

Networks, distance and trust: Telecommunications and changing trading practices in Ghana

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Contents

ACKNOWLEDGEMENTS	IV
1. INTRODUCTION	1
2. TRADERS, NETWORKS AND TRUST.....	3
3. THE TELECOMMUNICATIONS REVOLUTION IN GHANA	5
(A) LIBERALIZATION AND GROWTH.....	5
(B) ACCESSIBILITY AND AFFORDABILITY.....	8
(C) METHODOLOGY.....	9
4. TRADERS' ADOPTION OF TELECOMMUNICATIONS	10
(A) EXCHANGE OF INFORMATION.....	10
(B) CO-ORDINATION OF MULTI-LOCAL ACTIVITIES	11
(C) AVAILABILITY AS COMPARATIVE ADVANTAGE.....	12
(D) IMPROVING SERVICES.....	13
(E) REDUCING THE RISK OF MONEY TRANSACTIONS	15
5. DISCUSSION.....	16
6. CONCLUSION	19
BIBLIOGRAPHY	20

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1. Introduction

Tired of a situation with telephone lines as a privilege for the urban elite, Africans welcome the possibilities for long-distance communication that follow in the wake of telecom market liberalization and new technological solutions, most notably prepaid GSM services. In Africa at large, mobile telephony has grown faster than in any other region of the world over the past decade – on average 78% a year.¹ This article provides insight into the far-reaching societal effects of innovations in telecommunications seen from the view of traders in Ghana.

Traders transport goods from producers to consumers and a lot of co-operation, co-ordination and exchange of information is required to organize this activity. Hitherto the alternative to telephone calls in long-distance exchange of information has been personal travel in order to communicate verbally face-to-face or sending oral (or written) messages through an intermediary, who physically travels on behalf of the trader. Physical travel is a cumbersome, time consuming and expensive communication method. In Ghana, large quantities of imported petrol is spent by people traveling on congested and pot-holed roads to meet business partners, often only to exchange the simplest kinds of information. Has the tailor finished sewing 10 shirts ordered by the shop? Is the delay of the onion-truckload from Tamale caused by an accident? Can the cold storage plant in Tema now supply the type and quantity of fish ordered by the Kumasi fish trader? One could also send a letter, or travel to a communication center and send a telex or fax or make a call.² But sending letters takes days, and the density of communication centers was until recently very low. Besides, the majority of Ghanaian traders are illiterate or semi-literate. Verbal communication thus remains the most important mode of information exchange. This is one of the reasons why telephones, and in particular mobile phones, which can be used even if one neither can write nor has an office, or one is on the move most of the time, have become the most “appropriate” communication technology among traders.³

Telecommunications is here seen as what Helpman (1998) calls an enabling and general purpose technology, with a “potential for pervasive use in a wide range of sectors in ways that drastically change their modes of operation” (p. 3). This article argues that the adoption of telecommunication technology by traders has the potential of reducing their transportation and transaction costs. Focusing on traders’ activities, two basic questions are asked. 1) In which ways does the adoption of telephones reduce traders’ time and transportation costs? 2) In which ways does the introduction of telephones into a high-risk and low-trust environment reduce transaction costs?

In Sub-Saharan Africa, transportation costs and transaction costs are two major factors that determine traders’ producer-wholesale margin, affecting the income of both producers and traders and, ultimately, the availability and cost of goods for consumers (Minten and Kyle, 1999, p. 468). Transportation costs include the price of moving goods from producers to consumers, but it also involves the cost of transporting people in order to exchange information. Transportation costs are thus

¹ Information from the International Telecommunications Union (ITU) in Financial Times, November 27, 2003.

² From 2003, telex services were no longer operational in Ghana.

³ Internet is increasingly popular, but primarily among the educated and young in urban areas.

intrinsically linked to transaction costs, which arise precisely “because information is costly and asymmetrically held by the parties of exchange” (North, 1995, p. 18). Inadequate means of transportation, bad roads, and lack of access to telecommunications, make transactions more risky and increase traders’ costs of gathering information on the potential trade partners (Gabrowsky, 1997, p. 388), of “cajoling and policing suppliers and clients” (Fafchamps, 1996, p. 445), and of “finding out what the relevant prices are, of negotiating and concluding contracts, and then monitoring and enforcing them” (Harris, Hunter & Lewis, 1995, p. 3). This study addresses the question of whether traders’ increased use of telephones not only reduces costs through travel substitution, but also reduces the risks and potential costs of transacting by enabling traders to exchange information more frequently and efficiently. In other words, does the adoption of “space-shrinking technologies” (Dicken, 1998, p.151) enhance trust between actors in an uncertain market?

In order to succeed, traders must rely on co-operation with other traders. Trusting others is risky. Traders incur great losses when messengers lie or provide false price information; partners “lose” money to be delivered or are actually robbed on the road; indebted customers disappear; suppliers break contracts. The state provides minimal legal protection against the economic catastrophes that such common transaction costs represent for ordinary traders. Rather, it is the informal unwritten moral laws of families, clans, ethnic associations, marketplaces, churches or the street that provide security and possibilities to sanction contract-breakers and thieves (Hart, 1988). In a market characterized by imperfect information and a lack of formal legal mechanisms, traders need to play by the rules of such institutions in order to reduce transaction costs (North, 1995). By trusting both the rules and the people who have agreed to practice them, one does oneself become trusted. Trust is thus here understood as confidence in other persons, “despite other uncertainties, risks and the possibility for them to act opportunistically” (Lyon, 2000, p. 664, see Gambetta 1988, p. 218).

One way of reducing transaction costs is to establish networks of traders – ranging from loose friendships to well-organized institutions (Cohen, 1969; Hart, 1988; Clark, 1994; Evers and Schrader, 1994; Fafchamps, 1996; Chamlee-Wright, 1997; Overå, 1998; Chalfin, 2001). Trade networks do not function well (and of course they very often do not) without common norms for cooperation, or what many have called social capital (Fukuyama, 1995; Lyon, 2000). To establish and maintain trust and cooperation among actors in a network or “community of exchange” (Humphrey & Schmitz, 1998, p. 37), repeated interaction and communication is required. This is an intricate process, involving individuals differently situated in terms of power, access to information and capital and other resources. Communication, screening, observation and control is particularly complicated when the process of network building extends widely in space – often between rural and urban areas and sometimes abroad. Telecommunication technology provides new tools that can make exchange of information and networking among traders more efficient, especially when they are spatially dispersed. Mobile phones in particular, which increase much more rapidly in number than fixed line telephones and is much more widely used than the Internet, enable business partners to communicate quickly and directly without intermediaries, and to check information on the spot to avoid the fear of being cheated. It becomes easier to verify and control information. Hence information asymmetries are reduced and the predictability of transactions increases. The adoption of new technology may thus enhance the development of trust between actors in the market and facilitate

transactions that might otherwise not take place or would take place at a higher cost (Aminuzzaman, Baldersheim & Jamil, 2001, p. 8).

The following section discusses the central concepts of networks and trust in context of the Ghanaian market. A brief overview of recent developments in Ghana's telecom sector is provided in section 3. Section 4 presents case studies of traders' access to and adoption of telephones. After a discussion of telecommunications' effect of cost saving and potential for trust enhancement in trade networks in section 5, the article concludes in section 6.

2. Traders, networks and trust

The main arena for traders in Ghana is the marketplace – still an important economic, social, political and cultural institution. The marketplace system evolved out of periodic agricultural markets and a long history of trans-Saharan and trans-Atlantic trade (Bohannon & Dalton, 1962; Hodder, 1971). Markets in Ghana are dominated by women and are well organized with leaders of each commodity group (the *ohemma* or so-called Queens Mothers), who act as negotiators in conflicts between traders and are their spokespersons in relation to the state (see Robertson 1984; Clark, 1994; Chamlee-Wright, 1997). The sale of commodities is often specialized according to gender and ethnicity.

Conducting many different types of activities and transactions, traders act as intermediaries in specific commodity chains.⁴ One can identify categories of traders according to the activities they perform in the chain: 1) *wholesalers*, or travelers as Gracia Clark (p. 9) calls itinerant traders traveling to buy goods in the rural areas, 2) *wholesale-retailers*, who sell the goods in bulk to 3) *retailers*, who buy one or several bags of maize, cartons of smoked fish, or crates of tomatoes, and so on, which they either retail themselves directly to customers or re-sell in even smaller quantities to 4) *petty traders* and *street hawkers*. To be able to make – or at least not lose – money on each transaction or “link” in the commodity chain, traders establish networks of colleagues trading in the same commodity at various levels. Networks often also include traveling representatives (intermediaries) and regular suppliers and customers. Often life-long friendships develop between colleagues, who co-operate closely to the extent that they regard each other as relatives and help each other out in times of illness, bereavement and bankruptcy (Lyon, 2000). Though they are competitors, traders need to co-operate in order to deal with an extremely uncertain market situation (Chamlee-Wright, 1997; Overå, 1998). To participate and become trusted in the Ghanaian market system, a trader cannot simply maximize individual profits, but must take many social, cultural and moral concerns into consideration (see Parry and Bloch, 1989; Evers and Schrader, 1994). On which basis is a trader regarded as a trusted co-operation partner?

People are members of several social fields (Bourdieu, 1977), within which they have both ascribed and achieved social statuses and have access to different resources or types of material (economic) and immaterial (social, cultural, symbolic) capital (p.

⁴ A commodity or production chain can be defined as “a transactionally linked sequence of functions in which each stage adds value to the process of production of goods and services” (Dicken, 1998, p. 7). Commodity chains vary in their geographical extent, from local to regional, and (increasingly) to a global scale.

183). To establish herself in the market system, a young trader may draw on training by her mother, get starting capital from an aunt, get credit from her husband and be introduced to a trustworthy middleman by a colleague of the same ethnic origin as herself. If the trader does not have the economic resources to pay for a stall (sales booth) inside the marketplace, her social contacts may still make it possible to acquire a position in this important arena (see Overå, 1998). The trader's access to such networks and resources is based on what Humphrey & Schmitz (1998) call characteristic-based or meso-level trust, which arises when "the trustworthiness of an individual is defined by membership of a group considered trustworthy" (p. 39).

But even if a trader is granted an "entry ticket" into a marketplace based on trust in her ethnic or family background, she must also build her own network. In relation to other traders, suppliers, customers and creditors, she must prove over time that she – as a person – actually *can* be relied on. Or, as Granovetter (1985) has put it: "(...) few are actually content to rely on either generalized morality *or* institutional arrangements to guard against trouble", hence "[t]he widespread preference for transacting with individuals of known reputation" (p. 490). Economic transactions between actors of known reputation become less risky when they are "embedded in a close-knit community of (...) merchants who monitor one another's behavior closely" (p. 492). Through traders' observation of each other's behavior, process-based trust – or micro-level trust in Humphrey & Schmitz' (1998) terms – is established. This type of trust is based on traders' reputation, "acquired through behavior over time in well-understood circumstances" (Dasgupta, 1988, p. 53).

For traders in Ghana the most important "well-understood circumstance" has been the marketplace where communication and transactions mainly take place face-to-face, closely monitored by colleagues and traders' leaders. Behavior breaking the norms of the marketplace institution, of which market traders are members, is heavily sanctioned. Thieves are sometimes beaten to death. Failure to repay credit, which is one of the most common problems, can be brought before the council of the *ohemma*, who can fine the faulty party. Verbal harassment in front of others is a common strategy. More subtle spreading of rumors is another. The purpose is to damage one's "enemies'" reputation, which is a trader's main asset (see Lyon, 2000, p. 667). Traders are therefore extremely careful to avoid stains on their reputation: they know that would ruin their business.

As a result of population growth, increasing rural-urban migration and unemployment, more and more informal economic activity is taking place *outside* the institutionalized marketplaces – in streets, traffic jams and courtyards. At the same time, as a result of the last decade's telecom development, an increasing amount of transactions are conducted by telephone instead of through observable physical presence. These two trends – informalization (Meagher, 1995) and telecom development – may change the configuration of trade networks and markets. They become more dispersed and in the process of trust-building the emphasis lies more on individual performance than on ascribed characteristics.

Humphrey & Schmitz (1998, p. 54) argue that in most developing economies macro-level impersonal trust (i.e. in state institutions) and meso-level trust (i.e. in kinship and other groups or sectors) has been eroding, while micro-level (personalized) trust seems to carry increasing weight. This is a good description of what has happened in

Ghana. The post-independence period with numerous *coup d'état* in the 1960s and 1970s, military rule, rampant corruption, and an unstable economy reduced Ghanaians' (macro-level) trust in the state and its institutions, such as the police, tax collectors, politicians, and so on. Despite the many World Bank sponsored reforms that Ghana went through (since 1983), real incomes fell drastically during the 1980s and 1990s (Fine & Boateng, 2000). Only 11 per cent of the working population is employed in the formal sector (Yankson, Laryea & Aryeetey, 2001). Among the self-employed, the willingness to pay taxes is very limited: they have so far seen very few results that benefit them and they fear that the revenue collected will be misused by civil servants and politicians (Overå, forthcoming).

Increasing poverty and urbanization also erodes people's reliance on and compliance with the norms and rules of extended families, clans and traditional leaders, referred to above as the basis for meso-level trust. People in the poorest (and largest) segments of the urban economy often find themselves in a situation "faced with the need to build economic relations from scratch in a world lacking both orderly state regulation and the segmentary political structure of their customary society" (Hart, 1988). In this environment where neither the rules of the state nor lineage elders, nor of the market Queens, have any far-reaching influence, there remains "the zone of free-floating social relationships formed by the expectation of mutuality" (p. 178), where personalized (micro-level) trust plays a prominent role.

Economic survival thus depends on one's ability to participate in "instrumentally-activated personal networks" (MacGaffey and Bazenguissa-Ganga, 2000, p. 12). Such purpose-specific networks must constantly be cultivated and maintained in order to last. Repeated communication and interaction is required to establish trust and enforce contracts (Fafchamps, 1996, p. 442). Obviously, telecommunications can reduce the time and money spent on this laborious process. Also, the way people interact and with whom they interact may be influenced. Rather than relying primarily on relations based on ascribed statuses in a well known environment, telecommunication technology makes it easier to create and maintain networks beyond the orderly system of marketplaces or the hierarchical authority structure of lineages. With the erosion of meso-level trust, then, telecommunications may be employed as a kind of substituting device, making it easier to organize activities, exchange information and apply sanctions in spatially more dispersed, but socially still "close-knit" personal networks primarily based on micro-level trust and sanctions.

Before we empirically examine how traders make use of telephones, we will take a brief look at the immense changes in Ghana's telecom market the last decade.

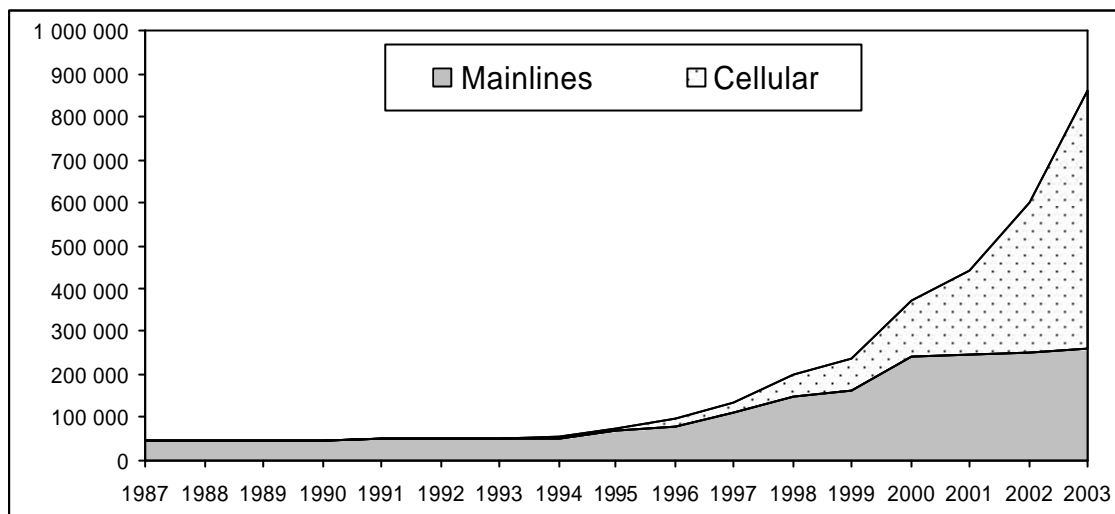
3. The telecommunications revolution in Ghana

(a) Liberalization and growth

The first telegraph line in Ghana was installed in 1881 (then the British Colony the Gold Coast) (Allotey & Akorli, 1999). By 1950, Ghana had reached one of the highest teledensities in Africa: 0.3 mainlines per 100 inhabitants (Michelsen, 2003), but stagnated at this level for the next forty years (Haggarty, Shirley & Wallsten, 2002). The incumbent telecommunication provider, Ghana Post and Telecommunications Corporation (PTC), had a history and reputation of inefficiency and poor services

(Allotey & Akorli, 1999, p.182). Even though 70% of Ghanaians live in rural areas, over 80% of all telephone lines were in urban areas, out of which 53.6% were in Accra. In 1985 the International Telecommunications Union (ITU) estimated that at the then current rate of line growth it would take 80 years to connect everyone on PTC's waiting list (Haggarty *et al.*, 2002, p. 6). The administration was over-sized and the technical staff lacked expertise. The time was overdue for reform. In 1995, the PTC was privatized and turned into Ghana Telecom (GT).⁵ Ghana was also the second African nation to have full Internet connectivity in 1995.

Figure 1. Number of telephones in operation 1987-2003.



Sources: Haggarty *et al.* (2000) and Ghana Telecom 2003.

As Figure 1 shows, there was an enormous increase in the number of telephones within a very short time after the liberalization of the telecom sector. The number of mainlines reached 1.3 mainlines per 100 persons in 2003 – well above the average in Sub-Saharan Africa (GT, 2003).⁶ The most important change, however, was the phenomenal growth in the number of mobile telephones.⁷ In 2003 four mobile phone companies together had 600,000 subscribers (GT, 2003). Public access to telephones also improved substantially. Between 1997 and 1999, 5,000 payphones were installed throughout the country – quite a change considering that there had only been 25 payphones (all in Accra) (Segbefia, 2000, p. 83). Also, more than 10,000 communication centers, often providing fax and Internet services in addition to telephones, have sprung up in Accra alone (see Falch & Anyimadu, 2003). Both private and public access to telecom services for Ghana's 20 million inhabitants has substantially improved. Waiting lists for fixed line telephones are long, and the process of getting it installed is bureaucratic and cumbersome. The demand for mobile

⁵ 30% of the shares were sold to Telecom Malaysia (Michelsen, 2003, p. 115), the government keeping the remaining 70%. Since January 2003 the Norwegian Telenor owned company Telecom Management Partners have been managing Ghana Telecom

(http://www.balancingact-africa.com/news/back/balancing-act_157.html). Ghana Telecom is searching for a new investor to buy Telecom Malaysia's shares

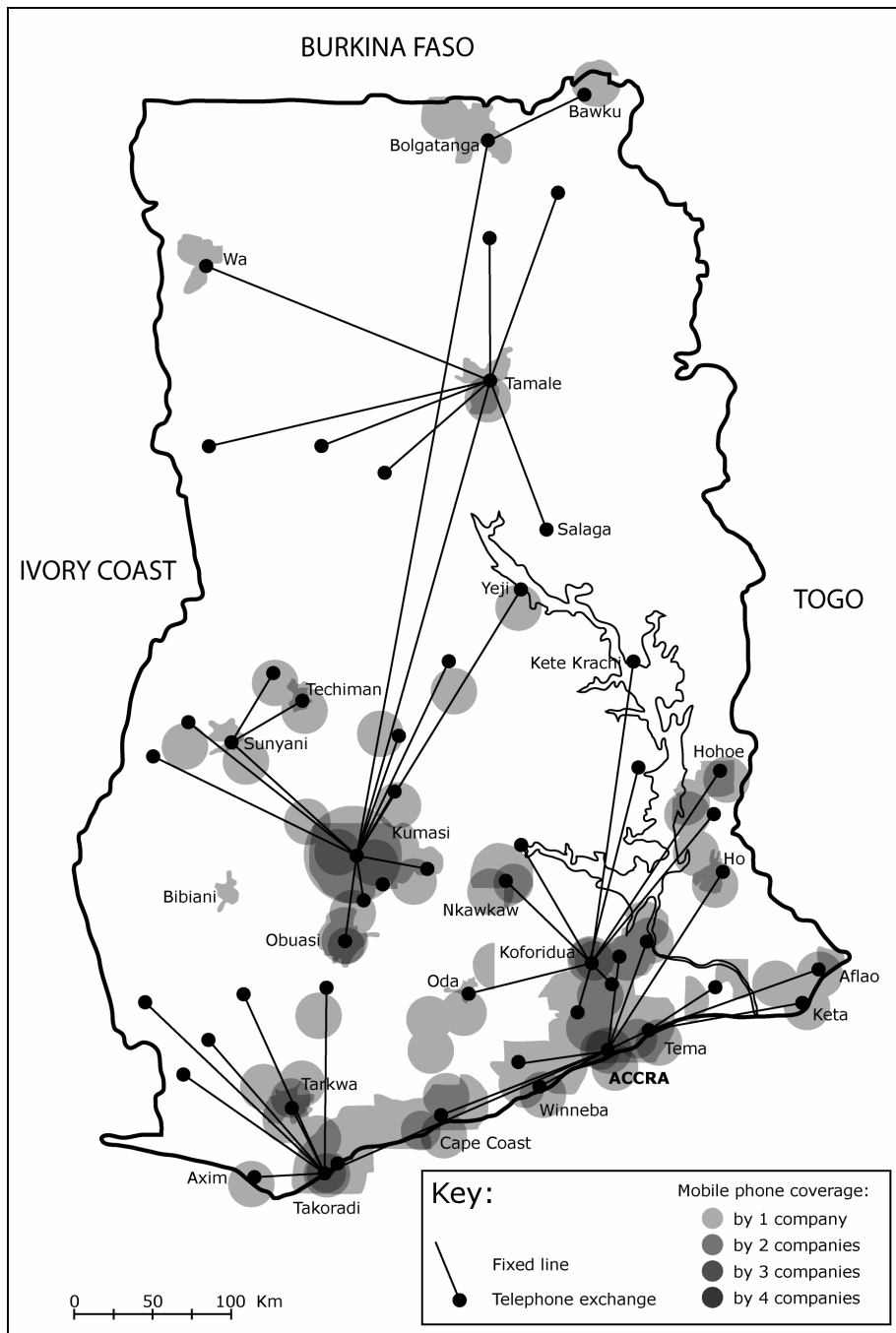
(http://www.balancingact-africa.com/news/back/balancing-act_140.html).

⁶ Interview with management staff of Ghana Telecom, hereafter referred to as (GT 2003).

⁷ Multiple licenses for cellular networks were awarded in 1992, when Mobitel began operations. Celltel began operations in 1995, Spacefon in 1996. In 2000, Ghana Telecom launched its own GSM network (OneTouch).

phone subscriptions is thus far beyond what the four companies are able to provide, and cellular networks are congested. It is often impossible to call from one network to the other and, a few of those who can afford it, acquire two or three mobiles phones – one for each cellular network. Despite liberalization, (foreign) telecom investors face political, economic and cultural barriers in Ghana. This limits their interest and ability to make mobile telephony available for Ghanaians. Nevertheless, it is clear that a mobile phone revolution is taking place.

Map 1. Geographical distribution of access to telephone lines and mobile phone coverage in Ghana in 2003.



Sources: Ghana Telecom 2003, <http://www.spacefon.com>, <http://www.gsmworld.com> and adverts by Mobitel and Celtel in the Daily Telegraph, September 24, 2003.

(b) Accessibility and affordability

Geographical location is the primary factor deciding access. The mobile phone coverage as well as the fixed line network largely reflect population density and follow the main roads. The urban bias in access to telecommunications is a problem. For example, only 69 of Ghana's 110 District Capitals had fixed lines in 1999 (Segbefia, 2000, p. 77). Large rural areas are still without any telecommunication facility, as the white areas on Map 1 show.⁸

Income is the second decisive factor for access to telecom services. Today, almost all business people running registered firms of a certain size have a phone in the shop/office or a mobile phone. However, when a factory worker or teacher earns less than \$ 60 per month and a mobile phone costs more than \$ 100, it is quite obvious that not everyone can afford it. Estimating traders' informal incomes is a challenge. They are reluctant to report how much they earn due to fears of taxation; they often do not know how much they earn because they do not keep any written records; and the income varies enormously from day to day and by season. However, Table 1 gives an impression of some trader groups' range of incomes.

Table 1. *Monthly income ranges among selected trader groups.*

Occupation	Monthly income	
	<i>Cedis</i>	<i>USD</i>
Smoked fish retailer	250-850,000	52-175
Imported fish wholesaler	1-4 million	116-465
Maize retailer	200-800,000	23-93
Maize wholesaler	500,000-2 million	58-233
Onion retailer	400-900,000	46-104
Onion wholesaler	2-4 million	233-465
Cloth retailer	450,000-1 million	52-116
Cloth wholesaler/shop	2-5 million	233-581

Source: Overå (forthcoming).⁹

For most retailers, the cost of acquiring a mobile phone represents much more than a month's income. Retailers with mobile phones had without exception received them as gifts, in most cases from relatives abroad. Among the wealthiest wholesalers, mobile phones are becoming common. But among the wholesalers in the medium (less than 1 million *cedis* a month) and lower (less than 500,000 *cedis* a month) income range, many are still reluctant to use a mobile phone. Even though they could afford (or borrow money) to purchase the mobile phone itself, many prefer to make their calls from communication centers or phone boots, or they use their mobile phone with a prepaid phone card to receive incoming calls only. This is because the tariffs of making a mobile phone call is still extremely high (3,800 *cedis*/0.44 \$ per minute) compared with the tariffs of calling from a fixed telephone (600 *cedis*/0.07 \$ per minute).¹⁰

For small-scale retailers a five minutes mobile phone call may represent a day's income and it is out of the question for them to use mobile phones in their trade. Their

⁸ Some villages do have WILL phones (Wireless Local Loop), a service provided by Ghana Telecom. Mining and timber companies use satellite phones when they are operating in the bush.

⁹ At the time of the survey of 100 traders in Accra in February 2002, 1 USD was 8,600 *cedis*.

¹⁰ Fixed line tariffs increased to 1,800 *cedis* per minute from October 1, 2003 (GT, 2003).

need to call customers and suppliers is often not that urgent either, as they usually sit and sell in one place. A woman who retails tomatoes in Madina market put it this way: “No, I don’t need to use a phone to speak with my customers – I use my mouth!” But for wholesalers, who travel (or send representatives) long distances to purchase goods, operate on a larger scale and need to transport large quantities of goods, a mobile phone is certainly a good investment. The table below shows some examples of how much time and money traders can save on making a phone call instead of traveling to places at different distances from Accra.

Table 2. *Average time and costs savings of travel substitution.*

Location	Distance from Central Accra	Average cost of 5 min. talk <i>USD</i>	Average cost savings* <i>USD</i>	Average time savings**
Adenta	16 km	0.20	0.08	2 hours
Prampram	50 km	0.80	1.66	3 hours
Kumasi	289 km	0.80	11.66	9 hours
Tamale	654 km	0.80	13.50	21 hours
Bawku	899 km	0.80	22.00	30 hours

Source: Adapted from Table 5.2. in Segbefia (2000); own field data 2003 (see section 3 c).

**Cost of a 5 minutes telephone call from a communication center subtracted from the average cost of transportation.* ** *Includes average time spent on waiting for a tro-tro (mini-bus) and traveling to Central Accra and back.*

Though the table is based on the cost of calling from a communication center, which is cheaper than using a mobile phone, it clearly shows that there is time and money to save on substituting travel with telecommunications. For long-distance traders, who exchange information between actors and coordinate activities hundreds of kilometers of traveling distance apart, this opens up new possibilities. In the next section case studies of how traders utilize their improved access to telecommunications in Ghana are presented.

(c) Methodology

To show in more detail how traders utilize their improved access to telecommunications, the empirical data are presented in the form of case studies. The data was collected during two weeks of fieldwork in Accra in February 2001 and two weeks in September 2003. The time span of almost three years between the two fieldworks allowed observation of the rapid change in Ghana’s telecom situation.

I interviewed about 10 key informants: managers of telecom companies, a textile factory, and fish cold storage companies, and mobile phone dealers, communication centre staff, and drivers. With a research assistant from the University of Ghana I also interviewed approximately 100 food and cloth traders at major marketplaces in Accra: Makola, Madina, Kaneshie, and Agbobloshie markets, and in Tema Fishing Harbour. Some interviews were conducted in English, but most were translated from local languages by the research assistant. The interviews were conducted in the form of informal conversations.

Both small- and large-scale traders were interviewed. Since hardly any retailers have phones, the majority of the informants were in the median range of wholesale-retailers. Having conducted several fieldworks among traders in Ghana since 1990,

we already knew quite well what it is like to operate *without* a phone.¹¹ As the fieldwork proceeded therefore began to spot traders *with* mobile phones (given that the introduction of mobile phones represents the most important change) to know more about these traders experiences. We either found them through information from other traders, or we simply observed that they had mobile phones. Most of them had only had phones for one to five years. Often traders with mobile phones were trading in the midst of colleagues without phones. We could therefore get a vivid picture of the changes in trading practices that the acquisition and use of phones brought about.

4. Traders' adoption of telecommunications

To transport goods to the market, service customers and make profits, traders need to exchange information; coordinate people and activities; make themselves available to suppliers and customers; and minimize the risks of money transactions. These tasks require communication. Telecommunications makes it possible to exchange information instantly, which is otherwise simply physically impossible across distance. New technology, especially mobile phones in this case, thus has the potential of reducing the need to travel in order to communicate directly with a person and the risk of making decisions on purchases based on false or outdated price information. The cost of employing and transporting a messenger and hence the risk of trusting an untrustworthy messenger with vital information may also be reduced. As the cases below will show, the extent to which telephones save costs and change trading practices varies according to factors such as the type of commodity one trades in (whether it is perishable, and whether emphasis lies on offering quality and variety rather than on transportation of large quantities); the scale of one's trade; the size of one's trade network (number of persons); the geographic extent and complexity (number of links/transactions) of the commodity chain.

(a) Exchange of information

For traders in agricultural produce – goods that are both seasonal and perishable – information about supply and demand is critical for the determination of market prices and for traders' bargaining power. Information "travels" between rural wholesale markets and urban retail markets through colleagues. But this process takes time while the supply and demand situation can change quickly and is highly unpredictable (see Lyon, 2000, p. 668). Exchange of information on prices, supply and demand was therefore mentioned by all the traders as the most important utility of phones. It is risky *not* to exchange such information: one risks great losses, either because one ends up with a too small profit margin, or because one is stuck with unsold and rotting food.

An example of traders' need to exchange information between rural and urban markets is the case of Kofi, a young yam traveler working for a female wholesaler at Agbobloshie market (the largest wholesale market in Accra). When Kofi travels 560 km to Salaga (see Map 1) to buy yams in the surrounding rural areas, he always calls the wholesaler in Accra to give her information about the local yam supply and producer price. She then assesses the demand and supply situation of yams in Accra

¹¹ In February 2002, I also conducted a survey of 100 informants (with the same research assistant) on gender relations in the informal economy, which included questions about telephone ownership and use (Overå, forthcoming).

and decides how much yams Kofi should buy and what price he should accept. If there is too much yam in Accra, or she has got information through her network that many trucks are on their way to Accra fully loaded with yams, she may tell him to wait for a week or two.

In the areas where Kofi travels, making a telephone call is cumbersome and costly. He often travels 30 miles by bus from a village (where he negotiates with farmers) before he reaches the nearest town with a communication center. Then he calls a communication center in Accra, whose messenger fetches the wholesaler, who then calls him back. To cut a link in this “information chain”, Kofi’s wholesaler recently bought herself a mobile phone. She mainly uses it to receive incoming calls, not only from Kofi but also from other trade partners who inform her about the yam market in other parts of the country. This enables her to calculate demand, supply and prices more accurately which reduces the risk of losing money and improves her profit potential. However, due to lack of telecommunications in rural areas, the wholesaler does not (as yet) consider it worth the considerable investment to equip Kofi with a mobile phone: since there is no coverage in the areas where the yam producers live, it would be of no use in the communication between Kofi and the Accra wholesaler. One factor could also be lack of trust between Kofi and the wholesaler: she may suspect that he will use the phone for private purposes. Hence, Kofi continues to make his long journeys from the villages to phone, but at least now he can call his wholesaler in Accra directly on her mobile.

(b) Co-ordination of multi-local activities

When traders administer large networks of producers, transporters and trade partners over long distances, co-ordination is a problem. The following case describes the far-reaching geographical extent and organizational complexity of onion trade, and illustrates the gains of telecommunications for those involved. Most onion wholesalers in Accra are male and originate from northern Ghana, Burkina Faso, Mali or Niger. Onion wholesale trade is relatively profitable (see Table 1) and as migrants and long-distance traders, telecommunications is highly needed among this category of traders.¹² Therefore, as soon as the main towns in Northern Ghana got mobile phone coverage in 2001, many onion wholesalers acquired mobile phones (roughly 25%, one of them estimated in 2003).

Mohammed (32) is an onion trader from Bawku, a northern town near the border to Burkina Faso 900 km from Accra (see Map 1). He has a wife and children there and an onion farm. His uncle, an onion wholesaler, trained him. Mohammed and two other men from Bawku trade in onions with the uncle as their patron or leader. By ethnicity all the network members are Builsa. Following the seasonality of onion production, Mohammed alternates between living in Bawku and Accra. In both places he lives in his uncle’s houses. The traders rent plots of un-built ground in Accra to grow onions. They plant onion seedlings in May while hired laborers harvest them three months later. As onions are harvested in Accra, Mohammed plants onion seedlings in Bawku (from July onwards). These onions are harvested in October-November. Except

¹² Whether an area has many out- or in-migrants is one of the main factors telecom companies consider when choosing places to install telecommunication equipment (interview with manager of Capital Telecom, Accra, 2001). Migrants use telecommunication services more than the resident population in general (Segbefia, 2000).

during the hectic planting and harvesting weeks, Mohammed operates as a trader, either bringing truckloads of onion bags from Bawku himself to the Agbobloshie market in Accra, or receiving loads sent by his uncle from Bawku, Mali, Niger or Burkina Faso.

A lot of communication is required to co-operate and organize this multi-local onion production and trade network. The most important factor, Mohammed says, is *timing* of harvesting, drying, packing and transportation to achieve an ultimate balance between supply and demand. This is very difficult without telecommunications since the people who perform the various tasks are located as far apart as in Accra, Bawku, Mali, or on the road. Mohammed's uncle has a fixed line both in his Bawku house and his Accra house and Mohammed used to call him via communication centers. But when Bawku got mobile phone coverage in 2001, it immediately became worthwhile to acquire a mobile phone, and both Mohammed and his uncle bought one. Since they are on the move most of the time, co-ordination has become much easier. Mohammed says: "I can now quickly call my uncle and say that the market in Accra is good so he should send onions at once. Or when there is a glut, I ask him to hold back." This allows Mohammed and his uncle both to improve their profit potential, to save time and transportation costs, and to monitor whether their workers' and trade partners' are performing tasks according to agreements. Mohammed says the more efficient and frequent verbal interaction allowed by the use of mobile phones, enhances the confidence between him, his uncle, and their partners (cf. Lyon, 2000). They can more easily ensure that jobs are done in time and they get information quickly about the reason why jobs are sometimes *not* done according to agreements. Nevertheless, improved micro-level trust cannot replace the meso-level trust on which their network is based. Recruitment of workers, screening of trade partners' trustworthiness, control and sanctions are still based on their common Builsa ethnic identity, knowledge about trade partners' reputation through their common origin in Bawku and on lineage-based authority structures, norms and rules.

(c) Availability as comparative advantage

Mobile phones make traders more available. With the growing problem of traffic congestion in the capital city considerable time is spent on traveling between the city center and residential areas (see Segbefia, 2000). Especially women, who spend long hours in the market at the same time as they are in charge of meals and child care at home, often plan and administer business and family life through the mobile phone while stuck in a traffic jam.

Importantly, mobile phones make traders more accessible to customers (provided the customers have access to phones too). Abubakar (30), another onion wholesaler, has acquired a long list of customers in his mobile phone's telephone book. The phone has given him many new customers, who call or send text messages at all hours. His "customer radius" now increasingly extends beyond Accra. Abubakar receives orders from regular customers in Winneba, Cape Coast, Takoradi, Tarkwa, etc. (see Map 1). He sends a message back, confirming the order or informing about the arrival of new supplies. He sends the bags of onion by bus and calls to inform the customer about when the bus will arrive. This may sound banal and self-evident, but *without* telecommunication facilities, the ordering of goods is very time consuming, and

requires that the customer physically makes a trip to Accra to purchase and bring the goods home, sometimes having to make more than one trip or stay overnight.

Abubakar's mobile phone, which improves his services, has become a comparative advantage in an overcrowded market. Not only is the availability he achieves with the mobile phone an advantage for practical reasons – it facilitates the building up of his trustworthiness. One factor could be that Abubakar's display and use of a mobile phone is good advertisement: he signals to the surroundings that he has had success, and is probably a trader worth trading with. Like other traders (and drivers) with mobile phones, Abubakar gives customers his mobile phone number as a “guarantee” of his trustworthiness. He encourages his customers to call and make enquiries, and to call and complain – at any time of the day or night – if onions at the bottom of the bags are rotten. He guarantees that they will get their money back. He feels that this strategy invokes the customers' trust in him and makes him more attractive than traders without mobile phones, as he says: “I sometimes steal their customers.” This strategy can also be used the other way around: when Abubakar knows his customers' phone numbers, they become more available to him too, making it easier to remind customers of their debt. At least to some extent, then, improved availability by mobile phone reduces the risks of transactions for both trader and customer. In this case, mutual trust develops and results in more transactions at a lower cost (cf. Aminuzzaman *et al.*, 2001).

It is important to note that it is not the mobile phone itself that the customers trust. They trust Abubakar as a person, with a known background and good reputation. Hence, “(...) customers may gravitate towards a salesman with a good track record” (Dasgupta, 1988, p. 70). It does however appear that improved availability combined with display of success can “speed up” the pace at which one can achieve a good record. In fact, it is likely that Abubakar's use of his mobile phone to become more available to customers has not only extended his geographical trade radius and the number of transactions he is engaged in; it has also saved him several years of gradual reputation-building, granting him a position as one of the most trustworthy onion wholesalers in the Agbobloshie market, despite his young age.

(d) Improving services

In cloth trade, the main issue is not transportation of large quantities from rural areas but service provision, refinement, and variety of designs. Large-scale cloth wholesalers make high incomes (see Table 1) and can afford phones. Some have phones in their market stalls. Most cloth wholesale shops have a fixed line. The trader in charge usually has one at home and some have several mobile phones (to get through on congested cellular networks). Since cloth is a luxury item, many cloth customers have phones too. Also, cloth suppliers (factories and depots, see below) can be reached by phone. Thus in comparison with food traders, whose customers (retailers) and suppliers (rural farmers) often lack access to telecommunications, the return of a telephone for cloth traders is higher.

Ghanaians buy cloth for special occasions like funerals and festivals. Often lineages or other groups (such as trader associations) decide to have identical dresses made of a particular cloth for such grand occasions. The choice of color and pattern often

conveys a message. The patterns are copies of old Java prints,¹³ or are based on the patterns of traditional hand-woven cloth, or carry modern symbols and designs. New designs are created every season. A trader thus has to be constantly updated on what is in vogue. People's design preferences also vary according to the regions they originate from. Cloth traders in Accra, who receive customers from all over the country, thus need to have a thorough knowledge about "regional tastes."

Importers and factories distribute cloth to depots in the regional capitals and larger towns. The different regional tastes are reflected in the depots' stocks. Paradoxically, since the most popular designs are often out of stock in the factories, traders from Accra often have to travel to regional depots and buy cloth that they transport "back" to Accra.

The combination of a rather cumbersome cloth distribution system and Ghanaian cloth customers' sophistication and demand for variety, makes telecommunications particularly advantageous.¹⁴ Traders need to inform their customers about whether they have a particular design in stock, how long an order from the factory may take, make orders from cloth depots in various parts of the country and inform customers about when it has arrived. Often customers wander between stalls and shops with samples of a particular cloth they are looking for, enquiring whether the traders have it in stock. If not, the customer continues to the next trader. A trader with a phone can quickly call the factory or the various depots to find out where and when the particular design is available. If the customer also has a phone, the trader will call him/her immediately when she has got it. This becomes a much more interactive way of trading than just sitting in one's market stall with the designs one hopes will sell.

"Mary" (45) is one of GTP's (Ghana Textile Printing) 35 regular dealers in Accra. She has a fixed line in her house in a suburb outside Accra, a fixed line in her shop, and has had a mobile phone since 1996. During my fieldwork in 2001 she had a cloth shop outside Makola market and employed three persons. In 2002, she expanded and opened another shop nearby, now employing in total six persons. An active use of telephones in Mary's simultaneous management of two shops is all-important. It enables her to efficiently advise and control her employees and to search for information in the cloth market. A noticeable increase in the number of cloth customers with mobile phones also explains why Mary increasingly receives orders, provides information and negotiates prices over the phone.

Unlike most other Ghanaian traders, Mary does not extend credit in order to attract customers. Experience has taught her that she cannot trust that even her richest and most well-known customers repay their debts. Instead, her main strategy is to offer an enormous variety of designs. This requires intensive searching for the designs that her

¹³ West Africans' taste for this commodity was aroused when Dutch traders in the nineteenth century began to use wax prints from Java as a means of exchange when they called ports in Africa on their way back to Europe. The cloth used in Ghana today is made of cotton with beautiful and colorful prints, and are factory made in Ghana and Côte d'Ivoire, or in the Netherlands, Great Britain or Asia. Source: Interview with managing director of Ghana Textile Printing (GTP) of the Dutch Vlisco group in February, 2001.

¹⁴ Computers, on the other hand, seem to be of little value for cloth traders. One textile factory gave its regular dealers (operating on a large scale) computers on credit and training in computerized stock taking. Three years later, none of the 20 traders were using the computers in their business. At best their children were using them for education purposes.

customers request. She is constantly in touch over the phone with other wholesalers, the GTP factory in Tema and depots in Sunyani and Tamale (see Map 1). Instead of traveling or sending her employees for information about whether particular designs are in stock, she phones. Until recent years, calls had to go through secretaries during office hours, which meant that Mary most of the time could not get in touch with her information contacts. To accomplish anything at all, she rather made long trips to make enquiries and purchases. Many of her contact persons at the depots and the textile factory now have mobile phones and can be reached directly, also beyond office hours. This makes the co-ordination of her business much more efficient: she saves time and transportation costs, which she reinvests in her business (i.e. opening a new shop).

Notably, Mary's expansion in the competitive cloth market is not caused by better access to telecom services alone. Indeed, it is Mary's entrepreneurial utilization of the new technological possibilities, enabling her to take full advantage of her personal competence and contact network, *in combination* with her time and travel cost savings, which explain her success. Mary has built a reputation as a trader with a deep knowledge about all the cloth designs, who can trace special designs in the depots (or among other traders) and respond quickly to her customers' requests. Despite a decreasing demand for the most luxurious cloth types among Ghanaian consumers Mary's business therefore thrives.

(e) Reducing the risk of money transactions

Imported fish (mainly from Namibia, Angola, Mauritania and the EU) is distributed through a global commodity chain.¹⁵ International industrial vessels or international fish exporters sell fish to import/cold storage companies in Tema Fishing Harbour. Women from all over Ghana purchase cartons of frozen imported fish in Tema, which they distribute to smaller towns, both inland and on the coast.¹⁶

Wholesalers in imported fish are among the wealthiest traders (see Table 1) and some of the big "fish mummies" were thus early adopters of mobile phones. Access to information about prices, fish types and qualities, and timing of arrivals, is vital in trade of this perishable good. Instead of driving for many hours, perhaps staying in Tema for days negotiating and/or waiting for supplies to arrive, traders now call to make their orders. If a trader does not turn up for her order, the cold storage company can call to enquire whether they should wait for her or cancel the order. In this way the company is not stuck with unsold fish. Planning becomes easier and turnover increases. One company even gave their regular wholesalers mobile phones on credit to facilitate larger and safer transactions. The importers now communicate with international export companies via the Internet, which allows them to compare fish prices globally. They also communicate with the crew on fishing vessels and cargo ships by mobile phone as they approach the harbour,¹⁷ making it possible to inform their wholesalers (if they have phones) in advance about the arrival of supplies.

¹⁵ Information from the Directorate of Fisheries' Marine Fisheries Research Division in Tema.

¹⁶ Many local fish processors supplement their business with imported frozen fish during the lean season of the canoe fishery (producing about 60% of all fish consumed in Ghana). They purchase frozen fish from wholesalers or directly from the cold stores in Tema. In their villages, they thaw, and then smoke and distribute the imported fish as they do with the locally caught fish (see Overå, 1998).

¹⁷ An important advantage compared with "broadcasting" information on the radio (VHF) is privacy: on the mobile phone one can exchange secret price information.

Telecommunications has brought about an important change in money transactions between traders and cold storage companies. The consignments of individual wholesalers can be worth more than USD 100,000 and both trader and company risk great losses if trust is mismanaged. Companies risk that wholesalers disappear with fish without paying. Traders traveling with bags full of money to pay for their truckloads of fish risk to be robbed. To avoid these risks, most companies now only accept bank checks and have introduced a system of payment that requires telecommunication.

The big traders are required to have accounts in the banks in the harbor. The trader calls the bank from her home town to transfer the agreed amount into the cold storage company's account. When she travels to Tema, the bank provides her with a bank check guaranteeing that there is enough money on her account and that the amount has been transferred. Before the trader gets her fish, the company phones the bank to make sure that the correct amount has entered their account (in case the bank check was false). Instead of just hoping that the trader could be trusted, and perhaps spending a lot of time and effort on retrieving money (or the trader actually was robbed), bank transactions reduce the risk of payment default, theft and embezzlement.

By using the bank as an intermediary, aided by telecommunications, the sole reliance on (micro-level) personal trust is reduced, and is replaced (or, supplemented, rather) by (macro-level) trust in a formal institution – the bank. A precondition, of course, is that the bank can be trusted, which is often not the case in Ghana (Segbefia, 2000). Nevertheless, the case of the fish wholesalers indicates that when all parties in a transaction are able to monitor each other through the use of telephones, they achieve a higher degree of control and are able to trust that agreements are fulfilled.

5. Discussion

Telecom development in Ghana is at an early stage. Limited rural coverage, cellular network congestion, bureaucratic and long-lasting procedures to get fixed lines installed, and high tariffs combined with Ghanaians' low purchasing power still hamper universal access and efficient utilization of telecommunications. However, with the current speed of installation of mobile phone networks and increasing public availability of phones through communication centers, traders will increasingly communicate by phone. This study of the "pioneering telecom adopters" provides insight into some of the effects of this on cost and risk reduction, and on trust enhancement, under circumstances where economic transactions are hazardous.

Traders' experiences leave no doubt that telecommunications is an enabling general purpose (Helpman, 1998) and space-shrinking (Dicken, 1998) technology. The longer the distance and the more intermediaries and transactions the commodity chain involves, the more time and money can be saved by substituting travel to obtain or deliver information with telephone calls. It is not the cost of transportation of goods that is reduced but the cost of transporting people to exchange information and co-ordinate activities. Money is saved on fuel, bus fares and on remuneration of intermediaries. Hours and days spent traveling between suppliers, customers, creditors and debtors can be put into more productive work. Telephones thus enable traders to co-ordinate a larger number of activities, employees and co-operation partners, and to

serve a larger network of customers in a wider geographical radius. Combined, these factors result in improved services, an increased turnover and higher profits.

According to Minten and Kyle's (1999) study (focusing mainly on road quality in the former Zaire) lower transportation costs should increase the availability and reduce the prices of goods, and lead to higher wages for both producers and traders. In our study we did not find that traders reduced their prices because they saved on travel costs. Since prices in the markets are still determined by the majority of traders, who do not have phones and who do not save transportation costs, phone owners' savings on travel primarily result in higher earnings and an improved competitive position in relation to traders without telephones. The early telecom adopters thus have a major advantage, which has enabled many of them to expand their business and improve their living standards. Further investigation would be needed to establish whether traders' reduction of costs also benefits (rural) producers. When it comes to availability of goods, the emphasis that the traders in this study place on how useful telephones are in balancing demand and supply indicates that a higher occurrence of telephone use – especially among traders in perishable food stuffs – will lead to a more steady stream of goods to the markets, reducing at least a proportion of the vast spoilage of food that always occurs during glut seasons. It may also be possible to stretch out the supply of seasonal crops over a longer time span.

Traders find that searching for information is the most important purpose of telephones. Through more instant access to information about supply, demand, quality and prices, search costs and information asymmetries are reduced, resulting in better planning, more accurate calculations and more predictable transactions. Due to inadequate institutional solutions to lack of trust between actors in the market a “flea market mode of transaction” (Fafchamps, 1996, p. 444), where one inspects the goods on the spot, pays cash and walks away with it still prevails in Ghana (Segbefia, 2000 p. 143). Physical inspection of goods is not possible over the phone. Nevertheless our interviews with traders made it clear that they calculate the cost of making spot transactions (i.e. costs of travel and information gathering) against the benefit of making more frequent and longer-distance transactions with trade partners and customers over the phone despite the risk of default. They experience that the reduction of information asymmetries and transportation costs, and the reduction of intermediary links in the commodity chain, increase the chance of making successful long-distance transactions. However, as also Segbefia's (2000) found in his study, even if telecommunications are increasingly available in Ghana “initial contact between suppliers, traders and customers still often needs to be done in person” (p. 128). Or as Fafchamps (1996) puts it: “An Accra carpenter cannot, like his US counterpart, send a fax to a distant lumber company and reasonably expect the wood to show up” (p. 445). The goods have to be inspected and the personal relationship has to be initiated with the supplier. However, once that trust is established, and the first transactions run smoothly, there is considerable savings to make on conducting subsequent orders over the phone.

As Segbefia (2000) also points out, there is the perception in Ghana when telephones are available, certain types of information need to be conveyed personally: the message about a close relative's death, elaborate contract negotiations and credit requests – or “asking for favors”, as our cloth trader “Mary” put it. Also, due to inadequate bank services for traders in the informal economy (Chamlee-Wright,

1997), money must be delivered physically.¹⁸ Personal travel or trade intermediation thus cannot be eliminated. Traders do however experience that the possibility (and threat) of monitoring the intermediary's movements through frequent telephone communication to some degree reduces the risk of cheating. For conveyance of simpler kinds of information (where and when to pick up goods, for example) traders are able to substitute intermediaries with direct calls. Then they not only save transportation costs but also reduce the risk connected with intermediaries' personal trustworthiness. Besides, even the most trustworthy intermediary faces risks connected with the uncertain economic and political environment and inadequate infrastructure, which is beyond his or her control.

The kind of information traders appreciate, reveals a lot about the magnitude of transaction costs they calculate with and the cost saving potential of a phone. Information about trade partners' health and security while on the road is emphasized. Road accidents, breakdown of vehicles, robberies, police and customs officer harassment, and disease are all common incidents that make long-distance travel risky. The possibility of calling for help with a mobile phone while stuck on the road was mentioned by many as a good security investment. Better communication and instant information about problems on the road seem to build confidence between trade partners. Likewise, the possibility for a traveler (or truck driver) to inform traders and/or customers about legitimate reasons for delays of deliveries calms down angry customers suspicious of being swindled by traders/drivers disappearing with goods (and makes it possible to send a new truck to pick up the delayed load).

The cases presented make clear that nobody is so naive to believe that a telephone in itself makes a person trustworthy. As one truck driver put it: "Customers cannot trust that the telephone number you give them will be answered. It is better to be member of a [truck drivers'] union so that you are known." To become "known" (i.e. trusted) is a process involving several stages. Firstly, the person should preferably be member of a group considered trustworthy, such as a union, a market association, an ethnic association, a church, or similar groups invoking meso-level trust (Humphrey & Schmitz, 1998). A second (or preferably additional) criterion is personal recommendation, pointed out by Fafchamps (1996) as the reputation mechanism considered by Ghanaian firms as the most reliable (that is, the least *unreliable*), since "clients recommended by trustworthy people are more likely to be trustworthy themselves" (p. 441). This far in the process of trust-building, face-to-face communication and personal interaction is crucial.

At this stage of establishing a trade relationship, or including newcomers into a network, trade partners must agree on common norms and interact for a while before trust can be established (see Fukuyama, 1995, p. 27). Trust requires testing through monitoring of one another's behavior (Granovetter, 1985) and repeated interaction is the main enforcement mechanism (Fafchamps, 1996, p. 441). It is in this process of testing, monitoring and enforcement agreements that telephones seem to have the greatest impact. To some degree face-to-face interaction (even debt demands) is

¹⁸ Fish traders have developed a money sending system, whereby each trader has her individual symbol in the form of a piece of cloth, in which cash can be wrapped, often tied in a special way that only the trader and her trusted partner are aware of. In this way an intermediary (often the truck driver transporting the smoked fish) entrusted to deliver the money (i.e. from a trader in Kumasi to a trader on the coast) will be revealed if he tries to untie the bundle and steal parts of it (see Overå, 1998, p. 143).

replaced with verbal interaction over the phone. The traders indicate that the communication required in the process of monitoring other network members' activities and enforcement of agreements takes less time and is cheaper when they use telephones. But this requires that trust is well established and that risk-reducing sanctions are at hand (Humphrey & Schmitz, 1998, p. 41). One sanctioning possibility that the phone opens up is that dishonest behavior by intermediaries, trade partners, drivers, suppliers or customers can be observed in far-away places by colleagues, who may instantly phone the trader in charge. Information "travels" much faster by phone than by road. Similarly, the spreading of rumors to stain traders' reputation can happen very quickly when potential customers and co-operation partners are informed by phone about dishonest behavior. This also works positively in the other direction: reputation building takes less time and extends more widely in space. Clearly, telephones make it more practical to organize more spatially dispersed networks where traders rely increasingly on micro-level arrangements, but as also Humphrey & Schmitz (1998) point out, these only work when they are "backed up by meso-level reputation mechanisms" (p. 53). Talking on the phone is in other words not in itself a trust-building mechanism: rather it is a tool to make already existing trust-building mechanisms – exchange of information, observation of behavior and sanctions against dishonest action – more efficient.

6. Conclusion

Through the adoption of telephones traders save transportation costs by substituting travels with calls, and reduce transaction costs through better risk management, reduced information asymmetries, and co-ordination and monitoring of network members. Telecom adaptation particularly appears to benefit traders who operate over very long distances, traders in goods that require particularly much and detailed information exchange and those, whose customers tend to belong to the segments of the population with access to phones. Considerable cost savings are however only possible in trade networks founded on meso-level trust, whose members – equipped with new technology – are able to organize their activities more efficiently. In the initial phases of establishing trade networks, meso-level trust plays a major role, but when the trade relationship is established, improved possibilities for long-distance communication through phones tend to enhance personal confidence between trade partners in an otherwise uncertain environment. Access to telecommunications thus strengthens processes of micro-level trust-building in already existing networks. Though possession of a phone does not qualify a person as trustworthy as such, the possibility to communicate with other traders and be more available to customers makes it easier to extend one's contact network and build a good reputation more quickly. Being able to provide customers with better services, traders with phones acquire reputations of reliability. Their perceived trustworthiness and improved availability all around the clock give them a comparative advantage over the majority of traders, who do not own a phone or live in an area without coverage.

Despite a phenomenal growth in telephone lines and mobile phone networks, Ghanaians' access to the new technology is still highly inadequate and unequal. This hampers a full utilization of the technology, even for those with access. This study of early adopters of new technology show that the combined effect of a wider geographical reach, a higher efficiency and a reduction of travel and transaction costs, drastically changes their mode of operation, enhances the building of trust in trade networks and facilitates a higher number of transactions at a lower cost over longer

distances. Improving the access and affordability of telecommunications technology should therefore loom as high on the government's development agenda as it does for the traders.

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Summary

Ghana liberalized its telecom sector in 1995. This study looks at the impact of the phenomenal growth in access to telephones on the business practices of traders in cloth, fish and agricultural produce. The article examines how the use of telecommunication technology reduces traders' time and transportation costs, and explores its impact on initiation and maintenance of relationships of trust in trade networks. It is argued that with a tool for more efficient communication over long distances, transportation and transaction costs are reduced. The quality of the services that traders provide and the profit they make thus improves.

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