

## 2 Making Sense of Digital Disintermediation and Development: The Case of the Mombasa Tea Auction

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### Introduction

Tea is a key part of the economy in East Africa and a major export earner for countries such as Kenya and Rwanda. Twice a week, buyers and sellers come together in the coastal city of Mombasa in Kenya to trade East Africa's tea. They do so as part of the Mombasa tea auction, the primary link between local tea from East Africa and international tea firms who sell their products throughout the world (figure 2.1).

The tea auction emerged during the colonial era, and with its antiquated traditions, slow speed, and frequent accusations of corruption, there has been strong demand for it to move online. The auction itself is relatively predictable, and with falling costs of online access in the region, digitization of the auction seemed almost inevitable. An online auction offers the potential to speed up the processes of tea trading and bypass various brokers, warehouses, and traders. Reduced costs and improved efficiency would ensure that East Africa remains competitive with its rapidly advancing competitors in Asia.

Yet, processes of digitization and disintermediation have not taken place as expected in the East African tea sector. A proposed "e-auction" was abandoned. Only selected aspects of tea trading have been digitized, and only larger multinational tea firms appear to be moving toward disintermediation. The effects on more marginal tea firms and producers have been limited, and they continue to trade in the Mombasa auction.

The case study in this chapter points toward a more complex picture of digital development than is usually presented, compelling us to reconsider how we tackle disintermediation in theory and practice. In the clamor to promote improvement of firms, digitization is becoming an end in itself,



**Figure 2.1**

The Mombasa tea auction. *Source:* Wikimedia commons.

with issues of equality and impact falling off the agenda. Yet, the issues are vital in making sense of digitally enabled disintermediation and development. This case prompts us to refocus on crucial considerations around the development consequences of digitization projects. Does disintermediation lead to economic gains? Which firms are able to disintermediate digitally, and who is excluded?

## **Disintermediation and Transaction Costs**

### **The Hopes of Disintermediation**

Digitally enabled disintermediation is the process by which digital or online systems allow the removal of intermediaries involved in transactions (Bambury 1998; Chircu and Kauffman 1999). The term is often associated with digital networks, whereby product creators or service providers can link more directly to consumers or buyers in many sectors (Gellman 1996). Disintermediation has often been articulated as one of the key results of Internet connectivity in low-income countries, centered on the idea that connectivity would disintermediate the old restraining monop-

olies, intermediaries, and incumbents to enable dynamic market activity (Graham 2011; UNCTAD 2001; World Bank 2016).

Earlier empirical work exploring disintermediation in low-income countries has suggested fairly limited effects (e.g., Molla and Heeks 2007; Moodley 2003; Surborg 2009). Firms and producers often came up against barriers associated with the digital divide, such as the high costs of ICT ownership, lack of Internet access, limited digital skills, and a dearth of appropriate online services to support activity. With cheaper Internet access in recent years (ITU 2017), alongside the emergence of connectivity-enabled applications for low-income users (e.g., mobile money, apps, SMS tools, online platforms; UNCTAD 2015), the perceived barriers associated with the digital divide are decreasing (Foster et al. 2018). Thus, we have seen a second generation of research on disintermediation exploring the richer use of ICTs and connectivity (e.g., Aker 2010; Muto and Yamano 2009; Paunov and Rollo 2015; Zanello, Srinivasan, and Shankar 2014).

Yet, for all the wealth of literature, detailed accounts of digital disintermediation tend to be unclear in discussions of the potentially uneven consequences of disintermediation. Qualitative research rarely digs into the details of disintermediation, while quantitative research tends to build models that do not conceptualize uneven outcomes (Foster et al. 2018). Thus, it is appropriate to re-examine the concept of digital disintermediation in low-income countries to build a clearer knowledge of these processes.

### **Introducing Transaction Cost Models**

To analyze digital disintermediation, we draw on transaction cost models, a large field of economic study that explores the costs involved when firms transact. Transaction cost models underlie how digital disintermediation has been conceptualized (Humphrey et al. 2003; Molla and Heeks 2007). While often seen as a fairly homogeneous concept from outside the field, transaction cost models have been the subject of two differing perspectives, which Allen (1999) calls the “property rights” and the “neoclassical” approaches. Exploring these two perspectives provides a clear understanding of how transaction costs are used, as well as highlighting potential gaps in analysis of digital disintermediation.

From the “property rights” perspective, analysis tends to explore the legal and institutional underpinnings of transactions. Property rights

approaches thus focus on a wider set of “rights,” both formal (legal rules, organizational structures, contracts, partnerships) and informal (norms, trust), which shape how transactions are undertaken. For instance, firms are more likely to undertake market transactions where enhanced protection (e.g., laws, regulation) reduces risks. Conversely, where these safeguards are not in place, firms may face high transaction costs to protect themselves. Indeed, they may prefer to transact in other ways, for example, through contracts or internal firm exchange (Williamson and Winter 1993).

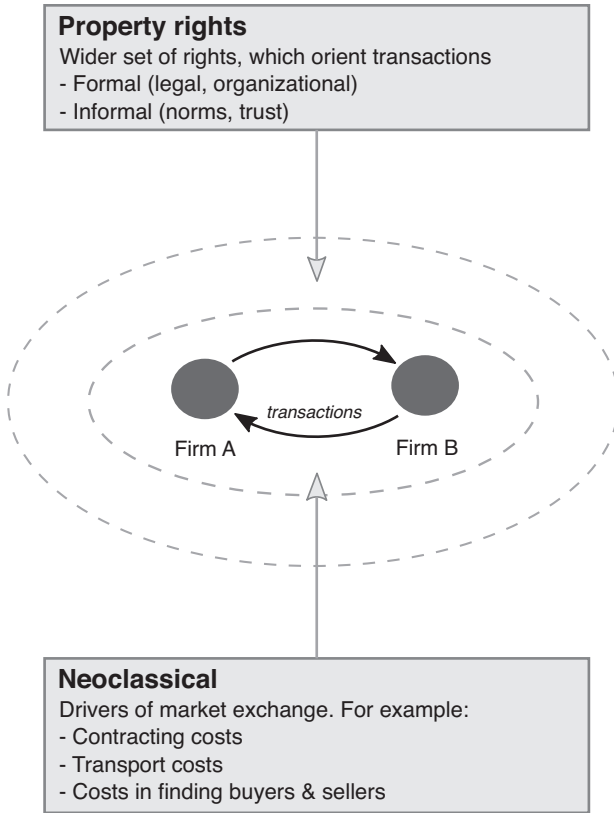
In contrast to the property rights perspective, the neoclassical approach is more focused, homing in on analyzing the costs specifically related to the actual market transactions. This perspective tends to align with neoclassical economics. Key concerns of this literature are the drivers and characteristics of market transactions, for example, exploring links between the volumes of market trade and transaction costs such as transportation, market discovery, contracting, and so on (Benham and Benham 2000). As such, the scope is often limited to a set of factors and how these influence market exchange (Allen 1999).

As shown in figure 2.2, both perspectives on transaction costs look to explore factors that influence transactions. Yet they signal quite different ways to consider transactions, one exploring the direct drivers of exchange, the other more holistically studying conditions that orient transactions. Explorations of digital disintermediation in low-income countries tend to lean toward neoclassical approaches, which can lead to incomplete analysis of the reality of the process.

### **Transaction Costs, Information, and Digital Technologies**

Many aspects of transactions are information rich (e.g., communication between firms, searching, contracting, monitoring). Thus, an important component of transaction costs is the outlay for finding, gathering, and using information, referred to as *information costs*.

Digital technologies can reduce information costs and thus affect transaction costs. Digital information flows enable rapid discovery of buyers and sellers as well as communication about transactions, even at a distance (Allen 1999). Beyond digitally enabled information flows, digital platforms can play an important role in transaction costs by aggregating buyers and sellers and facilitating transactions online, which reduces coordination expense (Sarkar, Butler, and Steinfield 1995; Wigand 1997).<sup>1</sup>



**Figure 2.2**  
 Different perspectives on transaction costs. *Source:* Authors.

Enhanced digital information also affects the role of intermediaries, which are often conceptualized to exist because of high information costs in transactions. They emerge when knowledge and information are scarce and provide services to reduce information costs (Sarkar, Butler, and Steinfield 1995). For example, a broker with knowledge of an industry can save firms the expense of searching for suppliers (Malone, Yates, and Benjamin 1987). With the growth of digital information and particularly digital platforms, the reduction of information costs can lead to a state where intermediaries and their knowledge are less crucial.

This simple idea of digital information flows and platforms reducing information costs underlies disintermediation. This is not the complete picture, however, and the transaction cost literature, particularly when taking

a property rights perspective, has explored a set of broader considerations around transactions. Below we highlight three aspects discussed in the literature that are particularly relevant to this study.

**The Nature of the Transaction** It is important to consider the conditions of transactions that influence whether firms decide to trade internally or buy externally (Benjamin and Wigand 1995; Malone, Yates, and Benjamin 1987). Key aspects relate to properties of the transaction and its complexity, often discussed in the transaction cost literature using the terminology *asset specificity* (referring to the interdependency of assets in production, such as resources, time limitations, skills) and *complexity of product specificity* (referring to the costs of ascertaining product information, such as in requirements and monitoring).

Thus, even where transaction costs decrease with improved information flows, the underlying nature of the goods or services being transacted may affect how a transaction is undertaken (Malone, Yates, and Benjamin 1987). Firms may continue with nonmarket transactions, or may use only digital forms when in a trusted relationship (Clemons, Reddi, and Row 1993; Dedrick, Xu, and Zhu 2008). Humphrey and colleagues (2003) highlight an example of how transaction properties can influence digitization in the garments sector in low-income countries. Even with several digital initiatives, this sector is quite resistant to being integrated into market-based platforms. One reason is that clothing quality is often determined by the “feel” of goods, and this complexity in assessing goods limits digital platforms and disintermediation. Buyer firms will thus only transact at a distance with trusted suppliers, continuing to use intermediaries when this is not possible.

**Institutional Frameworks of Transactions** As mentioned, property rights approaches pay closer attention to the institutional contexts underlying transactions. In low-income countries, a widespread lack of institutional frameworks often shapes the types of transactions that occur. For example, the risk that one side may break a transaction without any consequences can reduce trust. A dearth of such institutions may limit the potential of market-based exchange on digital platforms, or lead to firms needing to make additional investments in monitoring or contracting (Clemons, Reddi, and Row 1993).

Strong or well-established institutions can also orient transactions, potentially making them resistant to change even when information costs are falling. Such cases have been documented among low-income groups introduced to mobile-based platforms. For example, mobile platforms among farmers often do not lead to disintermediation where strong informal institutions are present. Intermediaries still hold power in key institutional bodies or possess high social capital, including rich relationships with farmers over long periods (e.g., by training them or providing loans; Kumar 2014; Srinivasan and Burrell 2013).

**Externalities of Digitizing Transactions** New challenges can emerge when digitally enabled transactions are implemented. Although they may reduce some information costs (such as for searches), their introduction can also lead to what Cordella (2006) describes as “externalities,” when new transaction costs emerge. For example, platforms reduce direct search costs by providing a way to interact among a wider array of transactors. A resulting externality, however, is not knowing all these transactors, with increasing risks in transacting and in evaluating buyers and sellers as their numbers grow. The emergence of digital platforms often leads to a wider geographic spread of firms undertaking transactions. This can result in additional externalities that emerge around exporting and logistics (Cordella 2006).

Thus, even when digital resources facilitate transactions and reduce costs, it is important to explore the externalities, that is, the spillover effects that come from digitization. Most notable for our interest in disintermediation, the literature suggests that *reintermediation* rather than disintermediation is common when externalities lead to evolving roles for intermediaries as a consequence of digitization (Agrawal, Agrawal, and Singh 2006; Sarkar, Butler, and Steinfield 1995).

### Summary

How do these theoretical perspectives relate to discussions of digital disintermediation and transaction costs in the Global South? (e.g., Aker 2010; Jensen 2007; Muto and Yamano 2009; Singh 2008; UNCTAD 2001; World Bank 2016). In general, accounts of disintermediation tend to follow the neoclassical model. Some accounts do acknowledge property rights perspectives within discussions of the balance between market and nonmarket

exchanges and the configuration of sectoral institutions. However, they rarely dig into detail about the wider conditions shaping market transactions, such as those we presented in the previous section. This is problematic. Integrating property rights approaches is liable to be particularly important for exploring digitally facilitated exchange among marginal actors, where cultural norms, trust, and power have been well documented as key aspects orienting activity (Harriss, Hunter, and Lewis 2003).

Aspects of transaction costs discussed in this chapter are grouped in table 2.1, which provides a framework for a more systematic analysis of transactions. Certainly, the nature of the actual transaction and information

**Table 2.1**

Transaction cost perspectives and their use in exploring digital disintermediation

Underlying approach	Key concepts	Perspectives on digital information, transactions, and disintermediation
Neoclassical	Drivers and constraints of market exchange	<p>Explore how transaction costs of market exchange change as a result of improved information flows</p> <ul style="list-style-type: none"> <li>• Information costs affected by digital information flows</li> <li>• Ability of ICT/digital connectivity to disintermediate</li> <li>• Disintermediation through digital platforms</li> <li>• Constraints in digitally enabled exchange (competition, rules)</li> </ul>
Property rights	Nature of transactions	<p>Examine underlying properties of transactions and how they affect digitally enabled transactions</p> <ul style="list-style-type: none"> <li>• Shared resources, product requirements</li> <li>• Complexity of transactions and ability to ascertain and monitor quality</li> </ul>
	Institutional frameworks	<p>Explore digital information within a constellation of rules, rights, and norms that orient transactions</p> <ul style="list-style-type: none"> <li>• Underlying rights and norms that characterize exchange, which affects digitally enabled transactions</li> <li>• Nature and makeup of institutional bodies</li> <li>• Potential use of strategy and power in orienting digital transactions</li> </ul>
	Externalities	<p>Explore the spillover effects of digital information flows and platforms</p> <ul style="list-style-type: none"> <li>• Impact on other elements of transaction costs</li> <li>• Digital disintermediation and reintermediation</li> </ul>



costs in market exchanges are important in exploring disintermediation and digital technologies. The literature from the property rights approach highlights additional directions for deeper scrutiny of digital technologies in terms of the nature of transactions, underlying institutions, and digitally driven externalities, which are crucial in characterizing how disintermediation plays out in practice (Foster and Graham 2017).

## Methodology

To highlight aspects of the framework in table 2.1 and explore disintermediation in more depth, we return to the case study of the tea auction in Mombasa, Kenya. Our interest in the Mombasa tea auction stems from a research study exploring the effects of Internet connectivity on three economic sectors in East Africa—a material export-oriented chain (tea), a material service-oriented chain (tourism), and a more immaterial chain (business process outsourcing). During our research in the tea sector, multiple respondents spoke at length about the attempted introduction of a Mombasa “e-auction,” which provides substantial *explanatory insight* into disintermediation (following Miles and Huberman 1994).

Our research on the tea sector occurred between September 2012 and March 2014 and involved seventy-five semistructured interviews in the tea sector as well as four focus groups, analyzing how different actors (farmers, intermediaries, and large firms) were using digital networks to improve production. We have drawn particularly on fifteen interviews with actors who discussed the history of the auction at length (e.g., tea auction brokers, tea auction buyers, tea warehouse owners in Mombasa, large firms involved in East African tea, and policy-making actors in both Kenya and Rwanda). In the next section, we focus on some of the empirical findings around the tea auction before using these findings for a more conceptual analysis.

## The Evolution of the Mombasa Tea Auction

Over the last decade, the tea sector has undergone a process of change in East Africa. Historically, the key link between regional tea processors (sellers) and international buyers has been the Mombasa tea auction, where processors mainly sell unpackaged but processed loose black tea produced



**Figure 2.3**

Tea produced in the highlands of Rwanda (left) is transported to be processed (middle). Tea in the region is often blended, but some high-quality tea is sold as value-added tea (right). *Source:* Christopher Foster (left), Laura Mann (middle), and Birchall website screenshot (right).

in highland areas of East Africa, to buyers who mostly work for firms based outside the region (as illustrated in figure 2.3).

### Tensions in the Auction

From the time of colonialism, the tea auction system has been the core institution for buying and selling East African tea, but the auction is increasingly struggling under the demands being placed on it. Goods are transported from the factories of tea processors in the region (mainly located in highland regions of Kenya, Uganda, and Rwanda) to be stored in warehouses in Mombasa while they wait to be auctioned. The auction occurs twice weekly, and only nominated sellers (brokers) are allowed to sell. Once the tea is sold, buyers make payments to the auction, at which point they are able to collect the tea to export. This whole process takes a minimum of a few days, but tea often remains in warehouses longer, accruing costs.<sup>2</sup> Intermediaries between the tea buyers and sellers provide useful services, particularly by supplying tea samples to buyers for tasting prior to the auction (to determine quality) and by ensuring that full payment is made after sales (some intermediary roles are shown in figure 2.4).

Increasingly, however, international tea buyers consider elements of the auction to be “backwards” or “quaint” in the modern market, as outlined by one large exporter in Mombasa: “For me they [brokers] are a complication. ... What is happening is we cannot buy directly from the producer at the auction; we have to buy from a broker. The brokers are the only people



**Figure 2.4**

Roles of intermediaries in the tea value chain. The Tea Trade Center in Mombasa, home to the tea auction (left); tea tasting undertaken by tea brokers (middle); and storage of tea lots awaiting auction (right). *Source:* All images courtesy of Laura Mann.

who sell tea at the auction, so they actually control the auction. That is why there is the perception of a cartel.”

Such mistrust also occurs in the relationship between tea processors and brokers. For instance, tea processors wished to understand the reason behind recent declines in the price of their goods, but, as outlined by one manager of a tea processor in Rwanda, they mistrusted the information they got back from brokers: “It’s nice to know what’s happening in the market. ... The last two years have been bad. Last year’s been very poor, and it’s going further down this year. So, I wonder why. We do keep getting information from people, but sometimes I think it’s rubbish that comes. What everybody does is justifies his position.”

Concerns about the suitability of the auction have been raised with particular reference to the growing demands for data. Tea buyers want to better track auction prices, specifically the availability of particular tea grades (i.e., quality), for internal planning, including integrating with information systems, so that they purchase the right amount of each grade of tea at the best price. Further, with the increasing importance of tea origin and ethical production marks to value-added tea, firms would like to receive complete information that they can digitize to aid their planning.

Thus, there is growing pressure to reform the auction, and in a competitive global tea market with an excess supply of tea (Bird 2007), there has also been pressure to replace the auction with an agile electronic system.<sup>3</sup> Online tea auctions already take place in competitor countries in Asia (for example, in India and Sri Lanka). As outlined by an East African consultant, the e-auction would allow more integrated and agile engagement for

international buyers and would be crucial for the region's competitiveness in tea: "The online auction breaks the boundaries so people in the US will be able to access the information ... so they don't have to come all the way to Mombasa to buy tea, they can access our tea from our systems, trading can be done online, and [we] will ship the tea, and they will wait for the tea on the other side."

### **The Emergence of the e-Auction**

In 2012, the East Africa Tea Trade Association (EATTA) attempted to introduce an electronic auction system, called the auction management information system (AMIS), including running a full trial of the system with key tea actors. The AMIS online tea auction was intended to replace the face-to-face activity. Many intermediary firms vehemently opposed the e-auction and continue to do so today. For instance, brokers have argued for the importance of the auction's face-to-face exchange, as outlined by one manager in a brokerage firm who was directly involved in auction activity: "My business is much better when I can see physically; I can know whether you are giving two or three dollars, but if I can sit [in the office] here I can't know your body language—to know if by looking at you I can get that one more dollar. I think that this is something we're going to lose if we go that way."

Further criticism of the e-auction has sprung from a fear that a lack of presence might imply collusion among tea buyers behind closed doors. One manager of a brokerage firm described this common concern: "The resistance [to the e-auction] was based on the fear that the buyers may collude; you know they are seated behind a machine like this ... in an office somewhere. Being traders they may want to buy teas at the lowest prices possible, and it is easy for five of them to come together and say, 'Hey, you buy for us we are not going to push you,' and then tomorrow somebody else does the same, and the next week somebody else does the same."

International buyers however, remain less convinced by the brokers' arguments. This was best put by a manager for one of the largest exporters in Mombasa, who jokingly suggested that these risks were overstated for commodity trading: "They were saying the human factor, negotiating a price cannot be replaced ... like you would find if you are selling a piece of art and everyone is raising their bids, or people are looking excited just

from the facial expression. You would think that this piece of art is very expensive, and they would give probably a very high bid on it. So they [brokers] are using the same kind of logic.”

The EATTA consulted extensively with stakeholders throughout the value chain to explain the form of the new e-auction and to run and evaluate the trial. After the trial, however, a majority of EATTA members voted against permanently implementing the e-auction (EATTA 2012). While there isn't a transparent record of the voting choices, our research suggests that opposition was highest among intermediaries—tea agents, brokers, and warehousemen—all based in Mombasa. Not only were these groups most vocal in resisting the e-auction reform, but they were most active in campaigning against the e-auction. This campaigning seemed to influence particularly those on the supply side in East Africa (i.e., tea producers and tea processors), whose main linkage into the value chain is through their relationships with brokers. Most of these actors also voted against the e-auction. Opposition was especially strong from smaller associations, representing growers in the eastern regions of Kenya, as well as from Rwanda and Uganda. In discussions, the concerns of these groups often mirrored those of the brokers—fear of collusion in the e-auction, apprehension about the viability of online systems, and expressions of the value of face-to-face trade. Thus, the face-to-face auction in Mombasa survived.

Although we do not discount the genuine concerns about the e-auction, seeing how similar views became widespread was noteworthy. Our research suggests that the influential role of intermediaries was a key factor in the decision not to implement the e-auction. Intermediaries, particularly the brokerage organizations, also play a key role in the governance of EATTA, which is itself the governing institution for tea in East Africa.

Commercial pressures for a more agile Mombasa auction remain. Over time, the face-to-face auction has been supplemented by incremental additions of digital technologies, all of which were initially opposed by intermediaries. Two examples are online auction catalogs, which had previously been available only as paper copies, and an electronic payment system for quick payment of auction costs, simplifying management and logistics. The direct benefit of these innovations is not negligible; for instance, several tea processors told us that the improved efficiency of electronic payments had led to direct savings because of lower warehousing costs in Mombasa. The

innovations did not disrupt the long-standing form and institutions of the auction; however, some intermediaries, such as brokers, have shifted roles, even if they have not been fully disintermediated. With the electronic auction payment system, brokers have less work to do related to payments, and they have begun to play an important role in other areas, such as collecting and sharing price and auction information with tea processors.

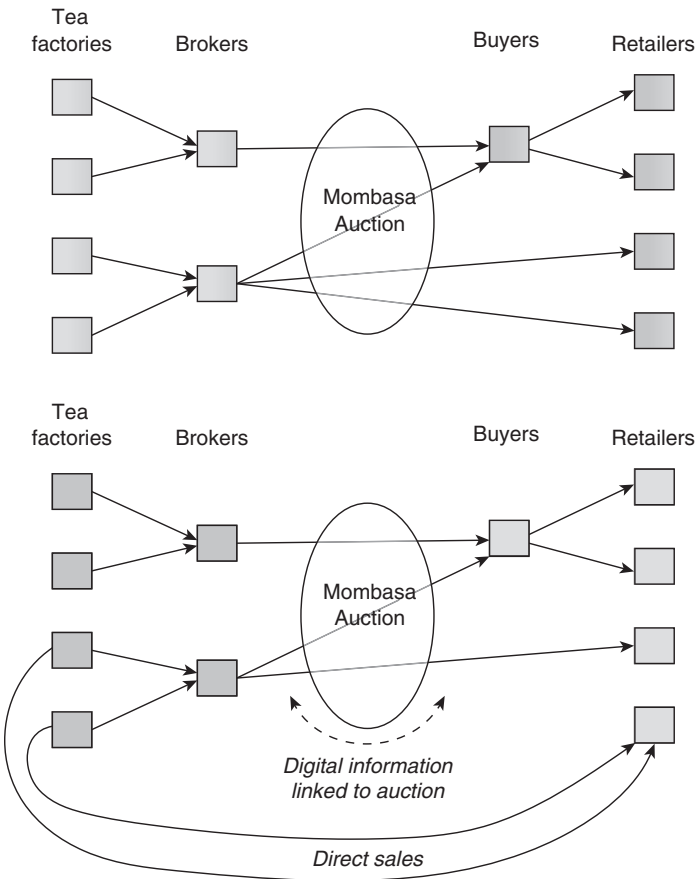
### **New Channels of Disintermediation**

The slow digitization of the auction has led to the growth of alternative channels of tea trading. In the past, virtually all the tea trade in East Africa would go through the Mombasa auction, but in recent years, private sales have grown between tea processors and international firms' buyers to sidestep the limitations of the auction. This is referred to in the trade as direct sales. The channel of direct sales is shown in figure 2.5.

Tea statistics are extremely difficult to interpret; nevertheless, several indicators suggest a growth of direct sales. For instance, Rwandan data suggest that direct sales have grown to around 23–24 percent of tea being sold outside the auction in 2012 and 2013 (NAEB 2013). Amalgamating Kenyan Tea Board data with Mombasa data suggests that direct selling has grown in Kenya, fluctuating between 33 and 47 percent between 2010 and 2014 (Africa Tea Brokers 2015; TBK 2015).

For many tea processors in East Africa, direct sales are advantageous, and thus processors are keen to increase direct sales. The price paid for direct sales is likely to be higher than the auction price. Equally as important is that processors involved in direct sales will receive quicker payment in comparison to the sluggish turnaround time of the auction. Direct sales are also desirable in that they reduce the costs of brokerage and warehousing fees associated with the auction.

When examining who was selling through these more disintermediated channels, we found that most direct sales were made by tea processors who were subsidiaries of international tea firms, or who operated in close partnership with them. As the tea sector has become increasingly led by the private sector in East Africa, multinational firms (such as Unilever, McLeod Russel, and Jayshree) have pushed into the region, taking control of certain local tea processors.<sup>4</sup> Subsidiary tea processors tend to be more integrated with their parent firms, and there is a move for more integrated digital processing and tracking in many of these subsidiaries. Direct sales also fulfill



**Figure 2.5**

Evolution of tea trading channels. The auction remains, but with some aspects of digitalization, new direct sales routes have become important, disintermediating those involved in the auction. *Source:* Authors' fieldwork.

the needs of international buyers. They can quickly gain information about what types of tea are being processed, and, in the future, they will be able to dynamically plan and manage direct sales, aided by integrated digital systems. As outlined by one regional tea manager of a multinational firm, some companies are even considering going further. One is thinking of building an internal auction system that mirrors the idea of the e-auction: "We've been debating on the idea of selling all our product online. We would have an [internal] auction as well. ... We would have it on a portal

where, you know, this is the type of tea we have. And we send samples to so many buyers worldwide anyway.”

In sum, as shown in figure 2.5, tea sales channels have become divided between direct sales and the Mombasa auction. Direct selling revolves around disintermediated trade and tends to be for goods at a premium, such as ethical teas. A driver of direct sales is the growth of information systems and digital data, and there is a clear trajectory toward automation and potentially new auction platforms. The Mombasa auction continues to take place every week, with tea lots sold through open face-to-face bidding. It is still an access point for tea processors to access global buyers, but the auction can be unpredictable, particularly in recent years, as the global oversupply of tea has increased (Bird 2007). Thus, we predict in the long term that (in contrast to direct sales) the auction may become a channel for lower-grade bulk “commodity” tea sold at lower prices.

Inevitably, direct selling is not for all tea producers. Direct selling is emerging out of privatization policies in East Africa, where global tea producers have bought stakes in lucrative tea processors. In these relationships, digitally facilitated disintermediation emerges—in larger tea processors who have built trust, who have invested in meeting the requirements of tea quality or certification, and who are integrating digitally with their parent companies.

## Epilogue

Ironically, given the brokers’ insistence that the e-auction would lead to collusion, a recent controversy in the tea sector centers on collusion in the face-to-face auction:

I want the Chairperson to state whether he is aware that the Kenya Tea Development Agency (KTDA) as reported in the Tea Industry Status Report of May, 2014, is accused of the following acts: (1) Colluding with cartels to manipulate tea prices. (2) Conducting direct sales with big markets outside auction venues. (3) Buying tea directly from factories at lower prices and then importing cheap tea. (4) Colluding with various players to create the impression that there is excess tea in the market in order to maintain low prices.<sup>5</sup>

The above accusations, made in the Kenyan Parliament in 2014, were picked up by the regional press and led to fierce criticism and recrimination among Kenyan politicians. The aforementioned Tea Industry Status Report (which is unpublished and not publicly available) alleged that several



bodies, including the influential KTDA, a large umbrella organization that supposedly represents Kenyan smallholder tea farmers, had been engaging in practices that reduced the prices for those same smallholders. One regional governor even launched a KSh87 billion (US\$1 billion) lawsuit on behalf of his smallholder tea-producing constituents following these accusations (Tanui 2015).

While these accusations remain unproven, suspicion of the Mombasa tea auction has been reignited, exacerbated by the perceived lack of reform and activities that remain shrouded in mystery to the outsider. The ensuing fallout of these accusations has revived political pressure for the tea auction to become digitized, which for politicians would remove corrupt elements through transparency. Members of the EATTA and the Kenyan Tea Board were summoned to appear before Kenyan ministers. To date, they have resisted any move toward an e-auction but have begun digitizing additional aspects of the auction to improve transparency. For instance, the EATTA has recently made live webcam coverage of the Mombasa auction available online (Xinhua 2014).

## Discussion

### Constraints in Transactions

Using the transaction cost framework, we can highlight the key drivers and constraints to disintermediation in the Mombasa tea auction case. From an *economic perspective of market transitions*, the e-auction seemed, on the surface, to be viable. Allowing more efficient buyer/seller discovery, transactions, and exchange in tea markets appear to be key steps for regional competitiveness. Introducing a digital platform would reduce transaction costs by disintermediating broker intermediaries, thus saving warehousing fees and other costs associated with the auction in Mombasa. Overall the nature of market exchanges also appears coherent in terms of formal rules and contracts in the transaction, which are guided by the regional tea body EATTA, with strong interest from national export boards. Economic theory would suggest these regular and fairly controlled transactions would be suitable for a digital platform.

In terms of the underlying *nature of the transaction*, tea can be regarded as a relatively standardized commodity good. Compared to more complex goods or innovations, tea quality is relatively simple to ascertain.

Nonetheless, with the recent growth in value-added tea and interest in the quality of tea, successful platforms are likely to need to digitize and integrate a wider range of parameters and properties.

A deeper analysis of *the nature of underlying institutions* highlights institutional path dependency and well-established rules that conflict with the goals of disintermediation. In the tea sector, the close alignment between intermediaries and sectoral governance is a particular concern, and these have been important factors in resistance to the e-auction.

Multiple *externalities from digital technologies* have emerged in this case. Even as some intermediaries were being marginalized by the growth of digital payments in the auction, they were able to use their social capital to reintermediate themselves into aspects of transactions that were becoming more information intensive. Brokers were able to become key providers of information and intelligence that supported the increasing market focus of tea growers and processors in East Africa.

The categories from the framework also highlight policy approaches that could support future initiatives to reduce information costs. The Mombasa auction still faces a set of constraints on digitalization related to the nature of transactions and the growing complexity of exchange. Stakeholders doubted it was possible for online systems to codify face-to-face activities, for instance, the quality and grading of tea. Such concerns need to be considered as part of design decisions in a digital platform (e.g., by making quality and ethical-mark data visible in the exchanges). Offline activities such as quality testing by a trusted party also might support disintermediation.

Constraints around institutions suggest that the e-auction may emerge only in hand with wider institutional reform, and with a strong political push by national tea boards for reform. Many actors' concerns were related to fears around maintenance of quality and trust. Establishing clearer rules for auction-related contracting or embedding collusion-detection algorithms within the software could be further steps to supporting full disintermediation.

### **Strategic Actions and Transaction Costs**

In the Mombasa auction, the empirical outcome of digitization has not been desirable for all. We found evidence of disintermediation in direct sales, facilitated, in part, by online access, with the improved ability for

buyers and sellers to interlink. Transactions in direct trade were marked by greater trust, clearer expectations on quality, and potential ongoing contracts between specific buyers and sellers. Thus, digitally supported disintermediation did occur but only for certain actors under certain conditions. Some processors thus trade through disintermediated private channels while others continue to trade in auction markets—indeed some firms simultaneously use both. The properties of these different channels—and who is disintermediated—are constantly in flux as channels are refined and improved.

Direct sales are liable to benefit only the best-linked and highest-quality tea producers. In the longer term, without an agile and efficient digital platform for trade (that is also open to all), marginal producers may miss out on the potential to make international linkages and reduce their ability to trade in value-added tea. These differential outcomes should prompt us to further reflect on the variation in trust, skills, and power of different actors in these transactions, and how this has led to differential outcomes of digitization in the tea sector. Key firms and those powerful intermediaries being disintermediated were not passive—they formed strategic coalitions that were strong enough to resist the introduction of the e-auction. Indeed, we can argue that resistance came from the strategic use of institutional and transaction weaknesses (e.g., notions of collusion, role in EATTA) to defend against disintermediation.

This perspective aligns with a direction taken by the “new institutional” literature, which looks to move institutional analysis and transaction costs toward exploring power, politics, and strategic activity as key to shaping institutions and driving institutional resistance (Khan 2010; North, Wallis, and Weingast 2009; Oliver 1991). Nonetheless, it is rare to see disintermediation linked to the complexities of strategic and institutional analysis in the literature on digital connectivity and disintermediation. Such work would help to introduce some clear concepts of power back into understandings of transactions and digital connectivity.

## Conclusion

As we have shown in the East African tea sector, in-depth analysis of transaction costs highlights complexities that are rarely detailed in the literature on digital technology and disintermediation. Theoretically, mainstream

approaches to transaction costs highlight key drivers and restraints of digitally enabled exchange in markets, and thus highlight recommendations in transactions (e.g., rules, contracts) that can support more agile market exchange. Models of transaction costs from a property rights perspective supplement this analysis by supporting a clearer understanding of the nature of transactions, their institutional basis, and the ways in which digitally enabled disintermediation may become an additional constraint for market participation. We have also highlighted constraints to efficient e-auction platforms by certain aspects of trust and quality that contributed to suspicions and rejection of an e-auction.

Our empirical findings have highlighted the privileged digitally enhanced direct sales implemented for smaller groups of buyers and sellers; reintermediation as intermediaries evolve; and institutional resistance. As shown in the East African tea sector, the eventual benefits of disintermediation may be liable to come to those already in privileged relations. Thus, we suggest that a greater awareness of how actors exert power and strategically use institutional resources is important in understanding the wider developmental impacts of digital disintermediation. In Mombasa, digitally enabled transactions are not at present transforming the tea sector, but, through the strategic activities of more powerful actors, these transactions are solidifying the relationships of those who are already well linked and able to capture resources.

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## Notes

1. A range of terms is used in the literature to describe digitally enabled platforms for transactions: electronic marketplaces, cybermediaries, infomediaries, information exchanges, e-business systems, and platforms. In this chapter, we use the term digital platforms.

2. A minimum of 3 percent of the tea cost is paid in brokerage and warehousing fees, but once indirect costs are taken into account, this is likely to be higher, probably in the region of 5–10 percent of the auction price.
3. Our findings show that many brokers and processors in the region now use the Internet regularly in their activities, so access limitations are likely to be less problematic.
4. East African tea was traditionally organized so that farmers received a fixed “farm gate price” for tea as specified by the government. Processing factories were run by the government, with state-owned marketing boards responsible for international sales. Privatization has led to factories or shareholdings being sold to the private sector, where farm gate and processed tea prices are determined by the market. Government now takes a back seat, with a supporting role through development boards.
5. Kennedy Mong’are Okong’o, MP for Nyamira, statement in the Kenyan Parliament, August 2014.

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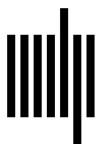
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