Malawian Agriculture: The Commercialization Challenge

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Introduction

Malawi represents a prototypical low-income country struggling to provide a more prosperous future for its citizens. With relatively strong, but highly variable, economic growth rates (e.g. 1.9% to 7.0%) over the last eight years the hope was that a significant number of Malawians would be lifted out of poverty. A productive agricultural sector, a strong performance in the service sector, and an emerging mining sector (e.g. uranium) drove these positive and encouraging growth rates. However, fiscal and monetary mismanagement, public sector scandal, poorly targeted and inefficient public spending plus an investment climate that discourages private investment have constrained widespread economic progress. Slightly over half the population (50.7%) lives below Malawi's poverty line with a quarter of the population living in extreme poverty. While improvements have been made in literacy rates, HIV prevalence, and life expectancy Malawi remains one of the poorest countries in the world with a Human Development Index (HDI) ranking of 170 out of 186 countries (World Bank 2013).

Lea and Hanmer (2009) evaluated the growth drivers and development constraints facing this landlocked, densely populated country. The authors found that agriculture accounted for nearly 75% of the economic growth, particularly the export-oriented tobacco sub-sector that has transitioned from an estate to a smallholder dominated structure. Agricultural production and policy, and even politics, is driven by the maize sub-sector. Sixty percent of the national caloric consumption comes from maize, nearly all farmers grow maize, and over 50% of the farmers only grow maize. Lea and Hanmer find, however, that the maize sub-sector does not drive growth but low and high maize yields (and prices) do drive volatility in Gross Domestic Product. Most of the maize production is consumed by the household and does not reach the maize market.

A Housmann, Rodrik and Velasco (2005) growth diagnostic (HRV Constraints Matrix) is applied by Lea and Hanmer to identify the interacting and binding constraints that mitigate growth, particularly for smallholder agriculture seeking crop diversification opportunities. A partial, but representative, list of these issues is:

- Inadequate access to credit
- High interest rates and interest rate spreads
- Virtually no savings
- Inefficient and ineffective financial sector
- Poor, small market neighbors limiting the possibility for lower-cost export growth
- High transport costs
- Unreliable electricity (power outages)
- Dependence on rain-fed agriculture with limited investments in irrigation
- Poor quality of education
- Land fragmentation
- Government failures (e.g. exchange rate and fiscal mismanagement)
- Market failures (e.g. lack of competition within supply chains).

Analysts recognize the danger to any economy of depending on one export commodity to drive the economic growth of a country. In the case of Malawi, tobacco, a high-value export crop, along with an overvalued currency, combine to produce an economy that (1) is sensitive to tobacco export revenue, (2) undermines the competitiveness of other agricultural and non-agricultural exports, (3) limits growth in the non-traded service sector that faces no import competition, (4) limits opportunities for import substitution, and (5) discourages the development of new export industries. Malawi currently is searching for strategies that will diversify and commercialize the agricultural sector to reduce its dependence on the tobacco sector that is under some threat by the European Union's Framework Convention on Tobacco that would restrict or ban the use of flavorants in burley-filled tobacco products. The goal is a more locally and regionally competitive agricultural sector where markets operate efficiently for the benefit of both producers and consumers.

Over two decades ago, Michael Porter (1990) proposed a valuable analytical framework for understanding the competitive advantages of nations, but not limited only to nations (Figure 1). The "diamond" model focuses on four key determinants of industry competitiveness: firm strategy, structure and rivalry; demand conditions; related and supporting industries; and factor conditions. The determinants are mutually reinforcing so countries, or sub-regions within a country, that demonstrate favorable conditions in all four determinants can potentially create a competitive advantage in the marketplace, both nationally, regionally and globally. Competitive advantage is possible if only one or two of these determinants is strong (e.g. for natural resource based industries like mining and agriculture) but this advantage generally is not sustainable when additional value-added (i.e. processing) is demanded by the market.

In the case of Malawian agriculture, firm strategy, structure and rivalry is simple yet complex. Although the agricultural sector is dominated by smallholder operations, their ability to diversify, commercialize and compete in a dynamic marketplace will require education, collaboration, and the willingness to adopt new, profit enhancing agricultural practices. Demand conditions, in Porter's framework, reflect on the market conditions within the country. Strong domestic demand strengthens the firms as they compete with one another (i.e. rivalry) so they are prepared to compete regionally. Demand conditions in Malawi's case will include economic opportunities in both domestic (e.g. vegetables) as well as foreign markets (e.g. soybeans). Related and supporting industries are the agricultural sector's suppliers (e.g. fertilizer) or complementary activities (e.g. agricultural experiment station research) that enable the industry to compete on a larger stage. An understanding of the factor conditions for competitive advantage centers on the following question: does Malawi have the physical, human, knowledge, capital and infrastructure resources to be competitive in the agricultural sector?

Two additional, non-industry determinants are added to the "diamond" model: chance and government. Neither is under the control of business firms but their influence can impact the competitiveness of the agricultural sector for good or ill. Chance for the Malawian agricultural sector has centered on the negative impact of drought and floods on maize yields. But uncertainty for smallholders emanates from a host of sources such as policy decisions by foreign governments, price shocks (i.e. oil), wars, and technological change. Chance events create discontinuities in the competitive environment that must be recognized and responded to in order to sustain a competitive position in the marketplace.

In the case of Malawi, the role of government plays a critical role in promoting the competitiveness of the agricultural sector because government influences all four determinants, either positively or negatively. Monetary and fiscal policy, public investment, governance, rule of law, and the regulatory environment can encourage or discourage competitiveness. Nations succeed in the global marketplace, according to Porter, not as an isolated industry (e.g. farm production) but as a cluster of vertically and horizontally integrated businesses in the value chain supported by complementary government policy.

The Domestic Competitive Environment

Country-Level

Table 1 contrasts economic development indicators across four countries: Burundi, Malawi, Rwanda, and Uganda. All four countries share key similarities; they are (1) relatively small in geographic area, (2) landlocked, (3) predominately agricultural, (4) in the same climatic region, and (5) facing rural population pressures with a limited arable land base. Malawi compares favorably on education, health, and water performance indicators, indicating that progress on these Millennium Development Goals may be achieved. Yet the heavy reliance on foreign aid, the low level of foreign direct investment, and the lack of reserves indicate that Malawi struggles for sustained economic growth.

A key challenge to economic growth, as revealed in Table 1, is the low-level of public sector governance, broadly defined. The selected Ease of Doing Business indicators are disturbingly low with the exception of registering property and protecting investors. The Global Competitiveness Index for Malawi is one of the lowest of the 142 countries in the data set. Entrepreneurship is weakened by a policy and operational environment that discourages risk taking and trade. High transaction costs of doing business make investment in support of diversification unprofitable, particularly for smallholder farms who do not have the resources, either human or financial, to navigate the government bureaucracy.

One striking comparison in Table 1 is the contrast in performance indicators between Rwanda and Malawi, particularly for those related to entrepreneurship. Rwanda clearly has taken policy steps to differentiate itself in the Great Lakes Region of Eastern Africa. For example, the Ease of Doing Business Index for Rwanda is 32 while Malawi has an index of 171 out of 189 countries. The Corruption Perceptions Index (49 vs. 91) and the Global Competitiveness Index (63 vs. 129), taken together, support the conclusion that Malawi's government sector has many operational and policy reforms to make and implement before Malawi's agricultural sector can compete in regional markets.

Agricultural Sector

Malawi has less agricultural land than the three comparison countries because one-third of Malawi's territory is classified as forest (Table 2). Otherwise the agricultural sectors are comparable except for several distinguishing indicators. First, there is more arable land per

person in Malawi than the other three countries. Although the difference is only by a factor of two in the cases of Burundi and Rwanda, this distinction may indicate that there is some maneuverability with regard to crop or enterprise mix. Secondly, Malawi's agricultural sector is productive, at least relatively to its comparable neighbors. Malawi's cereal yields, crop production index, food production index, and livestock production index are competitive. However, I would expect even more differentiation in the cereal yields and the crop production index given the high use of fertilizer in Malawi's crop sector. On the surface it is not clear that Malawi's input subsidy program is producing the sustained gains that have been claimed by the government and some analysts (this issue will be discussed in the following section).

Malawi's agricultural sector is dualistic in nature implying there is a cash, export-oriented production system and a subsistence, food crop production system. Given the transition from an estate-based production system for tobacco (burley) to a smallholder system in recent years, both systems exist on the same farm—small hectarages of both cash and food crops.

The cash, export-oriented system is captured in Table 3 where the agricultural exports for Malawi are listed. Tobacco and raw sugar are the two main exports, with tobacco clearly being the dominant crop. Cotton, tea and rubber are the other high valued export crops (on a per ton basis). Agricultural imports are of much lower economic value with wheat, tobacco, oils, powdered milk, and cigarettes topping the list. An entrepreneur, as he reviews the agricultural imports list, is looking for opportunities for profitably substituting domestic production for imports. Does Malawi have the competitive capability to produce wheat, soybeans, and dairy products?

Key Features of the Agricultural Sector

The Maize Culture

Chimanga ndi moyo-maize is life-reflects the importance of maize in the Malawian economy. Possibly corn in Mexico and Guatemala, rice in Asia, and bananas in Uganda have a similar cultural and economic role. Maize production occupies 70% of the cultivated land and 97% of the farming households grow maize (Mangisoni, et.al. 2011). Malawi ranks first in the world in per capita consumption of maize for food. Food security is the key determinant of maize acreage in Malawi; producers respond more to family consumption needs than crop price when making cropping decisions. Also, smallholders do not trust the market system to supply their consumption needs at an affordable price so they produce as much maize as possible (Takane 2008). Self-sufficiency rules the day.

Three varieties of maize are cultivated: local, improved open pollinated varieties (OPV), and hybrids. Lower-yielding local varieties are used for household consumption because of their favorable processing properties (e.g. a grain texture that makes it easier to grind in the home) while OPVs and hybrids are sold in the cash market. In addition, local varieties have a better taste, store for a longer period of time, and there is less grain loss during milling. New hybrids have made some gains in these areas but still represent less than 50% of the maize hectarage. Historically, there has been a lack research and development on maize in Malawi and as a result

the country has experienced a relatively low rate of adoption for improved varieties (Smale 1995).

Most of the country receives 800-1,200 mm of rain per year— adequate for rain-fed agriculture. However, droughts, floods and an uneven distribution of rainfall, both temporally and geographically, create significant uncertainty on the part of the maize-producing household. Farming units manage this uncertainty by (1) changing the hectarage devoted to certain crops, (2) diversifying, and (3) seeking off-farm employment or business opportunities. Table 4 illustrates the diversity of food crop areas across the eight agro-climatic areas. Maize is dominant in all divisions but pulses, cassava, sorghum, rice and ground nuts take up significant hectarage in certain areas where the soils and climate encourage their production. Some households adopt mixed crop-livestock farming systems to further diversify their income producing opportunities and manage uncertainty. Livestock activities include chickens, goats and cows.

Key determinants of cultivated farm size, common in most subsistence agricultural systems, are family labor availability and cash availability to hire labor during critical times of the year (e.g. land preparation, weeding, harvesting) and to buy inputs (e.g. fertilizer, pesticides). Only 15% of farming households have access to credit, 19% have some experience with collaborative associations (e.g. farming associations, cooperatives), and less than 5% of farming households report having utilized any type of management or agricultural technology training from agricultural extension services or NGOs. The lack of collective action within the smallholder sector explains, to a large extent, their lack of economic and policy influence.

Figure 2 illustrates the value chain for maize. It is important to note that nearly 75% of the maize marketed in Malawi goes through private traders or directly to rural consumers (Delagen 2012). Smallholders, estates, and informal (illegal) imports from neighboring countries supply intermediaries in the system. Smallholders sell maize, that which they do not consume in the household, to other households, to small intermediaries, and to ADMARC. Estates market directly to processors and animal feeders. Large-scale traders buy from smaller intermediaries and sell to retailers, processors, and NGOs and the World Food Program.

Tobacco Commercialization

Burley tobacco is the major cash crop for most smallholders and by far the dominant export crop for Malawian agriculture (Table 3). As a result, tobacco plays a prominent role in the economic development of the agricultural sector and the nation. Historically, most tobacco production was centered on large-scale estates under the protective umbrella of the Special Crops Acts. When these rules were repealed in 1994, thereby eliminating quota systems and control boards, smallholders responded to the market incentives by adding tobacco to their crop mix. Smallholders now account for 70% of Malawi's total tobacco production (Wood, et.al. 2013).

The commercialization niche for Malawi's tobacco production is as a low-cost filler for international cigarette companies. Specific agro-climatic regions of Malawi are ideal for rain-fed tobacco production. Tobacco production is labor intensive, there are few economies of scale, and the air-curing process does not require large capital investments. However, the working

capital requirements of tobacco exceed those of maize by at least a factor of 10 due to higher labor, seed, fertilizer, and other material requirements (e.g. bales).

Tobacco production produces relatively high incomes but at high risk (Tekane 2008). Average tobacco income is 4X that of maize production but the production costs are higher as well. With below average rainfall, production levels fall and revenues decline but the sunk costs of the crop remain. Also, associated with production risk is quality risk. Lower quality tobacco will be discounted significantly (US$0.50 to US$1.50 per kg) on the auction floor. This risk-return tradeoff plays an important role in smallholder decisionmaking.

The formal (legal, official) marketing channel for burley tobacco is one of the three auction floors: Mzuzu, Lilongwe, and Limbe. Smallholders are members of tobacco clubs, officially recognized (i.e. registered) groups of 10-20 farmers. Each farmer must sell one bale each year to be a member of a club. Tobacco bales (80-120 kg each) from the club are transported to the action floor by representatives of federated or umbrella farmer organizations: National Smallholder Farmers' Association of Malawi (NASFAM) and Tobacco Association of Malawi (TAMA). At the auction, the bale is sold, the price recorded, deductions made (e.g. taxes, fees, transportation costs) and the net price is sent to the club's bank account. Usually within three weeks, the club's treasurer calculates each member's share of the revenue and distributes the payment to the farmer.

Tobacco clubs may be the only means for smallholders to access credit markets. Banks rarely lend to smallholder tobacco producers so farmers, who are members of a club, can receive financing for fertilizer through the club. The club treasurer deducts the loan repayment from tobacco revenues before the final settlement payment is made to the club member. Because the risk of loan default is reduced, banks and financial companies are willing to lend funds to tobacco clubs. However, the financial viability of the club is dependent on the sales of tobacco. Without tobacco sales, the farmer club must wait to pay the smallholder until enough tobacco has been sold to pay off the farmer debt. This form of joint liability encourages farmers to screen potential club members to reduce the adverse selection and moral hazard issues that arise in these types of organizations.

But many smallholders produce small quantities of tobacco, less than a bale. They market their tobacco through unofficial channels, primarily to private traders that I will call "assemblers". These individuals, often some of the farmers themselves, buy small quantities of tobacco from producers, bale it, and sell it under their name at the auction. Tekane (2008) notes in his field research that a farmer with a bicycle can assemble small amounts of tobacco and increase his tobacco-related income by a factor of 7. These informal or unofficial traders (also referred to as intermediate buyers) provide (1) a market for farmers producing a small amount of tobacco, (2) a critical source of liquidity to the rural economy because they purchase tobacco with cash, (3) a marketing channel for smallholders who are not members of tobacco clubs, and (4) an important source of income for the trader/assembler. All you need is cash and a bicycle to enter this market!

Finally, how are tobacco-growing households different from non-growing households? Tekane (2008) found that tobacco-producing smallholders:

1. control and farm more land,
2. have more family labor (persons over 15 years of age),
3. have higher incomes,
4. use more fertilizer on their maize and have higher maize yields than non-tobacco growing households.

This final observation provides some evidence that participation in a cash crop enterprise produces important complementarities for other farming activities.

Farm Input Subsidy Program (FISP)

Agricultural input subsidy programs have a long, often controversial, history in sub-Saharan Africa. Governments and international development organizations have often utilized these programs to promote agricultural development and food security. Malawi has a long history of subsidizing agricultural inputs, particularly fertilizer via programs such as:

- Drought Recovery Inputs Project (1992-93)
- Starter Pack (SP) (1998-2000)
- Targeted Input Program (TIP) (2000-2005)
- Farm Input Subsidy Program (FISP) (2005 to the present).

Fertilizer, at commercial prices, is prohibitively expensive for smallholders because of a weak exchange rate and high fertilizer prices. But some analysts point out that according to official government data, Malawi has only produced surplus maize when some form of a fertilizer subsidy program was in place. In some years the current subsidy (FISP) accounts for 75% of the annual budget of the Ministry of Agriculture and Food Security (MoAFS). The FISP has changed continuously over its eight years of implementation with producers of tobacco, coffee, tea and legumes receiving subsidies in addition to maize smallholders. Currently the emphasis is on subsidizing maize seed (hybrid varieties) and fertilizer for maize and legumes. About 50% of all smallholders participate in the program.

The FISP has received an inordinate amount of research attention in recent years (Chibwana, et.al. 2012; Chinsinga 2012; Lunduka, et.al. 2013, Pauw and Thurlow 2014). Any evaluation of the FISP is guaranteed to be contentious. Proponents of the FISP argue that this smart subsidy is the only feasible way to revitalize Malawian agriculture and they point to the productive 2005/2006 crop season that produced a surplus of 53%. Skeptics point out that large increases in production have been due more to favorable weather than the increased applications of fertilizer and that the FISP is not producing a production based benefit-cost ratio greater than 1. Lunduka, et.al. (2013) argue that farm-level surveys do not support the official production gains, real maize prices have increased not declined, and that the country continues to import, both formally and informally, maize during the FISP implementation period. Other analysts counter that when an economy-wide assessment of FISP is conducted, with indirect benefits taken into account, the economy-wide benefit-cost ratio exceeds 1.5. The avoidance of widespread hunger is of obvious value to households and of immense political value to the government.

The key commercialization takeaway from the FISP research is that smallholders will manage their livelihoods by insuring an adequate maize supply for households before diversifying into other food or cash crops. The FISP creates the opportunity to realize higher yields, assuming favorable weather, giving the decision maker the flexibility to allocate other land to new activities. Nevertheless, the FISP crowds out other important strategic investments in irrigation and rural infrastructure, market linkages, credit availability, extension services, and research. Disturbingly, research indicates that the FISP is not responsible for any poverty reduction in Malawi (Lunduka, et.al. 2013).

Land Fragmentation

Other than their own human labor, land is the key productive asset for the majority of the people in Malawi. The average smallholder supports a family of five on a farm of less than one hectare. And due to matrilineal and patrilineal inheritance rules, this farm will be further fragmented in the near future. Table 5 illustrates the size distribution of farms in six villages (Takane 2008). Only in one village (Belo) is a significant percentage (23%) of farms greater than two hectares in size. In four of the other five villages, over 50% of the farms are 1.0 ha or less.

Land tenure in Malawi can be classified as public, private, or customary land. Traditional Authorities (i.e. tribal chiefs) or the government may own or hold in trust public lands. Private land has its roots in the colonial era when land was distributed to European settlers. Land in this category may be owned under freehold title, leasehold title or Certificate of Claim. Most estate agriculture is classified into the Certificate of Claim category. Customary land is managed under the customary law of each ethnic group. Approximately 70% of Malawi's land falls into this category and most of the land farmed by smallholders is in this category as well.

The property rights to customary land are managed as community property where local chiefs serve as the trustees over the land, representing the best interests of the citizens in the area. Chiefs also manage the land within the community by making land allocations to members of the community. Once a community member acquires a property right, the land can be passed along to heirs on a "quasi-permanent basis". This background paper will not go into the complex systems of virilocal and uxorilocal marriages, and matrilineal and patrilineal inheritance that exist within Malawi. The critical takeaway from an understanding of customary land holdings is that farm fragmentation and land scarcity will continue to challenge efforts at economic development.

Land acquisition or access occurs predominately through gifts, inheritance and marriage. Depending on village rules, land may be rented but rarely sold. But these practices are gradually changing. A "vernacular land market" is emerging in Malawi where the renting, buying and selling of land may occur within the framework of customary tenure (Chimhowu and Woodhouse 2006). Buyers may be (1) migrants without customary land rights, (2) anyone with a full-time job and political influence (e.g. government officials) who wants to invest in land, and (3) local customary land right holders who want to expand their hectarage due to existing land contraints. In all three cases the renters or buyers have the cash necessary to make the transaction. Most smallholders rarely have the level of disposable income or savings, or political connections, to carry out these types of transactions.

An alternative approach to relieve the land constraint is to resettle landless Malawians on former tobacco and tea estates (Mueller, et.al. 2014). In the Community-Based Rural Land Development Project (CBRLDP) each household receives two hectares, a small cash grant, and access to extension services and training. The authors' impact assessment found that these resettled farmers' households increased their food security, diversified their portfolio of both cash and food crops, and secured clear title to their land. The downside of this program includes (1) the remoteness of these resettlement areas, (2) limited access to markets for food crops, and (3) the lack of land security women in male-headed households.

Livelihood Strategies

All households manage an income portfolio to provide for human survival and flourishing. Smallholder households are remarkably creative in constructing a diversified portfolio of income-generating activities. As noted by Orr and Mwale (2001), smallholders are (1) active problem solvers, (2) sophisticated and linked to markets which gives them flexibility to respond to climatic shocks and price variation, (3) significant participants in off-farm income activities, and (4) remarkably adaptable to changing environmental, economic, social and political circumstances. According to these authors, livelihood strategies for smallholders fall into three general categories: agricultural intensification/extensification, livelihood diversification, and migration.

An agricultural intensification strategy entails a cropping pattern of cash and food crops that meets the household's income and consumption needs. Growing burley tobacco, hybrid maize, and a half dozen minor food crops, along with intercropping and multicropping, reduces risk and increases resilience. Using *dimba* land where irrigation is possible expands the production opportunities to vegetables and multiple crops per year. An increased use of commercial fertilizer increases yields across the portfolio and increased production translates into higher food security and income. Extensification is only possible in those villages where excess land is available or can be acquired by renting or through the vernacular land market. Wealthier farmers are able to expand their landholdings but this strategy is not available to the poorer smallholder.

Livelihood diversification is the major livelihood strategy for smallholders. Non-farm income sources include agricultural wage income, nonagricultural wage income and nonfarm self-employment. These activities may contribute 30-100% of the annual cash income for the household. In some cases, non-farm activities subsidize farming activities, particularly for those households that have little land and only grow maize. Wages for agricultural labor are generally earned during the land preparation, weeding, and harvesting periods of the maize crop cycle. Malawian agriculture is a labor intensive, hoe-based production system and maize yields are particularly sensitive to the timing of the first and second weeding of the crop (Orr, et.al. 2009). Delaying the first weeding by just a week will reduce yields. Therefore, the demand for hired labor is intense during the first weeding season, and this off-farm agricultural job provides a predictable source of cash income for poorer smallholders. Men may work outside the region, weeding over a six-week period in order to earn cash that is used to buy maize for their household during the lean season, or working for large farms or estates throughout the growing

season as seasonal workers. Women remain on the farm and are responsible for weeding their own maize.

Income from nonagricultural labor can be earned on a regular basis or on a casual basis. For example, a household member may have a job as a teacher, civil servant, night watchman, or as an employee with a private company. The most common casual, nonagricultural income is generated by small construction jobs in the community. Although fewer households participate in the nonagricultural wage market, the income from these activities generally exceeds that of farm-level income and supports the maize-centered production system of the household. Wiggins, et.al. (2010) point out that the future of smallholder agriculture in Africa is non-farm earnings in rural areas.

An important component of non-farm earnings is nonagricultural self-employment or microenterprises (Takane 2008). A partial listing of these activities is:

Trading
- Fish trading
- Wood/glass selling
- Tobacco trading
- Shopkeeping
- Maize trading
- Kerosene trading

Manufacturing
- Brewing/selling local beer
- Pot making
- Cooked-food selling
- Shoe repairing
- Dress making

Construction
- Carpentry
- Brick making
- Digging toilets/wells
- Plastering
- Making cattle enclosures

Other
- Hunting/fishing
- Prescribing traditional medicines
- Assisting the chief on land allocations

Non-farm self-employment accounts for the largest share of total household income in many smallholder households when compared to agricultural, off-farm agricultural, and remittance income.

Nearly 50% of the smallholder households will have someone in the family (a son, daughter, or husband) living and working in a town or city. Remittances from these urban migrants are an

important source of cash income for rural households. These "multispatial" households are less vulnerable and more resilient to economic events that are beyond their control.

Market and Government Inefficiencies and Failures

The governance shortcomings within the private and public sectors of Malawi were noted in the discussion of Table 1, where Malawi ranks poorly on the ease of doing business and corruption. Throughout the background reading for this paper, market and government failures represent an consistent undercurrent in most analyses. Favoritism, patronage, public policy discouraging entry into markets or the integration of markets, opportunism, government intervention in markets, high transactions costs that discourage smallholders from participating in the market economy, and required bribes are only a select number of inefficiencies and failures found in the Malawian economy (Cammarck 2010).

Chinsinga (2010) notes that the FISP is as much a political program as a food security program. The use of coupons to allocate fertilizer subsidies has produced ongoing abuses. Fertilizer coupons are distributed formally, as the program was designed, but then there is an informal distribution by political representatives (i.e. elected officials) to their current and potential supporters. Coupons are targeted to districts based on potential votes rather than on some incremental productivity measure. Rent seeking activities are evident in the award of FISP procurement and transport contracts as well. Competitive bidding practices are ignored and contracts are awarded to friends of politicians at higher costs than necessary. Government involvement in fertilizer distribution has crowded out some private sector suppliers. The popular appeal of paying 25% of the market price for fertilizer improves reelection chances but drives up the cost of FISP to an unsustainable level. Local chiefs have been caught up in this patron-client relationship, no matter who is in the government because all chiefs are now on the government's payroll and some high ranking chiefs are paid salaries that compare favorably to senior level government employees.

Nyongo (2014) indicates that even the maize market in Malawi suffers from inefficiencies, particularly in the short run (e.g. daily, weekly, monthly basis). A market is integrated when price changes in one location facilitate a price change in another location through the relatively free interaction of buyers and sellers. High transaction costs in Malawi (e.g. lack of price information that can be exploited by traders) discourage the spatial integration of the maize market. In addition to a poor road network, inefficient short run adjustment in the maize market is largely due to government intervention by the Agricultural Development and Marketing Corporation (ADMARC) and the National Food Reserve Agency (NFRA). Bans on private maize trading during lean seasons constrains the movement of maize and reduces human welfare.

As noted in the discussion of Michael Porter's diamond model, government policy can encourage or discourage the exploitation of a competitive advantage. Take for example Nyongo's (2013) analysis of soybeans as an export crop. Smallholders have experience growing soybeans for the domestic market, however tariff and non-tariff trade barriers discourage the commercialization of soybeans for the regional African market. Export bans, domestic market restrictions, and high cost export procedures (i.e. licenses, certificates and forms) discourage smallholders. Formal and informal roadblocks restricting the movement of commodities

increase the costs of transportation. Even though Malawi enjoys favorable agro-climatic growing conditions and an entrepreneurial smallholder sector, the transaction costs noted above swamp any advantage Malawi may have as a low-cost, competitive producer.

High transaction costs discourage participation in the formal markets for maize, tobacco, and soybeans and encourage the development of informal trading regimes. Unlicensed traders emerge throughout Malawi, often offering higher prices than formal traders in order to take advantage of regional market and government failures. The success of these traders stimulates increased government enforcement of restrictions, an action that then lowers farm-level prices. In summary, the high cost of entry into commercialization activities favors the established trading elite and mitigates the widespread development of smallholder agriculture.

Concluding Observations

The foregoing analysis, within the framework of Michael Porter's diamond model, reveals that any competitive advantage in Malawi's agricultural sector centers on the factor conditions of productive land and water, and the portfolio management skills of many smallholders. Land, rainfall and human labor combine to produce a wide variety of cash and food crops. Although periodic droughts and floods shock this agricultural system, it is remarkable that so many people can be fed utilizing so little land. Water for irrigation clearly is an underutilized resource in the agricultural sector. Small-scale irrigation projects are rare yet amazingly productive. One World Food Program irrigation project in the Phalombe district enabled the project participants (250 members in eight villages) to produce four crops a year, overcome drought, and further diversify their crop portfolio to take advantage of market opportunities. The Malawian smallholder has shown that he or she is capable of responding to market incentives provided they can trust the players in and the rules of the market.

Four general recommendations emerge from this background analysis. Greater commercialization opportunities can emerge if policy makers in both the public and privates sectors take steps to:

1. *Reduce transaction costs*. Smallholders will not participate in new crop ventures, export opportunities, or new technologies if their involvement jeopardizes the welfare of their households. The real and opportunity costs of market participation must be lowered if Malawian officials expect a supply response from smallholders. Improved rural roads, less bureaucratic red tape, more open markets, and smart, beneficial and sustainable government interventions will facilitate commercialization opportunities.

2. *Explore and exploit domestic and regional opportunities.* Potatoes, field peas, tomatoes, soybeans, pigeon peas, and groundnuts can be produced and sold in domestic and regional markets at profitable prices. For example, the average milk consumption in Malawi is 25% of the per capita consumption for Africa (Tebug, et.al. 2012). Is there a market opportunity here that has not been exploited for reasons that can be overcome? Experience indicates that barriers to entry in all these markets preclude any serious investment and market response. A public-private partnership to investigate agricultural export opportunities where market maps and

feasibility studies are completed, and business plans are implemented in a competitive environment would reduce the dependence on tobacco exports and foreign aid.

3. *Encourage group cooperation*. Smallholders have experience in working in groups; tobacco clubs and maize clubs have illustrated the benefits, and the costs, of competing in markets through a producer-based organization. Individually, most Malawian farmers do not have the wealth, knowledge, and resources to compete favorably in international, or even urban, markets. Village chiefs may provide one source of leadership support in promoting this hybrid of social and private entrepreneurship in the agricultural sector.

4. *Improve macroeconomic management*. As noted in Porter's diamond model for competitive advantage, government policies and practices impact for good or ill the four critical components of the framework: firms, factors, buyers, and supporting industries. Overvalued or undervalued exchange rates, high inflation, budget deficits and scandals, and the lack of transparency all contribute to an uncompetitive environment. Government must create a complementary macroeconomic environment to grow a more competitive agricultural sector.

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Figure 1: Determinants of National Competitive Advantage (Source: Adapted from Porter 1990)

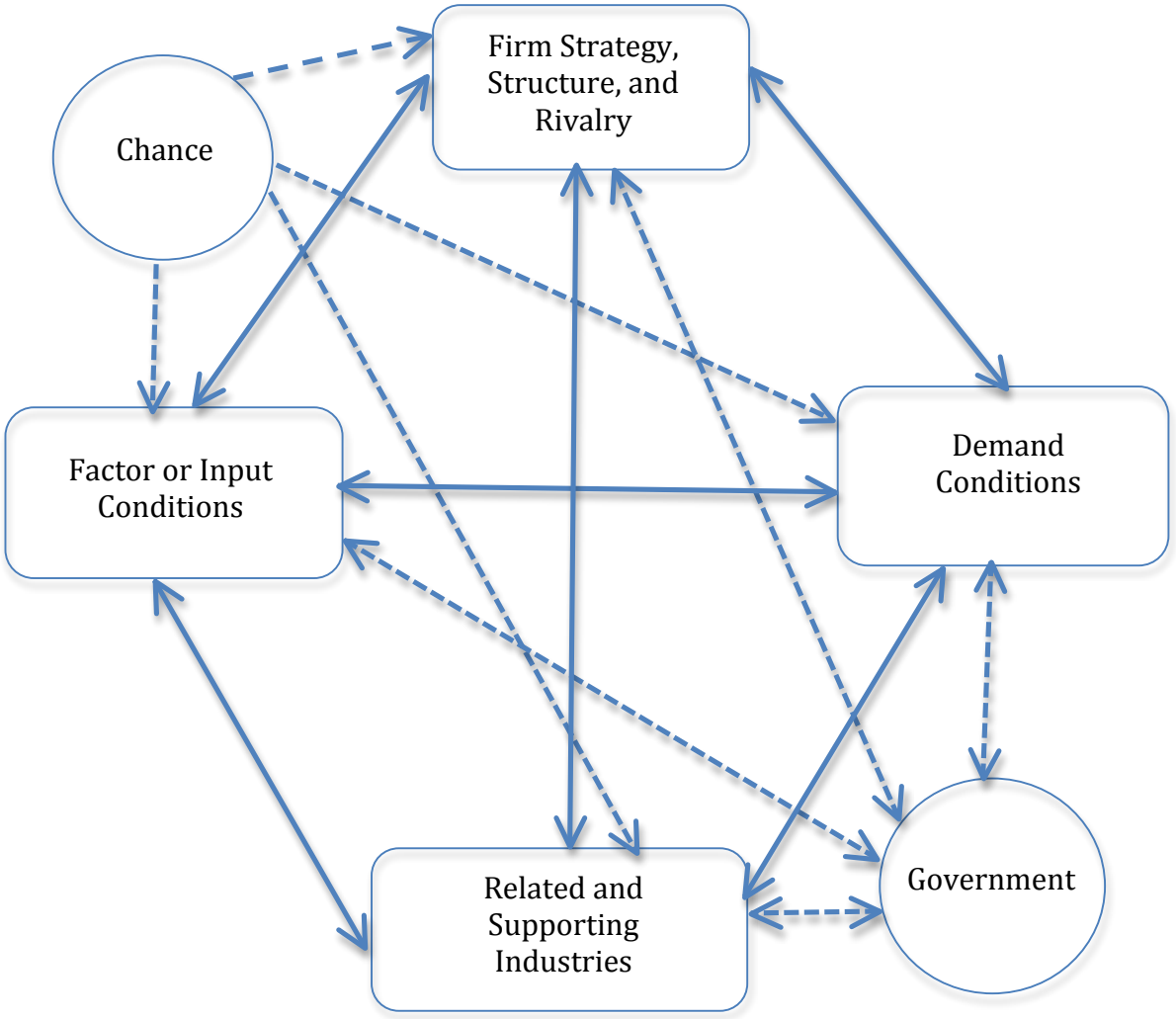
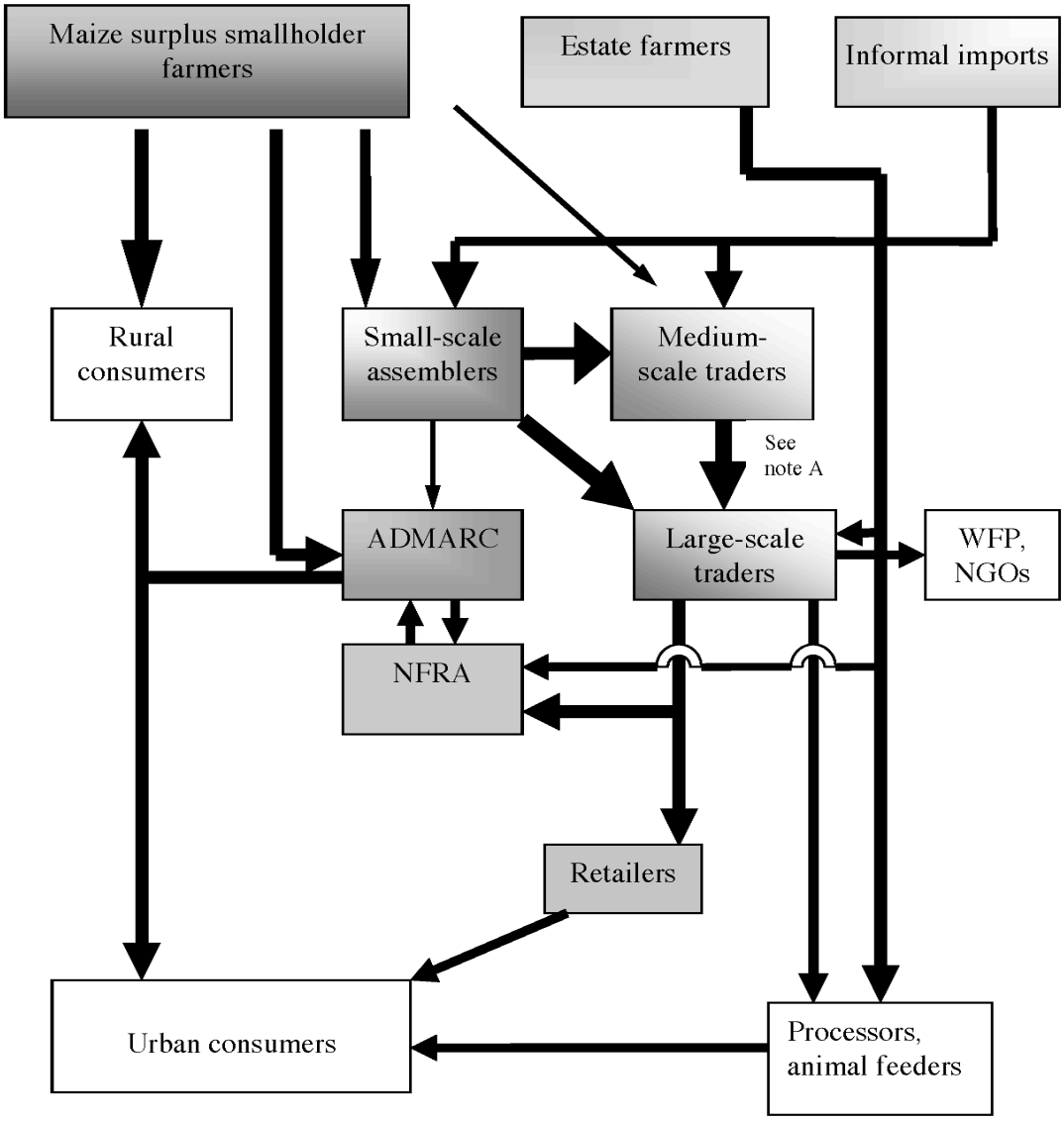


Figure 2: Maize Marketing Chain



Note A: transactions between medium-scale and large-scale traders can be direct sales or through warehouse-transporters who buy as agents for the large-scale traders.

Source: Jayne, et.al. 2010

Table 1: Comparative Performance Indicators for Small, Landlocked Countries in the Great Lakes Region of Eastern Africa

Performance Indicator	**Burundi**	**Malawi**	**Rwanda**	**Uganda**
Ease of Doing Business Ranking (1-189)[1]				
Starting a business	27	149	9	151
Getting electricity	161	183	53	178
Registering property	52	85	8	126
Getting credit	170	130	13	42
Protecting investors	34	80	22	115
Trading across borders	175	176	162	164
Enforcing contracts	177	145	40	117
Economy and Growth[2]				
Gross National Income Per Capita (US Dollars)[1]	240	320	600	480
Agriculture, Value Added (% of GDP)	41	30	33	26
Exports of Goods and Services (% of GDP)	9	30	13	23
Education[2]				
Literacy rate, adult total (% of people ages 15 and above)	NA	61	66	73
Expenditure per student, primary (% of GDP per capita)	33.5	7.8	8.1	7.6
Literacy rate, youth total (% of people ages 15-24 years)	NA	72	77	87
Energy[2]				
Access to Electricity (% of total population)	NA	7	NA	14.6
External Debt[2]				
Total Debt Service (% of exports of goods, services, and primary income)	8.5	2	2.2	1.4
Net official development assistance (current US$)	522 million	1,175 million	879 million	1,655 million
Total reserves (includes gold, US$)	308 million	245 million	848 million	3,167 million
Foreign direct investment, net inflows (US$)	604,920	129 million	160 million	1,721 million
Governance[3]				
Corruption Perceptions Index (Ranking 1-177)	157	91	49	140
Global Competitiveness Index (Ranking 1-142)	142	129	63	123
Rule of Law (Percentile)	10	51	46	42
Health[2]				
Mortality Rate, Under-5 (per 1,000 live births	104	71	55	69
Life expectancy at birth, total (years)	54	55	63	59
Health expenditure, total (% of GDP)	8.1	9.2	10.7	8
Infrastructure[2]				
Improved water source, rural (% of rural population with access)	73	83	68	71

Mobile cellular subscriptions (per 100 people)	23	29	50	45
Poverty[2]				
Poverty headcount ratio at national poverty line, total (% of population)	NA	51	45	24
Poverty headcount ratio at national poverty line, rural (% of rural population)	NA	57	49	27
Private Sector[2]				
Ease of doing business index (1=most business-friendly regulations)	140	171	32	132
Logistics performance index: Overall (1=low to 5=high)	1.6	2.8	2.3	2.8
Firms using banks to finance investments (% of firms)	NA	21	23	8

1. World Bank, http://www.doingbusiness.org

2. World Bank, www.data.worldbank.org/indicator

3. Transparency International, www.transparency.org/country

Table 2: Comparative Agricultural Performance Indicators for Small, Landlocked Countries in the Great Lakes Region of Eastern Africa

Performance Indicator	**Burundi**	**Malawi**	**Rwanda**	**Uganda**
Agricultural land (% of land area)	86	59	78	70
Arable land (hectares per person)	0.1	0.23	0.11	0.19
Arable land (% of land area)	36	38	50	34
Agricultural value added per worker (constant 2005 US$)	129	193	294	213
Cereal yield (kg per hectare)	1,124	2,087	2,169	2,029
Crop Production Index (2004-2006=100)	96	170.9	171.3	106.7
Fertilizer consumption (kilograms per hectare of arable land)	3.3	33	0.1	1.7
Food production index (2004-2006=100)	99	174	168	111
Forest area (% of land area)	7	34	18	14
Livestock production index (2004-2006=100)	150	187	134	124
Rural population (% of total population)	89	84	81	84

Source: World Bank, www.data.worldbank.org/indicator, 2011 or 2012

Table 3: Top Ten Agricultural Exports and Imports for Malawi, 2011

	Exports				Imports		
Commodity	Value (1000 $)	Quantity (tons)	Unit value ($/ton)	Commodity	Value (1000 $)	Quantity (tons)	Unit value ($/ton)
1. Tobacco, unmanufactured	570,321	159,842	3,568	1. Wheat	98,000	161,000	609
2. Sugar Raw Centrifugal	191,947	267,982	716	2. Tobacco, unmanufactured	83,088	27,164	3,059
3. Tea	86,361	46,007	1,877	3. Soybean oil	31,000	18,500	1,676
4. Maize	84,998	357,302	238	4. Fatty acids	8,761	7,073	1,239
5. Cotton Lint	31,132	9,460	3,291	5. Food Prep Nes	7,900	3,690	2,141
6. Groundnuts Shelled	29,204	33,460	873	6. Palm Oil	7,343	3,856	1,904
7. Sugar refined	22,185	26,308	843	7. Milk Whole Dried	6,521	2,555	2,552
8. Cotton Carded, Combed	15,887	7,653	2,076	8. Sugar Confectionery	5,980	2,628	2,275
9. Rubber Nat Dry	13,629	2,966	4,595	9. Cigarettes	5,233	691	7,573
10. Peas, dry	11,835	37,009	320	10. Cottonseed	5,041	5,906	854

Source: Food and Agriculture Organization (FAO), United Nations, http://faostat.fao.org, 2011

Table 4: Average Hectarage of Food Crops in Agricultural Development Divisions (2000-2010)

Crop	*Karonga*	*Mzuzu*	*Kasungu*	*Salima*	*Lilongwe*	*Machinga*	*Blantyre*	*Shire Valley*
Maize	42,138	145,253	308,769	75,154	340,842	300,895	220,962	78,848
Millet	2,003	9,366	890	3,602	10,395	4,583	973	10,571
Pulses	10,965	43,972	79,040	4,527	110,110	83,524	170,573	25,684
Cotton	91	363	653	37	910	690	1,410	212
Cassava	16,076	37,817	14,215	27,983	17,039	27,239	36,361	1,376
Sorghum	150	0	146	524	1,050	18,888	27,557	16,080
Rice	8,522	2,262	948	7,559	2,664	18,018	8,361	5,638
Ground Nuts	997	3,997	7,185	412	10,010	7,593	15,507	2,335

Source: Chinsinga 2013

Table 5: Percent of Households by Farm Size

	Village						
Total Farm Size	Kachamba	Belo	Horo	Bongololo	Mulawa	Mbila	Total
None	0	0	0	0	0	0	0
<0.5 ha	26	7	50	27	29	22	27
0.5-1.0 ha	39	17	38	48	14	41	33
1.0-1.5 ha	19	27	6	15	29	25	20
1.5-2.0 ha	10	27	6	6	18	6	12
More than 2.0 ha	6	23	0	3	11	6	8
Total	100	100	100	100	100	100	100

Source: Takane 2008