Mobile Phones, Farmers, and the Unsettling of Geertz’s Moroccan Suq/Bazaar Economy

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Abstract: In this article, I first examine the ways Moroccan smallholder farmers deploy mobile phones to revise their relationships with markets and roving middlemen. Second, based on a mixed method of participant observation and survey data, I claim that mobile phone use has transformed farmers’ economic behaviour, resulting in deeper market participation and the gradual undoing of the role of middlemen in the agricultural value chain. Finally, I contend that farmers’ use of mobile phones to synthesise market information from different marketplaces does not only unsettle Clifford Geertz’s arguments on information search strategies in the suq economy, but it also renders the centrality of his notions of intensive bargaining and clientilisation far less important than it used to be before the onset of mobile phones.

Keywords: farmers, Geertz, markets, mobile phones, Morocco

In this article, I examine how and to what effect mobile telephony is used by smallholder farmers in the Saharan frontier of south-eastern Morocco. Specifically, I investigate how farmers use mobile phones to redefine market information asymmetries between them and footloose middlemen more easily than before. Clifford Geertz (1979) described the suq as a place where the search for information is the name of the game. He argued that the lack of reliable market information in the suq was channelled through bargaining and intensive information searches. In this article, I argue, in contrast to some of Geertz’s insights, that mobile phones have allowed farmers to shift their economic behaviour from a mode of intensive search to a mode of extensive search in which they canvass widely and make decisions based on known produce prices in different market areas. Thus, in leveraging extensive searches,
clientalisation and bargaining are no longer as important for farmers as they used to be in the pre-mobile phone era.

This article consists of five sections. The first section provides a theoretical framework of the mobile phone in the farming economy. The second provides a background on smallholder farming in the Ziz River Valley of south-eastern Morocco. The third describes my research methods and findings. The fourth deals with the mobile phone and the spirit of entrepreneurialism. Finally, the last section delves into the use of the mobile phone for information search and the levelling of information asymmetry between farmers and middlemen.

**Theorising the Mobile Phone in the Farming Economy**

There is growing literature on the impact of mobile phone use on farming activities and practices in the developing world. Mobile phones facilitate the dissemination of agricultural information to farming communities, enable farmers to conduct checks on market prices, and accelerate agricultural growth by facilitating knowledge management and planning. The rapid increase in the use of mobile phones worldwide has influenced farming activities in various ways. The mobile phone has allowed for an increase in farmers’ incomes, reduced information and transportation costs, made agricultural marketing more efficient, and empowered farmers to renegotiate their bargaining power and position within traditional trade relationships. Significantly, it has empowered farmers to engage directly with wholesalers, switch markets in response to better prices, and penetrate larger and more distant markets (Ilahiane 2007; World Bank 2013, 2016).

In Niger, Jenny Aker (2008, 2011) found that the expansion of mobile networks has positive effects on both traders and consumer welfare by decreasing grain price differences by 20 per cent; reducing traders’ search costs by 50 per cent; increasing traders’ profits by 29; and reducing average consumer grain prices by 3.5 per cent, which is equivalent to 5–10 days of grain consumption annually. These results are not because more products were traded but because better prices were obtained through real-time market research made available by mobile phones. Moreover, Aker also reported that the use of mobile phones enabled traders to reach more markets and establish wider contacts. In Uganda, Megumi Muto and Takashi Yamano (2009) found that mobile phone coverage and information availability improved banana farming expansion, leading to greater market participation and a 10 per cent rise in profits. In the Philippines, Julien Labonne and Robert Chase (2009) reported that ownership of a mobile phone has a correlation with higher incomes, in the range of 11–17 per cent, as measured through consumption behaviour, as well as improved relationships with trading partners. In India, as mobile networks were expanding in coastal areas, Robert Jensen (2007) found that fishermen who were previously ill-informed of daily prices in different markets were
now able to contact various ports to find the best price for their catch. This resulted in more profit for fishermen as this information allowed them to sell their fish at the market where they obtained higher prices. Waste decreased and prices equalised throughout the regional port, and there were even small gains in consumer welfare. Lars-Hendrik Röller and Leonard Waverman (2001) claimed that a developing country with an average of 10 or more mobile phones per 100 people would have enjoyed per capita gross domestic product (GDP) growth of 0.59 per cent higher than an otherwise identical country with a mobile phone density of less than 10 phones per 100 people.

The aforementioned studies discuss the benefits of the use of the mobile phone in the agriculture sector. However, there are cases where the mobile phone has shown little to no impact on the relationship between farmers and traders/middlemen. Thomas Molony (2008) conducted a study on the effects of mobile phones on traders/middlemen of perishable foodstuffs in Tanzania. In his study, due to the importance of credit in the relationship between farmers and these wholesale buyers, Molony found that the introduction of the mobile phone had no impact on these relationships, and therefore, farmers did not benefit as is found in other studies. Molony claims that farmers accepted the middlemen’s prices for their crops because the middlemen also served as their creditors. Farmers were unable to leverage mobile phone–based information on market prices and potential buyers in other markets or areas as doing so would run the risk of damaging their relationship with a middleman who is also a supplier of much-needed credit and other services.

**Background on Smallholder Farming in the Ziz River Valley**

This article is based on ethnographic research I conducted with smallholder farmers in the Ziz River Valley of the Errachidia Province, an oasis-dominated province in southeastern Morocco. According to the 2014 General Population and Housing Census, the population of Errachidia Province is 555,000, divided into 69 per cent rural and 31 per cent urban (Ministère du Plan 2014). The Ziz Valley population is concentrated around reliable water and in urban market and service centres. Approximately 61 per cent of the total population is employed in the agricultural sector. Population density is high in both urban and cultivated areas. The Ziz Valley’s inhabitants live in fortified villages, called *ksur*, and speak Berber (Tamazight) and Arabic. These villages are large, square structures built of adobe, sun-baked earthen bricks, and stone. As a corporate settlement formation, the village cannot be separated from the palm grove, the threshing floors, the livestock grounds, the cemetery, and the olive oil press that comprise its outside organisation. The palm grove is the ensemble of fields and trees owned and managed by each village. It is fragment into a myriad of parcels crisscrossed by a meticulous network of irrigation canals and ditches.
The Ziz River Valley region is arid and part of the vast pre-Saharan region. Agricultural resources are concentrated in cereal cultivation, arboriculture, and livestock. The area available for the practice of farming is 43,069 hectares and the potential area covers 48,069 hectares making up 45,000 farming household units. The average farmer’s entire holdings total less than a hectare (0.86 ha), with about 65–70 per cent of his total holdings under cereal cultivation (0.6 ha) and the rest under alfalfa and seasonal vegetables or occupied by perennials, such as olive, fruit, and date palm trees. On the provincial level, the farming system is partitioned as follows: cereals occupy 60 per cent of the farming area, barley 14 per cent, alfalfa 10 per cent, corn 9 per cent, fava beans 4 per cent, vegetable gardens 2 per cent, and henna and cumin 1 per cent. More than 1 million date palms and 700,000 olive trees mark the twisting, 0.5- to 10-km wide Ziz Valley as it bisects the Province of Errachidia. Livestock is the third important economic aspect of the valley’s agriculture, with an average of five to six head of sheep per household (Ilahiane 2004).

In summary, the potential productivity of the region is constrained by climatic conditions affecting the resilience of the valley’s irrigated farming. Remoteness from major population centres, lack of transport and road infrastructure, deficient produce marketing strategies, water scarcity and its erratic variability over time and space, recurrent droughts, and frequent locust invasions have contributed to the impoverishment of the valley’s environment. All these factors have, in one way or another, deferred the optimisation of agricultural productivity.

**Methods and Findings**

This article draws on ethnographic research on mobile phone use and economic productivity of smallholder farmers in southeast Morocco. It examines the way the mobile phone is put to economic use to create and augment business opportunities and social networks. It also investigates daily calling practices of users by analysing incoming and outgoing logs of voice calls, the proportion of personal and business voice calls, and trends of landline phone usage. The research methods underlying this study are primarily ethnographic in nature. Employing the ethnographic practice of participant observation and structured interviews, I spent the summers of 2003, 2012, and 2016 developing a richly detailed understanding of the role of mobile phones as tools for economic development by focusing on their role among farmers in rural Morocco. I spent time with these farmers while they engaged in their trade or work activities. I visited their homes and farms multiple times, and I attended Friday prayers with some of them. I also went to the weekly suq or market with some of the farmers.

The work thus combines detailed participant observation research with historical and documentary research showing the economic and social trajectories
of Morocco that gave rise to the uptake and use of mobile phones. I conducted structured interviews using a questionnaire format. The questionnaire consists of four parts. The first part captured standard demographic and socio-economic characteristics of respondents (place of residence, household size, occupation, gender, age, marital status, years of education, and ethnicity). The second consists of a technology inventory of each respondent’s communicative ecology (number of bicycles, number of mopeds, number of cars, number of radios, televisions, fax machines, personal computers, access to the internet, mobile and landline phones, mobile phone fees, mobile phone brands, and name of mobile phone service provider). The third section obtained detailed information about the daily frequency of personal and business incoming and outgoing voice calls, the average annual income difference before and after the use of mobile phones, and the average contribution of *bricolage* or freelance service activities to one’s annual revenue. I also recorded the type of person, or the call-partner, with whom each communication was made (family, friend, neighbour, supplier, employer, employee, or business partner), the content of that call, and its place of origin. The fourth section deals with ethnographic questions and themes on users’ perception of, and attitudes towards, the transformative qualities of the mobile phone and on stories about its economic multiplier effect and expansion of business and social networks. Using a snowballing technique to recruit respondents, my study involved 21 farmers using mobile phones with prepaid calling cards. Interviews were conducted in Moroccan Arabic and Tamazight (Berber). Because of low levels of education and the tradition of voice in communication exchanges, short message system (SMS) or text messaging was not used, although most respondents talked about the use of beeping (*n’beepy ‘leek, I will beep you*) or ‘pinching’ in local parlance—calling and hanging up after the first ring—their customers and suppliers.

Of the surveyed sample, the average age of my respondents is 40.08 years. Most have been schooled in Qur’anic school and/or in public educational institutions: 8.3 per cent attended Qur’anic school, 33.3 per cent attended primary school, 33.3 per cent attended secondary school, and 25 per cent attended university. The average number of years of education is 9.3. In terms of household conjugal status and size, 91.7 per cent were married, 8.3 per cent were single, with an average of 5.3 persons per household. As for the ethnic composition of the sample, 33 per cent were Arab, 37 per cent were Amazigh (Berber), and 30 per cent Haratine (blacks).

To gain a broad understanding of the context of mobile phones in the lives of farmers, I collected information on the presence of traditional modes and means of social contact and media use. With respect to ownership of traditional technologies of communication and mobility, the mean number of bicycles per farmer surveyed was 2.5, mopeds stood at 1.5, video players stood at 0.25, radios at 2.17, television sets at 2.25, and satellite dishes at 1.6. For comparison, the average number of mobile phones per farmer surveyed is 2.33 and
the number of mobile phones acquired over the last five years is 2.82. While none owns a personal computer and access to the internet is insignificant, all farmers had mobile phones, and four had a complementary landline at home; internet access was limited to the use of cyber cafes.

Quantitative evidence on usage patterns of mobile phones for personal and business calls shows a monthly mean of 44.5 personal calls and 157.7 business calls per respondent. The analysis also shows that respondents spend a monthly average of 200 Moroccan dirhams (US$20) on prepaid calling cards for their mobile phones, and about 120 Moroccan dirhams (US$12) on public pay phones. To assess the economic impact of the mobile phone on farmers’ incomes and on shaping respondent social networks, I examined the pre- and post-mobile average incomes. The analysis indicates that mobile phone use has resulted in an increase of 23.7 per cent in farmers’ annual incomes. Further emphasising that access to mobile phones creates economic opportunities, I also found that, in my sample, one additional mobile phone creates about six permanent jobs, results in a percentage of change in labour recruitment of 93.45 and travels an average distance of 453.75 kilometres (281.94 miles).

In Morocco, agricultural produce is sold in a variety of ways and places. Depending on the location, personal ability and connections, and the quantity of harvest, farmers have several options for the sale of their produce. Urban and rural towns have suqs or markets where merchants sell a variety of products and each suq has a section that specifically sells agricultural products. Farmers who sell their produce in suqs often cannot get into the cities to sell directly. As a result, farmers have depended on ambulant merchants and peddlers, called sbaybiyah in colloquial Moroccan Arabic, who travel from place to place to buy produce from farmers and resell it at a higher price at significant profit. For these ambulant merchants, being a sbaybee is a full- or part-time occupation, albeit unregulated. These itinerant merchants are arbitrageurs ‘who gain their living out of the differential between what something sells for in one marketplace and what it sells for in another to which they can readily transport it’ (Geertz 1979: 188).

Before the mobile phone, farmers mainly sold their produce to itinerant peddlers and other small-scale intermediaries, putting farmers at a disadvantage and making it harder for them to earn a substantial profit from their produce. Since most farmers did not have access to market information nor the means to travel to markets themselves, most were unaware of their crops’ real-time market prices and profitability. With the uptake of the mobile phone, farmers increasingly spoke and engaged directly with wholesalers or larger-scale intermediaries. Of the survey sample, 30 per cent made the shift from dealing with small itinerant peddlers to dealing directly with wholesalers in major cities (see Molony 2008). Farmers also coordinated with local truckers to improve product transportation, allowing them to switch markets to capture better prices. A farmer told me that he once was on his way to sell some of his livestock and produce in one market, but in the middle of the journey he
received a call from a contact in another market who told him that there were better prices there, and (tout de suite or right on the spot) he made a U-turn and headed to the market that had better prices for livestock and produce. Most respondents increasingly speak of their wholesale clients and less of the traditional links to itinerant intermediaries or sbaybiyah, and how the mobile phone has extended the radius of distance their produce travels; it travels in all directions.

Respondents also recognised the economic contributions of the mobile to the bottom line of their farming operations and emphasised its ‘help’ in expanding the scope and scale of their marketing options. One farmer, for instance, said that ‘now I have clients for my carrots in the north of Morocco, about 600 kilometres (372.82 miles) from Errachidia. I am no longer 100 per cent tied to (dishonest) intermediaries, or to the dusty, sleepy, markets in our area. My carrots are in demand in the north, and the mobile has made their travel there easy and economical to maintain.’ This little bit of connectivity is making a major difference in farming and marketing decisions, as well as optimising farmers’ time and operations.

Another important change was that farmers used their new knowledge to become more market oriented in their production, moved away from producing low-value crops, and diversified into higher-value enterprises. Of the survey sample, 40 per cent of respondents planned to cultivate cash crops (mostly vegetables and fruits); 20 per cent planned to increase the acreage devoted to alfalfa as it constitutes the main feed for livestock (sheep and cattle); and 35 per cent planned to plant olives, dates, apples, almonds, walnuts, and other market-friendly trees. The knowledge gained from using the mobile phone enabled farmers to take risks (za‘ama) on crop planting and marketing. As one carrot farmer put it: al-portable kay ezā‘ām (the mobile phone stimulates risk-taking) or za‘aama (when it comes to planning crop planting and response to market signals and needs).

**The Mobile Phone and the Spirit of Entrepreneurialism**

A relevant finding was that mobile phones changed farmers’ behaviour related to risk-taking. The easier access to market information via the mobile phone provided farmers with an enhanced ability to engage in what they called za‘aama (risk-taking leadership or pioneership) and niyyah mazyanah/ saafiyyah and al-tawakkul ‘ala Allah (good/pure/earnest intentions and reliance on God). Hence, farmers now felt they had the capacity to rely on God and to take risks by responding to market needs and signals. In Arabic, the terms za‘aama or za‘im (leader, head, boss, or strong man) culturally refers to charismatic and authoritarian political leadership in the Middle East and North Africa. In its classic meaning, za‘aama is a political term, and it refers to a type of Arab political leadership in which a recognised leader has the power
to speak for the interests of his clients and to whom clients will go if they have business and other affairs to negotiate with stronger partners than themselves (see Hottinger 1961; Moaddel 2002; Sharabi 1963). The appropriation of the term za‘āama/za‘īm by farmers from its political context is quite striking. From the Moroccan farmers’ perspective, the terms za‘āama and za‘īm stand for taking risks and leading the way in the use and adoption of the mobile phone in farming. In mobilising the power of mobile phones, they see themselves as paving a new way to do farming and view themselves as bold and as trailblazing as a za‘īm would be during times of change. They are za‘ims, not in the political sense of the term, but in their willingness to take a risk on innovative technology to change their economic and social relationships.

Farmers also spoke of the combined concepts of niyyah mazyanah (or saafiyyah) and al-tawakkul ‘ala Allah in the context of risk-taking. Niyyah mazyanah means good intent or good faith in Moroccan Arabic and the word niyyah implies also ‘purpose’, ‘design’, ‘will’, ‘plan’, or ‘desire’. The notion niyyah denotes a person’s inner state or a pious act or formulation that comes from the ‘heart’ or the ‘mind’ and is used in preparation for the performance of rituals of worship and in the implementation of plans or designs. Niyyah, in its elementary form, also means ‘naivety’, ‘righteousness’, ‘simplicity’, ‘sincerity’, and ‘truth.’ Good intentions are believed to generate al-falah: success, prospering, happiness, and good luck. Farmers also spoke of people who have niyyah khayba or bad faith, and people with bad faith are said to be involved in acts of tahramit. The concept tahramit comes from the Arabic word haram and translates as that which is prohibited and implies conniving, deceit, and scheming, or what Pierre Bourdieu calls ‘calculating’, ‘technical intelligence’, and ‘sacrilegious cunning’ (1977: 173, 183). One of the most common traditions (hadiths) of Prophet Mohammad cited by farmers says: ennama al-‘amaalu be-niyyah (works are in their intention only). ‘To act “with niyyah” is to act with loyalty and good faith; “to have niyyah” is to feel confident, assured, one’s belief undiluted’, writes Lawrence Rosen (1984: 49). Niyyah is an essential aspect in what defines one’s behaviour and it consists of such notions as the exercise of free will, choice, agency, and the taking of risks. Likewise, al-tawakkul ‘ala Allah is a common concept in Islamic practice and theology, especially that of Sufis or mystics, meaning reliance upon God. In Islam, there is a debate about the virtues of ‘earning a living’ (kasb) versus putting one’s sincere trust in God’s plan to the point of fatalism and laziness (Lewisohn 2020). The crucial issue in this debate is whether tawakkul allows for the use of intermediary causes provided by God to make a living and shape one’s livelihood or if tawakkul only allows for a more passive approach to earning one’s living. Farmers shared with me the Moroccan saying in which Allah exhorts people to implement His intermediary causes: tsabbab ya ‘abdi, wana n-kamalik (oh my servant, implement the intermediary causes, or means, I have put at your disposal, and I will help you complete your plans). In this instance, the intermediary causes—after performing niyyah mazyanah and putting one’s trust in God—are mobile phones,
and they are deployed to expand and create market opportunities. In Islam, practicing *niyyah mazyanah* and *tawakkul* produces determination, strength, and an acceptance of God's will and plan. It also keeps worry and disappointment at a minimum and gives farmers energy and hope to take risks and to take account of themselves and their future actions to lead a pious and prosperous life. For farmers, *niyyah mazyanah*, *tawakkul* and work are a form of worship (‘*ibada*) and part of a logic that nurtures a spirit of entrepreneurialism with its calculation of profit and future projections of economic decisions and growth (see Bourdieu 1977: 173–174).

Consider the telling situation of Youssef. Youssef owns 7 hectares of land and grows a variety of fruit trees and crops: dates, figs, olives, almonds, peaches, wheat, barley, alfalfa, carrots, beets, onions, mint, and a variety of herbs. He also raises two cows and has 30 head of sheep. For Youssef, the mobile is ideal for making calls, getting price information, and negotiating prices. It is good for recruiting labourers and for getting market and family news. He said, ‘*al-portable kay enddam al-khadma,* it organises work. It increases the impulse of *zaama, niyyah mazyanah,* and *tawakkul,* provides peace of mind (*raft al-baal*), and helps with recruiting and checking upon labourers (*al-khaddama*). The power of the mobile resides in its *awal* or talk ability as ‘we do not have time for writing. It is talk, talk, and talk; I can call the regional veterinarian at any time when my livestock is feeling sick. It has helped me with decision-making’. Now, because of access to real-time market information, Youssef plans to expand the area devoted to alfalfa from 0.25 hectare to 1 hectare and carrots, beets, onions to 0.5 hectare each. He also plans to increase the number of sheep from 30 to 80 head and cattle from two to four head.

Consider, as another example, the view of Hammoo on the implications of the mobile phone to his farming operations. Hammoo owns 12 hectares of land and grows apples, peaches, prunes, pomegranates, pears, grapes, alfalfa, wheat, green beans, maize, potatoes, carrots, almonds, and walnuts. For Hammoo, the mobile is the best way to get to know people, meaning buyers and sellers, and it allows farmers to act on market information or ‘the news of the market’. Hammoo said that,

one mobile phone equals the work of 10 people in the chain of production and having and using a mobile is having peace of mind. Middlemen or *sabaybiyah* are thieves and a source of incessant *al-waswas* (anxiety). With the availability of produce storage facilities and market information brought by the mobile, I no longer sell produce on trees (stand sale). I only sell produce on trees when it is a bad production.

Equally significant, Hammoo adds, ‘the mobile is *ftuh arrahba*,’ which literally means ‘the opening of the grain market’. In Moroccan Sufi rituals, the concept *ftuh arrahba* refers to the opening song and dance portion of an-all night possession ceremony, also called *lila* or *derda*. This opening ritual sets the stage for summoning several spirit masters (*mluk*). These spirit masters
are called upon for their protection and their power to cure all sorts of social, economic, and psychological conditions. Outside of Sufi possession seances, *ftuh arrahba* takes the form of a fee, or *dirham l*ftuh*, paid to traditional religious healers (i.e., *fqih*) for their curing services. The fee, Edward Westermarck writes, ‘is as necessary for the recovery of the patient as is a key for the opening of a lock’ ([1926] 1968: 156). For Hammoo, the mobile phone represents a powerful communication assistant or master key/spirit in unlocking and opening the gate of opportunities. The mobile is not only unlocking and summoning information from distant marketplaces—places that are full of thievery, deception, and fraud—but is also serving as a shield of protection to Hammoo from unreliable marketplace information. It ensures reliable payments and allows him to represent himself in his business transactions, which has helped him recover from predatory trading relationships. Indeed, Hammoo has no love for middlemen and said,

> I must tell you also that I lost lots of money over the years because I trusted middlemen I did not know. I took their checks for goods that turned out to be empty and bad. Now, I no longer use their services, and I have become my own representative to wholesalers and to larger intermediaries in major cities. You can say that I am a farmer and a trader at the same time now.

Likewise, for Moha, the use of the mobile means time is saved, less money is spent on transportation, and more information about the *inghamisen n-suq* (market information) is gathered in real-time. He adds that,

> with the mobile phone, your payment is guaranteed (*tadmant rzaq nnak*); the never-ending problem of the middlemen (*ikkas lmashakil n'sbaybiya*) is removed. Because of dishonesty (*qallat al-maqul* or *ikhudaan*) and fraudulent practices of middlemen, I was the victim of three bad checks from different greedy middlemen before the advent of the mobile phone. Now with the mobile, my payment is guaranteed because the mobile number of the buyer is trackable, and I also do not have to sell my produce to middlemen. Also, a loss of 10 per cent to dishonest buyers is still better than empty or bad checks.

Farmers reported that the mobile phone enabled them to renegotiate the terms of information asymmetry and unequal trade relationships between sellers and buyers, something they could not previously do. Additionally, for many in my study the mobile incentivised them to take the path of *niyyah mazyanah* and *al-tawakkul* to expand their farming operations by enabling them to become risk-takers, leaders, and pioneers, allowing them to be more active in farming decision-making processes and engagement of trading relationships. The mobile allowed them to act as both a farmer and as their own agent in business relationships. It allowed them to level the playing field of information asymmetry and empowered them to remove deceptive payment practices they suffered over the decades, thereby, they were empowered to develop new farming strategies, add value to their crops, and raise their farming incomes.
Market Information Search and the Levelling of Information Asymmetries

When asked about reasons for the purchase of a mobile phone, one farmer responded,

that is an easy question! Before al-portable, there was a lot of waste. After al-portable, aqqarrab al-masafa, it made the distant nearby. It helps me decide what to do with my produce. It is all profits. When it is time to sell olives, you know the price of olives and you have the choice to either sell your produce on trees (stand sale) or turn it into oil, or both. It is all wins: time saved, easy transport arrangement, no thieves, no risks. I can send money via post and avoid all sorts of harm.

Another farmer added that,

seasonal production such as vegetables and fruits go in parallel with the mobile phone market information versus annual crops. It helps me know the needs of the market and gives me flexibility of decision-making to respond to short-term needs of consumers. With the mobile, and if you have the means, you stay in place to do things. I use the mobile to track the trips of my produce since I use several transportation modes to ship it, from public buses to informal means of transport to shared rentals of trucks. When I travel to far away markets such as Berkane (600 kilometres [373 miles]) to sell my vegetables or fruit, I make sure that I bring back oranges to sell back home. I cannot afford to drive an empty truck back home. You see, if you are clever enough, and as the popular saying goes ki-al manchaar, tala’ wakel, habit wakel (like a saw with its sharp blade cutting through when going up and cutting through when going down), you can play the roles of the middleman and farmer in selling and buying deals at the same time.

Undeniably, farmers have exploited and pioneered the coordination and organisation capabilities of the mobile phone. They obtain real-time market pricing information via mobile phones, saving time and travel, making them better-informed about where and at what price to sell their products, thereby raising their incomes and improving the sustainability of their livelihoods. Farmers value mobile phones as fast and convenient ways to communicate with various stakeholders in the agricultural value chain and to get prompt answers with respect to problems they face in growing crops and raising livestock. The mobile phone also creates opportunities relative to getting marketing and weather information. Through mobile phones, farmers can directly keep in touch with many clients in various marketplaces and offer their produce at competitive prices.

The use of the mobile phone also empowers farmers to be aware of real-time weather forecasts. As one farmer put it,

apple farming in the desert is hard, and it is like the United States fighting in Iraq! We are suffering. We are stuck. And we are left with no help or assistance from the government. If I grew alfalfa or cereals, I would leave farming right now, but apples
trees are an investment, and I cannot leave them behind. Gas charges for pumping water costs 200 dirhams per week (about US$20). Add to that recurrent river floods, flash floods, scirocco winds, and sandstorms. And God save us, *tamorghi* or locust threats. And if that is not enough, I am indebted to *boo idiwan* (pesticide seller), *boo langri* (fertiliser seller) and *boo l-credit* (bank loan officer). When prices are low and our local markets are too full of the same things that we grow, and if I can afford it, I store some of my agricultural produce in a storage facility for about five months. Weather forecasting information available in *al-portable* is a great thing in the punitive environment of the desert. Do not forget to jot down that frost and snow damage farming here. We can lose 50 per cent of our crops when we are not aware of the weather conditions as in the case of the scirocco winds and frost.

Four decades ago, Geertz (1979) discussed the nature and functioning of the Moroccan *suq* or the ‘bazaar-type economy’ in which markets coexisted with a mixture of old and new institutions and rituals. For Geertz, the central question was the absence in the *suq* of firm-type organisation, with all the market information and institutions that it entails in the West: product standardisation, advertising, and brand names. In the Sefrou *suq*, Geertz argues that a lack of reliable information in the marketplace meant that, 

> information is generally poor, scarce, maldistributed, inefficiently communicated, and intensely valued. . . . The level of ignorance about everything from product quality and going prices to market possibilities and production costs is very high. . . . The search for information one lacks and the protection of information one has is the name of the game. (1979: 124–125)

Trade in the bazaar was organised around the attempt to control the flow of information: to find out (or hide) the going price for a given good or to identify (or hide) the qualities of goods subject to exchange. Because success in the bazaar was dependent on controlling information, this fact makes it much harder for all participants to grow and prosper. In the *suq*, according to Geertz, the lack of reliable market information was channelled through a good deal of bargaining along with intensive information search regarding the price and quality of goods. From an information and communication view, Geertz writes, ‘the most important is that search more readily takes the form of exploring matters in depth with particular partners rather than surveying widely through the market, a case approach rather than a sampling one, or what Rees called an intensive as opposed to an extensive strategy’ (1979: 223–224). He says that a successful modernisation of the bazaar economy would require ‘increasing its capacity to inform its participants’ (1979: 234).

Among farmers using mobile phones, Geertz’s insights regarding *suq* bargaining and information search practices seem not to remain entirely true, as illustrated in many stories from my contacts. Information asymmetry in the past has made farmers vulnerable to middlemen and has hampered their access to key information on farming, transportation, and marketing. Every one of my respondents had a story about how the mobile phone is not just a
means of knowing what is happening in local and non-local markets but also a major driver behind their decisions to alter the terms of bargaining and flatten information asymmetry in the marketplace. In fact, the mobile phone appears to blur the distinction between intensive/clientalised and extensive modalities of information search. As a communication channel used for gathering information on prices of goods and manipulation of variations in different marketplaces by the now always-accessible farmer, the mobile phone succeeds in affecting bargaining and the balance of power in the farmer to middleman relationship. Viewed through this lens, the mobile phone has allowed farmers to shift their economic behaviour from a mode of intensive search, establishing enduring trade relationships with specific buyers, to a mode of extensive search, in which farmers canvass widely and make decisions based on known prices of produce in different markets and areas. With the use of the mobile phone, farmers are empowered to engage in extensive searches for high intensity partners without competing for the same partner; and in leveraging extensive searches, clientalisation and market bargaining are no longer as important as they used to be in the pre-mobile phone era. As the traditional market information situation shifts in favour of farmers, they are likely to force middlemen into competition with each other because farmers are now engaged in extensive searches rather than intensive ones. Thereby, farmers are well positioned not only to extract favourable prices from different partners in different marketplaces for their produce, but in some cases, they may cut out the middlemen from the chain of produce marketing (see Geertz 1979; see also Greenberg and Park 2017; Napora 2011).

Conclusion

It is evident from the discussion above that mobile phones are opportunity multipliers and their effects have been profound in all areas of farming as well as other aspects of culture. Mobile phones have sped up ways in which farmers access market information and interact with market systems. They have enabled farmers to rework and leverage key cultural and religious concepts to take risks and intensify market participation. They have also empowered farmers to re-organise and pioneer new production and marketing strategies—and in some cases cut out middlemen from the agricultural value chain—leading to higher farming revenues. Mobiles allowed farmers to level the playing field of market information asymmetry, and in the process, they were empowered to make the transition from being information poor to information rich. In so doing, they enhanced their access to price information, far beyond farm gate prices, and have improved their terms of bargaining and the balance of power vis-à-vis middlemen.
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Notes

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1. First, while the snowballing technique is problematic in terms of sample selection, I do not advocate that this study sample is representative of the valley’s population or even that of rural Morocco. Second, given the paucity of census data on the farming sector and its practitioners at the valley level, snowballing seemed to be the appropriate way to conduct this study. Third, I am aware of the biased tendency of respondents to know or point researchers in the direction of individuals like themselves. More importantly, I am more interested in understanding the context or question in depth and from the point of view of respondents than I am in knowing the distribution of variables across a population.

Bibliography


