# Chapter 4
# Is the Mobile Phone a Disruptive Technology?
## A Partial Review of Evidence from Developing Economies

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## ABSTRACT

*The authors of this chapter provide an inter-disciplinary review of studies on economic impacts of mobile telephony in developing countries, giving particular attention to the disruptive potential of the technology and its associated social practices. Four major areas of impact are identified: the emergence of a mobile phone economy around retail and service provision, including mobile banking; a significant reduction in search costs with profound impacts on market efficiency and, possibly, welfare distribution; changes in the formation and maintenance of trusting relationships between market actors as face-to-face contact is replaced with remote communication; and facilitated organisation and cooperation within and among firms, as well as changing credit procurement practices. While the mobile phone has been hailed for its transformative power, the authors tentatively conclude that its impact in most areas is not primarily disrupting, but rather amplifying existing structures.*

## INTRODUCTION

Developing economies are an environment in which "information is poor, scarce, maldistributed, inefficiently communicated, and intensely valued" (Geertz, 1978, p. 29). Information poverty is a common feature of these economies, where costly or inaccessible means of telecommunication constrain the search for alternative courses of action (Aminuzzaman et al., 2003). Subsequently, market agents frequently experience uncertainty over economic conditions. Transportation, too, is costly and often insecure. In this "high risk and low trust environment" (Overå, 2006, p. 1302), ICT, and in particular mobile phones, have been

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projected to have an immense impact. Indeed, Waverman et al. (2005) found that the technology carried a significant growth dividend. For low income countries, 10 more mobile phones for every 100 inhabitants would translate into a per capita GDP growth higher by 0.59 percents (p. 18).

Mobile telephony has experienced staggering growth rates in the developing world over the last decade. Between 2003 and 2010, the number of subscriptions increased tenfold in Africa, from 51 to 507 million. It thus went from 0.5 to 50 subscriptions per 100 persons within a mere decade. In Latin America, subscriptions increased by a factor of 4.6 (from 127 to 578 million) to 98 per 100 persons, and in Asia's non-developed countries[1] by a factor of 6.1 (from 440 million to 2.7 billion) to 71 per 100 persons (ITU, 2010). However, there are clearly strong differences between regions, with some countries in Africa reaching subscription rates of more than 80 percent, while others remain below 10 percent. With the introduction of mobile broadband services, mobile phones are also quickly becoming a common means of accessing the Internet. In many developing countries, mobile phones have thus leap-frogged landline-based ICTs.

There is some heterogeneity in mobile phone use and ownership within societies. Gillwald et al. (2010) found that in a range of African countries, income, education, and urbanicity were significant factors for owning a mobile phone or an active SIM card, but age and gender mostly were not (p. 13). Women were found to use mobile phones as often, and in some countries even more than men (ibid., cf. Samuel et al., 2005). Zainudeen et al. (2008), who researched mobile phone use at the bottom of the pyramid in Asia, found that gender differences were smaller in countries where mobile phones were most pervasive. They assert that "the gender divide, as with the digital divide, has been found to be especially large in low income countries, where ICT penetration levels are also low". Further evidence that higher personal income raises the probability of mobile phone ownership comes from Chabossou et al. (2008). Jensen (2007) has used data from the Demographic and Health Surveys to estimate mobile phone use among farmers. He asserts that "in large part, ownership rates among farmers are low where ownership rates overall are low. In many cases, the ownership rates are not much lower for farming households than other households" (p. 4).

The economic impact of mobile phones in developing countries has been the subject of research for more than a decade, but most studies were published within the last five years. Two major perspectives have emerged from this research. On one hand, economists such as Aker (2008, 2010), Jensen (2007), and Muto & Yamano (2009) have focused on improved market efficiency as an effect of decreased search costs, which leads to reduced price dispersion and greater market integration. On the other hand, researchers with an anthropological perspective from a variety of fields, such as Overå (2006) and Molony (2007, 2008, 2009), but also Samuel et al. (2005), have stressed the potential of mobile phones to improve coordination between market agents, but have also cautioned that the impact might be suboptimal due to structural boundaries to the use of mobile phones. Unfortunately, these two strands of research seem at times unconnected. Existing reviews are limited in scope. Donner and Escobari (2010) have reviewed research on mobile phone use in micro and small enterprises, and Aker and Mbiti (2010) focus mostly on effects related to the reduction in search costs.

The mobile phone has some unique characteristics which have enabled its prevalence in the developing world, such as low acquisition costs for both network infrastructure and consumer handsets. Nevertheless, the established literature on ICTs and economic development provides a valuable source of theory that is applicable to mobile telephony. Saunders et al. (1994) identify four main impacts of ICT in their review of studies, concluding that telecommunications contributes to economic development by providing better market