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## Phones for food: Nutritional implications of mobile phone use in rural Africa

*Adequate nutrition is a crucial welfare dimension. Malnutrition at a young age can have severe consequences for a person's development of human, social, and economic capital. Also in later phases of one's life, malnutrition can severely affect health and restrict productivity as well as overall quality of life. Efforts to improve nutrition among rural*

*populations, for example through more diversified diets, are therefore key components of many rural development agendas, especially in Africa where undernutrition is still a large public health problem. By using mobile phones, however, members of rural communities are able to improve their diets.*

### Which constraints can limit dietary quality in rural and arid environments?

People living in rural areas of Africa acquire food mostly through own production or market purchases. Food aid may also be a relevant food source for some people, especially during emergency situations such as droughts. The diversity of consumed foods and thus dietary quality of a person is therefore oftentimes closely linked to the diversity of self-produced foods as well as to access to food markets.

However, people living in rural and arid environments often struggle to produce well-diversified food crops due to the dry climate and unfavorable soil conditions. Market access is therefore all the more important to increase dietary diversity. Unfortunately, access to food markets is also constrained in many parts of rural Afri-

ca. These constraints may apply to an entire region. Long physical distances to markets and poor road conditions, for example, make travel to markets both time-consuming and vulnerable to conflicts or bad weather. Access to markets may also be difficult due to individual factors such as illness, old age, or in some cultural contexts gender.

Even in cases when plenty and diverse food types are available, diets may still be inadequate due to limited knowledge regarding actual micronutrient requirements. This problem is particularly relevant with respect to diets of small children during their complementary feeding period, since traditional diets for children mostly entail nutrient-poor food sources.

## How can mobile phones help?

Mobile phones have wide-ranging implications for livelihoods, especially in rural Africa, where the last decade has seen an increasing rate of diffusion. While the technology cannot fully solve the above-mentioned challenges related to nutrition, there are still several different mechanisms through which mobile phones can help mitigate some of the constraints.

People may use mobile phones to access information related to production inputs and technologies, output markets and prices. Thereby mobile phones may raise household income, which likely results in higher food consumption and improved diets of household members. Mobile phones are also used to send and receive remittances to and from friends and families, thereby sharing risks and reducing the need for reduced consumption during shocks such as longer sickness, droughts, or floods.

In addition, mobile phones can improve nutrition in rural areas through reducing transaction costs for everyday life activities. Since food markets, which can supply households with varieties of fresh foods, are mostly centered around urban areas, people residing in rural communities may not access such markets easily. The ability to call

or text family members, friends, or other social contacts, however, improves the coordination of reciprocal assistance for regular food purchases. This means that now it is no longer necessary for each household to travel to a market on its own, but that through the phone it has become easier to coordinate to take over this task alternately. Mobile phones thereby enable more frequent market transactions without increasing transport costs for the individual. Assistance from other people to access food markets is particularly important for people who are affected by the previously described constraints concerning illness, old age, and gender.

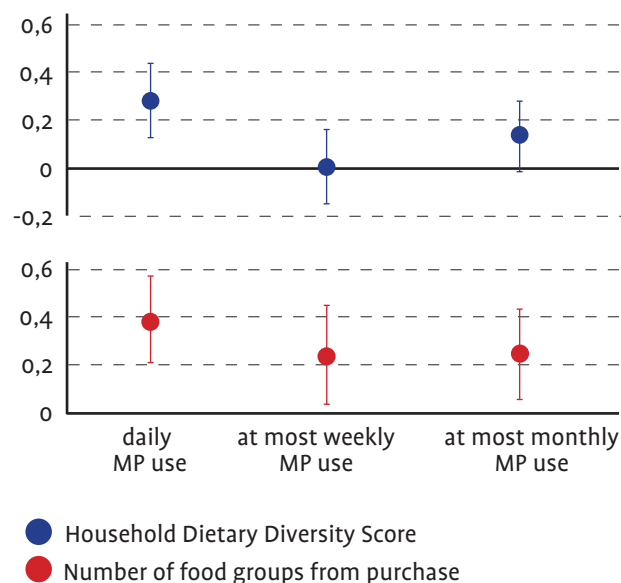
Lastly, mobile phones can affect nutrition of rural households through applications or services that raise users' nutrition knowledge and awareness. Through the use of digital agriculture and health platforms, for example, mobile phones may be used to deliver service-ready mobile messages in form of factsheets, voice messages, or text messages. These tools have the potential to increase knowledge among marginalized or poorly educated households regarding nutritious food and balanced diets for children and adults and may improve dietary practices.

### What do researchers say?

Two peer-reviewed research articles show that mobile phones have a positive effect on dietary diversity. Research has so far focused on East Africa, namely Uganda and Kenya. In Northern Kenya, for example, mobile phone use is closely linked to higher dietary diversity and food purchases. The ability to use a mobile phone frequently is important for achieving more diverse diets (Figure 1).

Figure 1:  
Effects of mobile phone use on three measures of dietary diversity

(Marsabit, Kenya, 2009-2015)



Note: Point estimates and 95% confidence intervals are shown based on multivariate regression analyses.

Source: Own elaboration based on Parlasca et al. (2020).

## What needs to be done?

In order to further promote the potential of mobile phones to improve dietary quality, we see two main entry points for supportive policies. First, policies may facilitate that rural populations use mobile phones in the first place. Second, policies may help facilitate how people use mobile phones so that the nutritional benefits brought by the technology increase.

### Facilitating that mobile phones are used

Low network coverage is a main barrier to mobile phone use in rural Africa. Expansion and strengthening of network signals are therefore effective strategies to foster mobile phone use. To ensure that the private sector is able and willing to make the investments needed to expand or improve network coverage, we see two promising strategies for governments.

As a first strategy, governments should ensure a healthy degree of competition in their mobile phone sector: the number of competitors should be small enough, so that each company is still sufficiently strong to stem the necessary investments for network expansion. At the same time the number of competitors should be large enough so that companies cannot exert market power. Providers are in that case more likely to compete for new customers, therefore extending network coverage into rural areas.

As an additional strategy, governments could impose license conditions for mobile phone operators when licenses are renewed or when additional spectrum is awarded. These conditions could for example set specific targets for the percentage of a country's population to be covered by a mobile phone network. This second strategy is however more invasive than the first strategy and therefore advisable only for governments of countries with particularly weak network coverage in rural areas.

Another factor that can limit mobile phone use even in the presence of sufficient network co-

verage is insufficient electrical infrastructure. In remote villages without access to grid electricity, mobile phone users need to rely on expensive tools to generate electricity to recharge their phones such as diesel generators or (portable) solar panels. While these alternative electricity sources enable mobile phone recharges even in the most remote areas, they usually come at a much higher price than electricity from the grid. We therefore advise governments to expand the electricity grid and/or subsidize portable solar panels.

High acquisition and operating costs represent another barrier to mobile phone use. If prices for calling or text messaging are high, mobile phone use can quickly become too expensive for poor households. Again, we advise governments to ensure a healthy degree of competition and sufficient antitrust legislation so that mobile phone operators are required to compete against one another with low prices. More invasive regulation such as maximal prices for airtime could in principle also be put in place if needed. Such price regulation is however likely to reduce incentives for investments elsewhere and should therefore only be used in monopolistic or quasi-monopolistic contexts.

### Facilitating how mobile phones are used

Technology-driven capacity development services that use mobile phones to disseminate information in order to improve diets may also face several challenges. Crucial components of the few systems that already operate are the identification of suitable local partners who create content that is accurate and fits to the population's nutritional needs, the assurance of training continuity of content creators, as well as the development of suitable learning methods. We therefore encourage governments to devote resources to develop and maintain these components, so that the design and impact of mobile phone based nutrition services may be improved further.

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**Further readings:**

- Can mobile phones improve nutrition among pastoral communities? Panel data evidence from Northern Kenya, by Parlasca, M. C., Mußhoff, O., & Qaim, M. (2020). *Agricultural Economics*, 51(3), 475-488.
- Can mobile phones improve gender equality and nutrition? Panel data evidence from farm households in Uganda, by Sekabira, H., & Qaim, M. (2017). *Food Policy*, 73, 95-103.
- Lessons learned from the content development stream of the mNutrition initiative: How to set up the right content creation model, processes and structures to achieve maximum project efficiency and quality outputs, by Centre for Agriculture and Biosciences International (2017). *mNutrition Brief*, 1.
- Mobile technology-driven capacity development: Lessons from the mNutrition and IBLI projects, by Wandera, B., Kang'ethe, E., & Davies, B. (2015). *ILRI Capacity Development Brief*, 3:1-4.
- Mobile phones and economic development in rural Peru, by Beuermann, D. W., McKelvey, C., & Vakis, R. (2012). *The Journal of Development Studies*, 48(11), 1617-1628.

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