these export markets. But is it possible for the market to provide these “goods” or must governments step in to fill the gaps?

In order for NTAEs to have any effects on food security as a development strategy, the broader objective must be spreading gains and maintaining consistent institutional support that is specifically directed at fixing market failures and improving the consumption of the rural poor. Without this kind of focus, or a thorough understanding of how specifically NTAEs can create displacement and uncertainties, or alternatively create sustainable livelihoods, issues of food insecurity that are specific to rural populations will not be addressed.

Lastly, I think that we cannot forget the idea that there may be a paradox in rural agricultural workers themselves going hungry. The classical economic view that gains from trade should always be realized and that there is efficiency to be gained in the trade of all goods has been the dominant model for a long time. However, in the course of this research, I found myself asking: is it impossible or irrational to think that food, because it is vital for life, is a good which should be produced, marketed, and traded differently? I do not have answers to these questions. But I would like the phenomenon I have explained here, of how food exportation may affect the food security of the people producing it, to encourage examination of the global trade in food. If we as a global society wish to end hunger in a world of ample food production, we
must closely examine our systems of food production and distribution to determine if they are what we want, without using economic efficiency as the only criteria.
Works Cited


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**End Notes**

1 In this paper, I am more interested in actions, like employment or switching cultivation to

2 This debate, between Modernization and Dependency Theorists has a long history that shall not

be rehashed in these pages. It is important to recognize, however, that it forms the underlying

tensions in this paper. While NTAEs may represent a transfer of natural resources and

productive labor, via the products produced, to the Global North, it is also hard to see other

alternatives for livelihoods and income. And there is little argument that these countries do hold

a comparative advantage in agricultural goods, which can only be realized through trade. My

analysis adds to the literature in that it tries to find a middle ground between these two schools

that looks for policy solutions to fix market failures and create opportunities for those with little

power to influence systems of production. Though I do not find that the export booms in either

of my cases had generalized positive effects on rural populations, they were not completely

extractive. It is important to understand that the structural changes induced by the adoption of

NTAE crops created both opportunities and displacement. Seeing why this differentiation exists,

and how policy, market effects, macroeconomic conditions, and historical context affected the

gains in food security breaks with the paradigm of export led growth either being the only

alternative or inherently problematic for human development. For a good explanation of this

debate see: So, 1990.


4 Another significant level of analysis that complicates discussions of access and

distribution is the differentiation between the household and the individual. Though I do

not differentiate in my literature review or case studies about to whom, the individual or

the household, the inclusion of broad based growth may apply, it is worth noting that these

two are not the same and may even be affected differently by a growth in non-traditional

agricultural exports. Maxwell and Smith (1992) provide an excellent overview of the

problems with food security and intra-household distribution.

5 For the most thorough explanation of how dependency is maintained and the mechanisms

by which is “under-develops” periphery countries, see the seminal work of Cardoso and

Faletto, *Dependency and Development in Latin America* (1979). Also, for a useful overview

of the evolution of dependency theory, see Vernengo (2006).

6 This disagreement relates to my earlier note about measures of food security. Both

Wimberly and Bello and Garcitou and Bello use food supply (calories per capita and protein

per capita) as their dependent variable for food security. Measured this way (which, as

noted above, may be problematic), foreign exchange and economic growth do increase food

security. I find support for this in Jenkins and Scanlan, where they find that well GDP per

capita has positive effects on food supply and child hunger—their variable that gets at
access to food. They also find that the supply of calories has a small positive effect on child hunger, suggesting the presence of a trickle down factor.

7 For the historical legacies of large farm bias see Berry (1998) and von Braun and Kennedy (1986) for an in-depth explanation of how the taxation of agricultural imports affected NTAE production.

8 There is a large body of literature, which I will not discuss here, that argues about whether the story of Chile’s successful development can be attributed to the neoliberal reforms brought about by the military or whether there were other causes, such as government intervention (as in, the government deviated from its stated position of neoliberalism) or larger macroeconomic conditions. For a thorough discussion of this debate, see Silva (1996).

9 I want to note that in the literature, NTAEs in Chile may refer to fish and timber, as well as fruit, all of which were not traditional products for export. I mention timber and fish in this study only because their development and the policies surrounding them had effects on the fruit sector. Schurman (1996) writes a lot about the policies related to these other sectors.

10 Again, this speaks to the complication of the household distribution in food security.

11 The last time a Land GINI (measuring inequality in land distribution, with 0 being perfectly equitable distribution and 1 being perfectly unequal) was done in Guatemala was 1979 and it was .84 (Carter, Barham, and Mesbah, 1996). While it is hard to say what it is now, studies (see Gauster and Isakson, 2007) suggest that little has been done to redistribute land.

12 For a complete overview, see Richard H. Immerman’s book, The CIA in Guatemala: The Foreign Policy of Intervention.
Table 1. Summary: Effects of Non-traditional Export Crops of Rural Food Security

<table>
<thead>
<tr>
<th>Market Effects</th>
<th>Beneficial for the Food Security of Poor Rural Producers</th>
<th>Detrimental to the Food Security of Poor Rural Producers</th>
<th>Considerations and Confounding Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- A crop requires a lot of labor, so employment (and livelihoods) are created</td>
<td>- A crop is capital intensive, so the barriers to entry are too great for poor rural producers to become involved.</td>
<td>- Depending on if economies of scale are efficient for a particular crop, the structure and distribution of land may be altered. If a crop requires a lot of capital and benefits from economies of scale, it may put pressure on smallholders to sell their land, which can have detrimental effects on food security. However, some crops actually favor small farms, which may facilitate a transfer of land to smallholders.</td>
</tr>
<tr>
<td></td>
<td>- A crop has no economy of scale, so it is efficient for smallholders to cultivate it (sometimes more so than large farms)</td>
<td>- A crop is mechanized and so creates few employment opportunities</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Government Policies</th>
<th>Beneficial for the Food Security of Poor Rural Producers</th>
<th>Detrimental to the Food Security of Poor Rural Producers</th>
<th>Considerations and Confounding Factors</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>- Policies that provide institutional support in the form of information, inputs, infrastructure, credit, or insurance. These supports allow poor rural producers to participate in export booms as producers.</td>
<td>- Policies that support those that already have land and capital encourage the rural poor to become laborers on farms rather than own the means of production. These wages are usually insufficient to significantly raise incomes and impact food security.</td>
<td>- In some cases, if a crop has created a need for labor, rural wages can increase and (especially as profits increase) trickle down to income increases for the poor. - Sustained institutional support is important for all kinds of policies. Policy in the long term will allow initial displacements to even out to a new equilibrium, but if policy is inconsistent, it may force producers who need to institutional support out of the market.</td>
</tr>
<tr>
<td>Macroeconomic Conditions</td>
<td>-Stable and undervalued exchange rates keep exports competitive, which makes exports profitable and in theory some of this profit may trickle down to rural producers.</td>
<td>-Volatile or overvalued exchange rates may discourage exports and undermine investment in agriculture.</td>
<td>-Stability is an important, because it encourages further expansion and investment in agriculture and sends signals to producers of all sizes about what their future cultivation should be.</td>
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<tr>
<td>Historical Conditions</td>
<td>Sustained pro-poor policies; land redistribution.</td>
<td>Sustained income and asset inequality, especially in land redistribution.</td>
<td>It is difficult to be specific about a large phenomenon like history, but the literature makes it clear that inequality is a persistent barrier to access to food.</td>
</tr>
</tbody>
</table>