Commodity Exchanges: A Fad or a Real Fix for Agricultural Development in Africa? The Case of the Ethiopian Commodity Exchange

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Abstract

In the past two decades, there has been a surge of interest in creating commodity exchanges to advance agricultural development in Africa. However, such enthusiasm begs the question: are commodity exchanges really the key to agricultural development in Africa? This paper examines the benefits and shortcomings of commodity exchanges in Africa through the Ethiopia Commodity Exchange (ECX). First, a review of the role commodity exchanges play and how they should function in developing countries provides a background. Then, the history of the ECX reveals the good intentions of its foundation, the consequences of primarily trading coffee, and an analysis of the ECX's successes and failures. The paper then argues that the lessons from the ECX can be applied to the growth of commodity exchanges across Africa. Finally, this paper argues that the ECX has been successful in terms of modernizing the market. It has increased trade volume and value, established quality standards and norms, and greatly improved the dissemination of information. However, due to the market's reliance on coffee and the lack of studies on the return for smallholder farmers, it is unlikely that the exchange has met its original goal of also combating food insecurity and poverty. Ultimately, functional aspects of the commodity exchange have improved trading, but on their own, commodity exchanges are not the silver bullet solution to agricultural development in Africa.

Introduction

Agricultural production is central to many African economies, comprising a significant portion of total output. Following market liberalization in the 1990s, there was a burst of commodity exchange development in Africa in response to the need to develop and expand the markets for primary goods. There are now eleven commodity exchanges across Africa: one each in Egypt, Ethiopia, Madagascar, Rwanda, Mauritius, South Africa, Nigeria, and two each in Kenya and Malawi. The interest in agricultural commodity exchanges is no surprise. In theory, exchanges address the issue of information asymmetries that have left African commodity markets risky, volatile, and unfavorable to small producers.[1] By establishing a centralized trading market with real time price information and quality standards for traded goods, commodity exchanges are meant to reduce transaction costs, improve the quality of the products, increase competition, and reduce risk.[2] What is surprising, however, is that most of the African exchanges have failed. Of the eleven commodity exchanges, arguably only those in South Africa, Kenya, Ethiopia, and Malawi are operational, with the rest either having closed or acting merely as platforms for information dissemination.[3]

As the creation of commodity exchanges in Africa continues, it is crucial to understand whether they are the appropriate instruments to address current market inefficiencies and low levels of agricultural development. There has been little empirical research on the topic relative to the promotion of exchanges. In fact, a 2009 United Nations Conference on Trade and Development (UNCTAD) report noted, "as far as known, no systematic or empirical study has been conducted on the developmental impacts of commodity exchanges in the emerging countries."[4] A few studies have attempted to evaluate spatial price differentials and the benefits of warehouse use, but none have examined the effects of exchanges on the income levels of farmers. Furthermore, the researchers who have written about commodity exchanges in Africa suggest that alternative policies may better serve most countries in the region.[5] Despite claims that support more comprehensive social policies and the lack of empirical evidence, countries, development agencies, and private investors are still rushing to build exchanges. Much of the craze has followed two popular TED talks by Eleni Gabre-Madhin, the founder of the Ethiopia Commodity Exchange (ECX), who piqued international interest on the prospects and success of the ECX. She has also established a consulting company to assist other countries in setting up exchanges and aims to build up to ten exchanges in Africa by 2020.[6]

Gabre-Madhin's promotion of the ECX is not completely unfounded: the Ethiopia Commodity Exchange is currently one of the best functioning exchanges in Africa and boasts a unique public-private partnership model that has enabled the exchange to fund its own operations. The ECX was heralded as the platform that would revolutionize the agriculture industry and provide greater food security for Ethiopia. By reducing information asymmetries, the ECX would "transform Ethiopia's agrarian system from subsistence based to a productive, modernized, market-based system."[7] However, a decade since its launch in 2008, criticisms are beginning to arise. Trading has been dominated by coffee sales, meaning there has been little to no stabilization of prices or proliferation of staple foods for domestic consumption. Additionally,

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[1] Sitko and Jayne, "Why are African commodity exchanges languishing?," 275.
[2] *Agriculture for Development: World Development Report 2008*, 119.
[3] Rashid, *Commodity Exchanges and Market Development*, 29.
[4] UNCTAD, *Development Impacts of Commodity Exchanges*, 6.
[5] Rashid, *Commodity Exchanges and Market Development*, 20.
[6] Whitehead, "Africa's Agriculture Commodity Exchanges Take Root," August 15, 2013.
[7] Gabre-Madhin, "The Devil is in the Details," December 2006.

the exchange does not appear to have raised coffee prices, nor has it fulfilled its goal of establishing futures contract trading.

The high publicity of the Ethiopia Commodity Exchange begs the question, to what degree has the exchange been a success? Furthermore, considering Gabre-Madhin's work to build more exchanges, what lessons can be learned for the development of other African commodity exchanges? This paper will examine the role of commodity exchanges, highlighting both the benefits and challenges, using the ECX as a case study. It will argue that the ECX has been successful in terms of modernizing the market: it has increased trade volume and value, established standards and norms, and greatly improved the dissemination of information. However, with the market's reliance on coffee and the lack of studies on the return for smallholder farmers, it is unclear if the exchange has met its original goal of combating poverty and food insecurity. Functional aspects of the commodity exchange have improved primary goods trading, but ultimately, an exchange on its own does not address the systemic issues, such as infrastructure and institutional development, that impede economic growth for smallholder farmers in Ethiopia.

The Functions of a Commodity Exchange

A commodity exchange is a centralized platform, physical or digital, where buyers and sellers trade goods for fungible contracts under a set of defined regulations.[8] Physical exchanges centralize market participation, decreasing time and effort for buyers and sellers to meet and increasing trade liquidity. However, transport costs can still lead to significant spatial price disparities, especially for rural smallholder producers. Most commodity exchanges now trade in receipts instead of physical goods. That is, receipts are generated when producers or commodity collectors bring the goods to a warehouse where the product is verified, graded, and stored in exchange for the receipt. Warehouses are an important aspect of commodity exchanges, allowing smallholder farmers who may not have private storage space to wait for the best sell price instead of selling stock immediately to the most convenient buyer.[9] In addition to the trading platform and warehouse management, other key elements of a commodity exchange are the brokers, buyers, sellers, standardized contracts for the goods, quality products, and enforced regulations and dispute settlements.[10]

The benefit of a commodity exchange is that it provides a centralized, fast, and low-cost tool for price discovery and trade facilitation.[11] Exchanges reduce transactions costs and improve the dissemination of market information, enabling farmers to respond and plan accordingly to trends in the demand for their goods.[12] For this reason, information dissemination is of the utmost importance. Current prices of goods are not only displayed on tickers at the central market but are also displayed on screens at local markets or shared through television, radio, or more modern forms of communication like SMS. By reducing transaction costs and aiding in price discovery, commodity exchanges can improve producers' returns, reduce price volatility, and decrease spatial disparity.[13] In theory, producers who were once isolated from large markets and vulnerable to price shocks are now in a significantly more secure position.

[8] Rashid, *Commodity Exchanges and Market Development*, 2.
[9] UNCTAD, *Review of Warehouse Receipt System*, 8.
[10] Gabre-Madhin, "The Devil is in the Details," December 2006.
[11] *Agriculture for Development: World Development Report 2008,* 120.
[12] Ibid., 119.
[13] Rashid, Winter-Nelson, and Garcia, *Purpose and Potential for Commodity Exchanges,* 3.

One way in which commodity exchanges can further reduce risk is by implementing futures contract trading. A futures contract is an agreement to buy or sell a commodity at a set price on a future date. While the actual price on that day may be higher or lower than the price on the contract, the set value provides a base level, thus reducing risk.[14] The buyer could lose if real prices are lower, but considering the historically high volatility of commodity prices, he or she is better off controlling the degree to which he or she loses.[15] Futures contracts reduce uncertainty. According to the International Food Policy Research Institute, futures are what truly strengthen liquidity in the market and mitigate price volatility.[16] It is important to realize that they do not altogether eliminate risk, but they do minimize it. As mentioned above, another key element of a successful commodity exchange is product quality and integrity. While standardized contracts and warehouse verification of goods imply that what is traded on the market is of export-grade quality, it is not clear how a commodity exchange would directly increase the quality level of farmers' yields. It certainly incentivizes farmers to produce higher quality products, but it is often a challenge for small-scale farmers to produce high volumes at a quality level.

It is clear from the services described above how a commodity exchange could have a significant impact on the agriculture industry of a country with a large population of smallholder farmers. However, it is debated whether the existence of an exchange on its own can truly benefit smallholder farmers. An International Food Policy Research Institute (IFPRI) report on the purpose of commodity exchanges in Africa suggests that the current conditions within African economies and institutions are not strong enough to support a commodity exchange.[17] Poor physical infrastructure and a lack of financial and legal institutions impede the development of successful exchanges.[18] For example, a general challenge for African exchanges is government intervention in prices, low volumes, little diversification, and a lack of standards for warehouse receipts and commodities.[19] That is, while commodity exchanges address certain market failures, the degree to which a government invests in the necessary conditions outside of the physical exchange highly determines its effectiveness.

Gabre-Madhin's Bold Idea: The Launch of the Ethiopia Commodity Exchange

To fairly analyze the Ethiopia Commodity Exchange, it is important to understand the impetus for the exchange and how its mission and direction have evolved over the years. The ECX was established in 2008 with the intention of transforming Ethiopia's agriculture industry and combatting food insecurity. The official mission of the ECX was "to connect all buyers and sellers in an efficient, reliable, and transparent market by harnessing innovation and technology, and based on continuous learning, fairness, and commitment to excellence."[20] However, the initiative was regarded as one that would bring benefits far beyond commodity trading. The hope was that the ECX would eliminate market inefficiencies, assist smallholder development, and subsequently combat famine and poverty in the country.[21] In effect, the vision of the exchange was to transform the Ethiopian economy.

The Ethiopia Commodity Exchange was the brainchild of Dr. Eleni Gabre-Madhin, an

[14] Jayne et al., *Agricultural Commodity Exchanges*, 28.
[15] *Agriculture for Development: World Development Report 2008*, 12.
[16] Rashid, Winter-Nelson, and Garcia, *Purpose and Potential for Commodity Exchanges,* 4.
[17] Ibid., 20.
[18] Ibid., 4.
[19] Whitehead, "Africa's Agriculture Commodity Exchanges Take Root," August 15, 2013.
[20] Gabre-Madhin, *A Market for Abdu,* 12.
[21] Stadtler, Lee, and Probst, "Planting the Seeds of Change," 56.

economist and commodity trading expert with extensive experience researching Ethiopia's grain market. Despite trade liberalization in the 1990s, progress in fertilizer use, and improved road infrastructure, Gabre-Madhin noted that little had changed in Ethiopia's agriculture industry.[22] She realized Ethiopia's agriculture market was rife with issues: 67 percent of traders regularly faced contract defaults and only four percent had legal resources to resolve disputes. Transaction costs were incredibly high, with handling costs accounting for 26 percent of final product price, and trading was still occurring mostly through friends and local family connections.[23] In sum, the market for agricultural goods was weak and disordered, leaving smallholder farmers in an unstable position.

Gabre-Madhin had conducted her doctoral thesis on grain markets in Ethiopia and was convinced a commodity exchange would be the tool needed to eliminate information asymmetries and transform the country's agricultural industry. The country already had the elements needed for an exchange: a large physical centralized market with established brokers, a national warehouse receipts system, and the emergence of producer organizations and unions in addition to commercial farming and larger-scale traders.[24] Establishing an exchange would fill in the missing pieces needed for industry modernization. Furthermore, there was a demand for increased regional and international trade integration. With Ethiopia as a regional leader in wheat and maize production, the ECX would provide the structure and standards needed to greatly increase exports.[25]

The Ethiopia Commodity Exchange was established following two years of fundraising, planning, and publicizing between 2006 and 2008. Gabre-Madhin gained international attention for her TED talk, "On Happiness, Freedom, and Unleashing the Market." In total, US$29 million was raised in funding from the U.S. Agency for International Development, the Canadian Development Agency, the World Bank, the International Fund for Agricultural Development, the United Nations Development Program, the World Food Program, and the European Union.[26] Gabre-Madhin and a team of 17 individuals managed the design of warehouse operations, an electronics receipts system, quality standards and trading contracts, and the rules and regulations of the exchange.[27] After much work, on April 4, 2008, the first day of trading opened on the Ethiopia Commodity Exchange.

A Break in the Plan: How Coffee Changed the Exchange

Despite international and national excitement, the first months of the exchange were lackluster. From April to December, the exchange traded 935 tons of maize, 90 tons of wheat, and 570 tons of beans, generating a total of US$1,588 or only US$144 a month.[28] Furthermore, a large increase in global demand for staple crops, combined with a decline in world cereal production, caused a significant grain shortage leading prices, both on and off the exchange, to increase by 200 percent.[29] In fact, the Ethiopian government had to release 190,000 tons of wheat from its grain reserve and import 150,000 tons to meet local demand.[30] It was clear that grains

[22] Gabre-Madhin, *A Market for Abdu,* 4.
[23] Ibid.
[24] Gabre-Madhin and Goggin, *Does Ethiopia Need a Commodity Exchange?*, 14.
[25] Ibid., 19.
[26] Gabre-Madhin, *A Market for Abdu,* 8.
[27] Ibid., 9.
[28] Hernandez et al., *Institutions and Market Integration*, 3.
[29] Gabre-Madhin, *A Market for Abdu*, 13; Demeke, Pangrazio, and Maetz, *Country responses to the food security crisis*, 4.
[30] Demeke, Pangrazio, and Maetz, *Country responses to the food security crisis*, 6.

would not provide sufficient trading liquidity for the survival of the ECX. According to Gabre-Madhin, the "infant exchange was nearly brought to a halt."[31] It cannot be determined whether or not the ECX would have been successful in its early years if it were not for the food crisis, but the event certainly exposed the weakness of the exchange running solely on grain commodities. It was clear that the market needed to exchange higher volumes and higher valued goods in order to function.

In the original plan for the exchange, coffee was not to be traded until the market had sufficiently developed. The coffee industry already had its own trading floor in Addis Ababa, with regulations that had been in place since the 1960s.[32] Changing the way coffee was traded in Ethiopia would be met with great resistance of the established stakeholders in the coffee business, as well as pose a logistical threat to the exchange that was not yet developed for high volumes of goods.[33] In 2007, over 158,000 tons of coffee were exported, over 700 times the average monthly volume traded on the ECX in 2008.[34] The ECX desperately needed the liquidity that a widely-traded and higher-value product, such as coffee, would provide, and it quickly needed to learn how to accommodate hundreds of thousands of tons in trade.

As expected, integrating coffee into the exchange proved to be a challenge. As Gabre-Madhin noted in an account of the exchange's establishment, "had we estimated the power behind the political economy of coffee in our country, we would likely have given ourselves four years rather than four months to prepare to launch coffee trading in the ECX."[35] In December 2008, the government suspended the old trading system and mandated that all coffee be traded through the ECX. According to Gabre-Madhin, they were met with resistance from both international and niche coffee buyers not wanting to go through an exchange, as well as exporters who were not willing to adhere to the new standardized contracts and regulations.[36] At one point, the government had to confiscate 17,000 tons of coffee from 80 exporters attempting to bypass the ECX.[37] Ultimately, however, coffee trade expanded on the ECX and supported the exchange's survival. Since then, it has clearly dominated the market, representing 46 percent of the total volume and 66 percent of total value traded from 2008 to 2016.[38] Consequently, coffee changed the structure of the system. The exchange that was originally intended for grain trade did not return to trading significant volumes of gain until 2010.[39] The establishment of the ECX has been considered a success – the exchange is fully operational and continues to modernize. However, a deeper analysis of the outcomes of the exchange is needed to understand whether it is truly meeting the goals and intentions behind Gabre-Madhin's original vision.

Analysis of the Exchange's Success

The Ethiopia Commodity Exchange is one of the few functioning commodity exchanges in Africa and the only functioning commodity exchange in a Least Developed Country.[40] Since 2008, the ECX has greatly increased the volume of goods traded on its platform.

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[31] Gabre-Madhin, *A Market for Abdu,* 13.
[32] Ibid.
[33] Ibid., 14.
[34] Food and Agriculture Organization of the United Nations Database (object name FAOSTAT: Ethiopia, Coffee, Export Quantity, 2007, accessed March 8, 2018).
[35] Gabre-Madhin, *A Market for Abdu,* 13.
[36] Ibid., 14.
[37] Rashid, *Commodity Exchanges and Market Development*, 11.
[38] "Commodity Market Trend," 3.
[39] Jayne et al., *Agricultural Commodity Exchanges*, 17.
[40] Rashid, Winter-Nelson, and Garcia, *Purpose and Potential for Commodity Exchanges,* 8.

Within the three years of operation, trade volume increased from 138,000 tons to 508,000 tons. By 2012, it exceeded US$1 billion in revenue, effectively covering its own operating costs.[41] By 2013, the exchange had traded over US$5 billion in total.[42] The increased numbers in trade are clear. The ultimate impact, however, is not.

To determine the success of the Ethiopia Commodity Exchange, we can examine the benefits the exchange has provided, the conditions within Ethiopia that have enabled success, and the shortcomings that must be addressed. While there is little evidence regarding the impact of the exchange on the livelihoods of small farmers, empirical analyses and qualitative research show that overall, the ECX has increased trading values and volume, increased farmers' access to real time pricing information, prevented contract defaults, and boosted export quality through standardization.

According to a 2010 IFPRI report on the potential of commodity exchanges in Africa, there are three types of conditions that enable the development of successful commodity exchanges.[43] The first category concerns the state of the existing commodity market. That is, standard commodity goods and a large central trading market must already exist. As mentioned earlier, Ethiopia had a central market in Addis Ababa, including an already established coffee trading floor. The exchange was not created to establish a market, but rather to facilitate the reduction of transaction costs and information asymmetries. The second category of enabling conditions regards contracts. Contracts should suit the market, attract participants, and be enforceable. The standardized contract and payment system was an early success of the ECX. By standardizing contract forms, buyers and sellers worked in a more transparent quality and pricing environment. Furthermore, a t+1 payment system, in which payments were made within a day after the transaction, greatly aided in the reduction of defaults, which was a significant risk in trading before the implementation of the exchange with the receipts and contracts system. In 2011, the ECX celebrated 1000 days of operation with zero defaults.[44] While Ethiopia has definitively met the standards of the first two categories, it is the third category, a supportive market and policy environment, where the market's success is less clear. This category includes a variety of characteristics such as physical infrastructure, access to information and finance, and broad macroeconomic stability, among others.

Perhaps one of the most visible successes of the Ethiopia Commodity Exchange has been its ability to disseminate price information and establish itself as a price reference for rural farmers. In total, the ECX has set up 180 price display boards in rural markets across the country. It has also established price discovery through an SMS service that had over 800,000 subscribers by 2014.[45] Moreover, a toll-free call-in service was created to expand access in the more rural communities where literacy rates are lower. A reported 1.2 million calls a month were made through this service.[46] The provision of real-time price information was a clear goal of the exchange from the outset, and it was easily met through investment in ICT infrastructure.

Another clear success for the ECX has been the establishment and use of warehouses. The use of warehouses in surplus areas means that commodities are verified and stored until they have been sold through the central exchange. Implementation of warehouses and electronic receipts used as a record greatly reduces transport and transaction costs for producers, who no longer need to have physical access to a market. In fact, one case study evaluating the effect of

[41] Rashid, *Commodity Exchanges and Market Development*, 11.
[42] Gabre-Madhin, "Building a Big, Bold, Beautiful Market," October 9, 2014.
[43] Rashid, Winter-Nelson, and Garcia, *Purpose and Potential for Commodity Exchanges,* 5.
[44] Hernandez et al., *Institutions and Market Integration*, 1.
[45] Gabre-Madhin, "Building a Big, Bold, Beautiful Market," October 9, 2014.
[46] Ibid.

warehouses found evidence that they had a positive effect on coffee prices. Testing the difference in coffee prices between market pairs, the study found that the price spread was significantly reduced if both markets had an operating warehouse, suggesting that overall, warehouse use does in fact decrease price dispersion.[47]

The ECX has greatly expanded its warehouse use. In 2008, only one warehouse was operational, but by 2014 the number of operating warehouses had increased to 60.[48] Furthermore, in comparison to other African countries with commodity exchanges, Ethiopia ranked the highest in ease of setting up warehouses, according to average calculations in the World Bank's "Doing Business" statistics from 2005 to 2010. For example, in Zambia and Nigeria – two countries with failed exchanges – it took up to a year on average to open a warehouse.[49] In Ethiopia it takes 128 days on average, proving that business procedures and construction in Ethiopia are more efficient. It is important, however, to note that warehouses in Ethiopia are still very concentrated. The 60 warehouses are located in only 16 different cities. While they range from 90 to 988 kilometers from Addis Ababa, they are concentrated in the western region of the country.[50] While warehouses are ultimately crucial for a well-functioning commodity exchange, they can also impose barriers to entry for small farmers. Warehouses demand fees that can restrict small-scale producers, which is why producer unions and cooperatives are also important for a functioning commodity exchange.[51] Warehouse use is a strength of the ECX, but it must also be complemented by other market-facilitating conditions, such as well-developed infrastructure and strong producer groups.

Perhaps the most significant challenge blocking the use and efficiency of warehouses and the physical commodity exchange is Ethiopia's underdeveloped infrastructure. Compared to other African countries with commodity exchanges, Ethiopia ranks the lowest in terms of paved road density. As of 2015, only 13 percent of roads were paved.[52] Considering the concentration of warehouses and the inherent need to transport physical goods to the warehouse and the market, poor physical infrastructure is still an impediment to commodity trade in Ethiopia.

Cooperatives and producer unions play a significant role in the success of the ECX and are essential in extending the benefits of a centralized exchange to smallholder farmers. In a study on the impact of agricultural cooperative membership on smallholder farmers in Ethiopia, it was noted that the number of agricultural cooperatives grew from 6,835 in 2008 to 15,568 in 2012.[53] Specifically, over 4.2 million smallholders produced coffee in 2012, accounting for 95 percent of total production.[54] While the ECX itself did not stimulate the expansion of cooperatives in Ethiopia, perhaps the establishment of the exchange encouraged greater unification of smallholder organizations. It was reported that in total the ECX linked 2.4 million smallholders through cooperatives.[55] Again, while no empirical studies have been conducted specifically on the exchange's effect on smallholders, the study on cooperatives confirmed that members of agricultural cooperatives have higher consumption rates than non-members.[56] Therefore, we can reasonably assume the growth of cooperatives during the same years since the development of the ECX likely resulted in improved consumption for smallholder farmers.

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47 UNCTAD. *Review of Warehouse Receipt System and Inventory*, 26.
48 Andersson, Bezabih, and Mannberg, "The Ethiopian Commodity Exchange," 13.
49 Rashid, Winter-Nelson, and Garcia, *Purpose and Potential for Commodity Exchanges,* 6.
50 Ethiopia Commodity Exchange, "Operations," September 2009.
51 Rashid, Winter-Nelson, and Garcia, *Purpose and Potential for Commodity Exchanges,* 19.
52 Central Intelligence Agency, "World Factbook, Field Listing, Roadways."
53 Ahmed and Mesfin, "The impact of agricultural cooperatives membership," 4.
54 Hernandez et al., *Institutions and Market Integration*, 4.
55 Ibid., 1.
56 Ahmed and Mesfin, "The impact of agricultural cooperatives membership," 14.

Ultimately, it can be argued that the growth and success of the ECX has been dependent on the coffee industry, shifting the exchange away from its original mission of decreasing food insecurity. The exchange of staple foods such as wheat and maize have been halted at times to provide a food buffer and ensure sufficient domestic supply, but famines and food crises have still occurred. In fact, following a drought in 2017, the country had a reported 7.7 million people in need of food aid.[57] It is important to note that introducing coffee at such an early stage forced the management team to structure the platform differently to enable the success of the coffee trade specifically. One of the main concerns of the coffee industry was the lack of traceability of the bean. As a response, in 2010, the exchange launched Direct Specialty Trade (DST) for premium coffee. Through this new system, sellers send beans to a warehouse and pre-register for a trading and tasting session. Beans traded through this system are fully traceable.[58] While this represents a positive development, it also suggests that the majority of the exchange's management time and investments are tailored to the coffee industry.

While coffee export volume and value have increased since the adoption of the Ethiopia Commodity Exchange, the extent to which the ECX facilitated the growth is unclear. The few empirical studies that have been conducted on the ECX have specifically examined the coffee trade, likely because coffee continues to constitute the largest share of commodities traded. In a review of the ECX and other commodity markets, Shahdidur Rashid of IFPRI notes that according to Ethiopia's statistical office, prices for Ethiopian coffee in all regions increased after the establishment of the ECX, with farm gate prices increasing 55 percent, exchange prices increasing 59 percent, and world market prices increasing 64 percent.[59] While those growth rates are positive, Rashid notes that coffee prices around the world also increased during the same time period, therefore making it unclear whether the exchange itself prompted the price increase. Furthermore, another study found that coffee trading through the ECX did not promote higher integration of regional coffee prices to world coffee prices, but that the regulations imposed upon the industry, which mandated trade through the ECX, surprisingly resulted in higher transaction costs, cancelling out the other benefits of the exchange.[60] There have been no studies on the impact of the exchange on value received by the producer, but while the new DST system for premium coffee requires that farmers receive 85 percent of the final export price, it is reported that the average normal price received by farmers is actually less than 40 percent.[61] Ultimately, it is unclear how much the coffee industry in Ethiopia has benefited from the ECX.

It is also important to note that the ECX currently does not trade futures contracts, which could significantly aid in the reduction of risk and price volatility as previously explained. Gabre-Madhin's original plan stated that futures contracts should be introduced once the exchange had matured past simple spot trading. To continue to modernize the exchange in a way that benefits smallholder farmers, the ECX should consider implementing futures contracts to better protect producers from price volatility.

[57] "Ethiopia's State of the Art Commodity Exchange," February 2, 2017.
[58] Dawit and Gerdien, *The Ethiopian Commodity Exchange*, 19.
[59] Rashid, *Commodity Exchanges and Market Development*, 18.
[60] Hernandez et al., "Institutions and Market Integration," 25.
[61] Dawit and Gerdien, *The Ethiopian Commodity Exchange*, 19.

Wider Implications and Alternative Policies for Africa

It is critical to understand the successes and failures of African commodity exchanges because the asymmetries and market failures they attempt to solve are crucial roadblocks to the development of African agricultural industries. More importantly, millions of households across Africa depend on the production of commodities for both income and food security. Developing agriculture and the connected industries are key to improving the living standards of these small-scale producers. It is clear that more research must be done on commodity exchanges. However, from this review of the ECX, two clear lessons emerge: 1) commodity exchanges, when constructed under enabling conditions, can modernize trading and effectively disseminate information to market actors, and 2) commodity exchanges alone are not a silver bullet that can fix the complex issues facing agricultural development in Africa.

The second lesson is particularly relevant for Africa, a region in which most countries do not have the proper environment to enable commodity exchanges. Markets are often too small, infrastructure is underdeveloped, and supportive institutions are weak.[62] Therefore, it is recommended that countries in Africa first begin to build the enabling conditions that bring social benefits, even if a commodity exchange is not introduced.[63] Alternatively, countries could find other price hedging policies, such as linking to other regional or international exchanges.[64] However, there are many other factors concerning regional integration and exchange rate risk that would further complicate this endeavor.

Fundamentally, building a commodity exchange involves more than simply setting up a trading platform. While they can bring significant benefits to African agricultural development, the creation of exchanges should be a gradual process that includes the strengthening of information systems, infrastructure, governance, and other critical enabling conditions.

[62] Ibid., 16
[63] Ibid., 17.
[64] Rashid, *Commodity Exchanges and Market Development*, 20.

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