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briefing note

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How do small farm households benefit from ICT access and use?

Connecting smallholders to knowledge and networks through ICT

Notes from the World Social Science Forum 2013

Small farm households in rural South Africa are learning to exploit information and communication technology (ICT) devices and services to accumulate wealth. Kgabo Ramoroka, Tim Hart and Peter Jacobs look at some recent evidence and highlight the implications for pro-poor rural innovation policy actions

Small farm households in some parts of Limpopo use the digital doorway to access information quicker and easier, and do not depend entirely on extension officers for information. Digital doorways are robust computer stations with multiple screens initiated by the Limpopo Department of Agriculture to provide internet access to small farm households and rural communities.

Modern information and communication technologies (ICTs) have the potential to increase the agricultural productivity of small farm households through knowledge and information sharing, and through providing them with access to markets and resources. For example, in Rungwe District, Tanzania, farmers use ICTs to access market information. Interestingly, farmers who use ICTs obtain higher prices than farmers who do not use ICTs for accessing market information. Similarly, in Benin, small pineapple farmers use mobile phones to save time and reduce transaction costs. The Kenya Agricultural Commodity Exchange Limited collects and disseminates current market information to farmers through short message service (SMS).

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In recognition of wider socioeconomic spin-offs from ICT usage in rural areas, government policies are developed that attempt to ensure that all communities have the opportunity to access and effectively use ICTs in their day-to-day social and economic activities. Despite remarkable progress of ICT penetration reported by Stats SA in rural areas of South Africa, there are disparities in ICT access and usage between areas and communities in rural areas.

Research ICT Africa reported that despite its high mobile penetration rate, South Africa has low personal computer and household internet usage. A major impediment to rural ICT access is inadequate telecommunication infrastructure. Furthermore, the South African telecommunications market is characterised by high prices across a range of services. In essence, creating reliable and affordable ICT services in rural areas is a complex challenge.

Costs, adequate infrastructure and local skills are crucial determinants of what social gains these ventures could yield for rural communities. To understand the extent to which ICT services are being distributed among small farm households in rural South Africa, we analysed the 2011 General Household Survey (GHS) – one of the main, official surveys Stats SA has been conducting annually since 2002. We further presented evidence from the Rural Innovation Assessment Toolbox pilot test on ICTs' access by agricultural enterprises.

Inadequate rural telecommunication infrastructure impedes ICT access.

ICT access by small farm households in formal and ex-homeland areas

Questions about ICT access in the 2011 GHS provided a sense of how functional landline telephones, cell phones and internet connections were distributed per 100 households. It also asked for information about computer and internet access through libraries and schools. A descriptive analysis of access patterns to these ICTs by different households is summarised in Table 1.

Table 1: Access to ICT services within farm households by farm household type (per 100 households)

Functional ICT service	Ex-homeland			Formal rural		
	Farm household types					
	Source of Food (/100hhs)	Source of income (/100hhs)	Leisure activity (/100hhs)	Source of Food (/100hhs)	Source of income (/100hhs)	Leisure activity (/100hhs)
Cell phone	91	93	93	90	94	92
Landline telephone	1	1	0	9	47	17
Internet in household	1	0	2	9	38	19
Internet at work	2	4	3	5	25	30
Internet library	1	0	0	0	0	0

The results revealed a larger concentration of ICTs in formal rural areas, indicating huge disparities in ICT access between formal and ex-homeland rural areas. In both rural localities, at least 80 per 100 small farm households regardless of farming type had access to functional cell phones.

Landline telephone access was relatively higher among households in formal rural areas. Entrepreneurial (commercially oriented) farmers had better access to landline telephones and private internet services in contrast to households farming for consumption and as a leisure activity. The results further revealed a low level of ownership of personal computers and household internet connectivity across the two rural locality types.

ICTs were very unevenly spread across rural areas classified as formal versus ex-homeland localities.

Even though private internet services access was low, at least nine per 100 subsistence farmers and 19 per 100 leisure farmers in formal rural areas indicated that they had access to private internet services. This was in contrast to the one per 100 subsistence farmers and two per 100 households farming as leisure activity. Subsistence farmers accessed the internet mostly through communal internet services. None of the households in the formal rural areas accessed internet services through state funded institutions.

ICT access by agricultural enterprises

In 2012, the HSRC was contracted by the Department of Science and Technology (DST) to design, develop and pilot-test a Rural Innovation Assessment Toolbox (RIAT). The research team adopted a purposive snowball sampling technique, i.e. researchers recruit participants for a study and those participants then recommend additional participants, thus building up like a snowball rolling down a hill. This technique was used in four rural district municipalities in South Africa. We interviewed 482 formal and informal innovating enterprises, using a structured questionnaire to map innovation activities. The questionnaire contained a section on ICT access. A total of 129 agricultural enterprises participated in the interviews. Among a sample of these agricultural enterprises in rural South Africa, there were public, private and non-profit enterprises.

Table 2 provides a summary of self-reported access to ICTs by agricultural enterprises interviewed during the pilot study. The results showed that more than 90% of enterprises interviewed owned functional cell phones, but only 31% of enterprises had access to functional landline telephones. Ownership of personal computers by these enterprises was very low; on average less than 50% of enterprises indicated that they had access to computers. Internet connectivity was also very low, with less than a half of the enterprises reporting access to internet services.

Conclusion

The 2011 GHS survey results and the evidence from RIAT present a similar pattern of ICT distribution among small farm households and agricultural enterprises, i.e. cell phones are more accessible compared to other ICT devices and services. From the findings we observed that, in most formal rural areas in South Africa, ICT devices were more accessible than in ex-homeland rural areas. The 2011 GHS also showed that ICTs were very unevenly spread across rural areas classified as formal versus ex-homeland localities. In the case of internet access, small farmers in the ex-homeland areas found themselves at a considerable disadvantage. Entrepreneurial farmers in formal rural areas were better connected to higher-end ICT devices. The results presented here suggest that the majority of the lower income segment and the rural poor remain unconnected regardless of the reported increased penetration level of ICTs.

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Table 2: Shares (%) of rural agricultural enterprises self-reporting access to ICTs (N=129)

Functional ICT device	Access (N=129)	No access (N=129)
Cell phones	98	2
Landline telephones	31	69
Computers	45	55
Internet	44	56

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