



**TANZANIA COMMISSION FOR SCIENCE
AND TECHNOLOGY (COSTECH)**

POLICY BRIEF

**Impact of Information and
Communications Technologies (ICTs) on
Micro and Small Enterprises (MSES) in
Tanzania**



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Summary

There has been a rapid increase in the ownership and access to Information and Communications Technologies (ICTs) in the world and in Tanzania between 2005 and 2013. The micro and small enterprise (MSE) sector in Tanzania has also been expanding providing significantly to the national economy in general and the employment sector in particular. There is general agreement among economists that there is a great potential for ICTs to improve the businesses and welfare of MSEs. However there are few rigorous studies that have studied such an impact. A study was therefore conducted with support from IDRC, Canada, between 2008 and 2010 in Makambako and Njombe urban areas, Iringa Region, to assess the impact of ICTs on micro and small businesses.

A Quasi Experimental methodology was used involving two groups of MSEs with similar economic status in which the group in Njombe (benefit group) received ICT interventions while the other group in Makambako (control group) did not. Both groups were surveyed before and after the provision of the interventions. The findings from the survey in 2010 showed that the greater access to ICTs provided to the benefit group through the interventions had resulted in significantly greater use of ICTs, higher business turnover and higher rate of poverty reduction among the business owners in the benefit group than among businesses in the control group which did not receive any interventions. A post study follow up visit carried out in 2013 showed that the upward trend in the use of ICTs and resultant increase in benefits found in 2010 had continued after the study had ended.

Five policy implications have been proposed: (i) Expand opportunities for MSE's to increase the use of mobiles for business through lower airtime costs and by providing local information and content that is easily available on the mobile; (ii) Have a policy and strategy to expand training in the use of the e-mail/Internet in business in business training courses such as those run by institutions like the Vocational Training Education Association (VETA) and the Small Industries Organisation (SIDO) as well in secondary schools; (iii) Improve access to cheaper broadband connectivity to make the internet more accessible and affordable; (iv) Enable greater access to formal credit facilities to enable MSEs to better access ICTs for business use; (v) conduct more studies to better understand the impact of ICTs on MSE's particularly in rural areas.

Introduction

By the year 2008 over half the world's population had obtained some level of connectivity--via mobile telephony (WISIS, 2008). It is estimated that in 2007 alone, 1.9 trillion text messages were sent not only as a cheaper means of communications but also for financial transactions, news and market price up-dates, thereby generating an income of \$52 billion to the mobile operators. The global internet community grew by 280 per cent between 2000 and 2008 with the gap between the developed and developing countries closing, although slowly. In 2000 the penetration rate of internet was 10 times higher in the developed world than in the developing countries; in 2006 it was only 6 times higher. The region with the lowest rate was Africa at 4.7% overall.

There have been similar increases in the ownership of ICTs in Tanzania between 2001 and 2007 especially of mobile telephony which grew from 1% in 2001 to 25% in 2007, a growth of over 2000%. By 2012 the ownership of mobile phones had reached 61%. However the penetration of the internet was much slower going from 4.5% in 2005 to 16.8% in 2012 (Data from TCRA).

This continued growth in the use of ICTs has resulted in a great deal of discussion among scholars on the role of information in socio-economic development and reduction of poverty. One of the sectors where increasing attention is being focused on is the micro and small enterprises (MSEs) sector. The discussion pertaining to this sector can be divided into three main categories: (i) importance of the MSE/SME sector; (ii) the use of ICTs by this sector and the benefits and constraints experienced in the use; and (iii) the link of such use with growth and poverty reduction among the users.

On importance, it has been found that MSEs contribute significantly to the national income and creation of employment. For instance in Ghana, MSE's constitute 70% of all enterprises and contribute to 30% of the workforce and 40% to the national income (Srivastava, 2008). In Tanzania, MSEs constituted 10.1% of the employed population compared to 3% in the government sector and 8.6% in the formal private sector (URT, 2007, p.36). A more recent baseline survey conducted in 2010 found that there were more than 3 million MSEs in Tanzania which contributed 27% of the GDP (URT & FSDT, 2012). As a result support to MSE's is an integral part of the *Tanzania National Strategy for Growth and Reduction of Poverty* (NSGRP) or MKUKUTA as it is popularly known in Kiswahili (URT, 2005).

On the use and benefits of ICTs several studies found that telephony, especially the mobile is particularly popular among the small enterprises (Bothelho and da Silva Alves, 2007) However, the use is affected by a number of challenges, such as poor telecommunications infrastructure, limited ICT literacy, inability to integrate ICT into business processes, high costs of ICT equipment, incomplete government regulations for e-commerce, and a poor understanding of the dynamics of the knowledge economy (Kotelnikov, 2007). Also while there are many benefits in using ICTs, these benefits are not automatic.

The impact of ICTs and on MSEs is also not clear. Nielinger (2005) studied about 150 enterprises in Tanzania and concluded that the impact of cellular phones on productivity and competitiveness on small and micro businesses has not yet been fully explored. Molony (2005) found that MSEs in Tanzania were using mobile phones to conduct their business but that they were still travelling on business because they did not trust doing business on the phone. Few studies have used rigorous methods to study impact, such as studying a population before and after the use of ICTs. Most evaluations have studied communities after the enhancement of the use of ICTs and have made assumptions based on what was reported to them by the users.

The conclusion from this brief review of literature therefore is that while there are opportunities for ICTs to enhance businesses and improve livelihoods, there are still gaps in the understanding the circumstances that lead to the use of ICTs by MSEs and the impact of such use in developing countries such as Tanzania. It is for this reason that in 2006 the International Development Research Cooperation (IDRC) provided funds to COSTECH to undertake a research project to study the impact of ICTs on growth and poverty reduction among MSEs in Makambako and Njombe Districts, Iringa Region. It is part of a larger project that was supported by IDRC known as Poverty and Information and Communications Technology in Urban and Rural Eastern Africa (PICTURE-Africa) and which covered 4 countries in Eastern Africa: Kenya, Rwanda, Tanzania and Uganda. The main research question of the study in Makambako and Njombe districts was: *"To what extent does an increase in the use of ICTs result in reduction of poverty/improved welfare among the MSMEs in Tanzania?"* The main study was carried out between 2008 and 2010 with a follow up post project visit in 2013.

Approaches and Results

The study on the impact of ICTs on micro and small businesses was carried out among approximately 100 owners of micro and small enterprises (MSEs) each in Njombe and Makambako urban areas. Only those with permanent business locations away from their homes were selected. A multi-dimension approach was used to define poverty which included the following dimensions: financial (income, expenditure, business turnover and assets), physical (access to basic amenities and housing) human capability (education and skills) and social (perceived level of vulnerability). For each a set of proxy indicators were used to measure the changes in the dimensions. A poverty line was established to define the levels of financial poverty based on USD1 per capita/day converted into the equivalent of Tanzanian shillings per month at the rate of exchange prevailing at the time of the study.

The methodology that was used was Quasi-Experimental in which one group, the group of selected business owners in Njombe (the benefit group) were given a set of interventions; the other group in Makambako, (control group) were not given such interventions. Both groups were surveyed at the start of the study in 2008 in order to get the Baseline data and provided with basic training in business management. The group in Njombe (benefit group) were then given the following interventions:

- Training in the use of computers for accessing e-mail and the internet. This was carried out in 2009;
- A mobile phone which was fixed to the Airtel network together with an airtime equal to 30,000 Tanzanian shillings per month per business owner for 5 months, January to May 2010. The airtime was transferred to the Airtel phone directly by Airtel Company and could not be transferred to anyone else;
- Free use of one hour of internet per week for 5 months (20 weeks in all) to access e-mail and internet at a special internet cafe known as AltheK between January and May 2010.
- Additional training and assistance in the practical use of the internet/ e-mail during January to May was also provided to those who needed it.

Both groups were then re-surveyed in June 2010, soon after the operational period of the interventions had been completed. The analysis of the impact was based on the comparison of the changes that had taken place between 2008 and 2010 in the access to and use of ICTs

and in the selected poverty dimensions, in each of the two urban areas, Njombe and Makambako. The basic hypothesis was that the group in Njombe (benefit group) that received the interventions would show **greater enhancement** in the access to and use of **ICTs and greater reductions in poverty** /increased welfare between 2008 and 2010 compared with the group in Makambako (control group) who did not receive the interventions.

Findings

Finding 1: Changes in access to and use of ICTs between 2008 and 2010 were higher among the business owners in Njombe (benefit group) than among those in Makambako (control group). The most noticeable difference was in the household access to e-mail addresses and the use of the internet for business due mainly to the facilitation provided to the Njombe business owners.

- o Increase in monthly spending on ICTs for business between 2008 and 2010 was 150% in Njombe compared with 111% in Makambako. This was due in part to the free airtime that was provided to them but the group had also added their own airtime.
- o The use of the mobiles for business for more than once a day (highest level of use) had increased from 70% in 2008 to 98% in Njombe compared with 72% in 2008 and 77% in 2010 in Makambako.
- o More than 50% of the selected business owners in Njombe had an e-mail address compared with only 2% in Makambako. This was definitely due to the provision of free internet access.
- o The use of the internet for business had changed only in Njombe where it had increased from 1.1% in 2008 to 7.6% in 2010 still low but far better than the national penetration rate of 1.3% (2009).

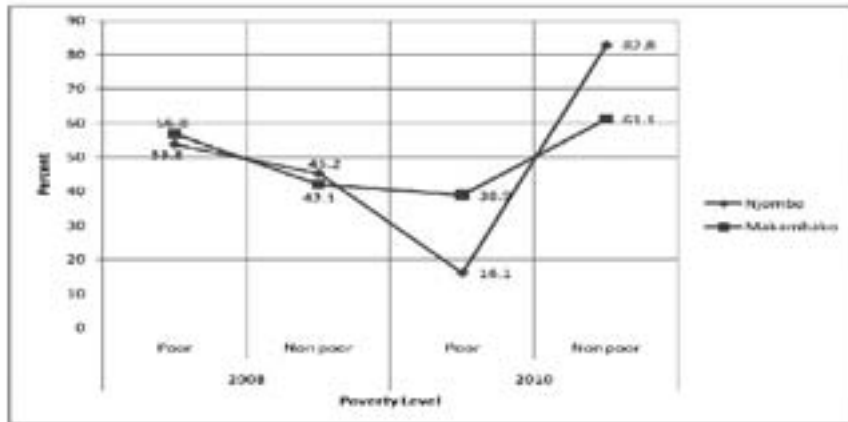
Finding 2: There were changes in financial poverty reduction in both locations between 2008 and 2010 but the reduction was greater in Njombe than in Makambako.

- o The average business turnover in Njombe increased much faster than in Makambako (about 4 times in Njombe compared with about 3 times in Makambako).
- o Business groups in both Njombe and Makambako had started at about the same level of poverty with around 55 % being below the poverty line of 1 US\$ per capita per day, but in 2010 the proportion of

poor had decreased to 16% in Njombe whereas it was about 38% in Makambako (See Figure 1).

- o More of the households that were poor in 2008 had moved to Non-Poor in 2010 in Njombe (37) than in Makambako (17).
- o There were similar positive differences in four of the other seven indicators of poverty.

Figure 1: Reduction in Poverty Levels 2008 and 2010 in Njombe and Makambako



Finding 3: The mobile had changed the way that MSME's carried out their business between 2008 and 2010.

- o The use of the mobile had resulted in a decrease in the number of travel days spent on business in both locations but the decrease was greater in Njombe – minus 20% in Njombe compared with minus 14% in Makambako.
- o Savings from reduction in travel were used to enhance business or to improve assets such as houses.

Finding 4: With adequate training and facilitation, even those with primary education were able to use the Internet to improve their businesses (see Box 1 for one example).

Box 1: Use of the Internet by MSEs with Primary Education

Ms A. M. (Full name withheld) is a tailor. The highest education level that she achieved is primary education. She learned to use the internet to view pictures of weddings. She made sketches of

the dresses of the bridal assistants that she found on the internet and used these to design a whole new line of high priced clothes for young girls. The new designs were very popular and her business grew substantially to the point that by 2010 she had to employ an assistant to help with her work. In 2013 when we visited her, she had engaged a full time manager for her tailoring business while she had diversified into being an agent for one of the mobile companies.

Finding 5: The use of the internet was still low in Njombe due to several challenges

- o Access to the internet was through internet cafes which were few and not well equipped;
- o Most of the business owners wanted local (Tanzanian) business information on sources of products and markets which was not available on the internet.

Finding 6: A post project survey carried out in 2013 found that the beneficiaries were still using ICTs for their business and that the use had in fact intensified.

- o *The upward trend in the use of the ICTs that had been found in 2010 after the end of the interventions period was still being maintained and even being enhanced.*
- o The most important ICT was still the mobile telephone for the majority of the interviewees.
- o The number of internet cafes had increased from 2 in 2010 to 7 in 2013 showing growing demand for the use of the internet.
- o The internet was replacing the use of agents to order products especially from abroad.

POLICY IMPLICATIONS

Five policy implications have been identified.

1. Need to Expand Opportunities for MMSE's to Increase the Use of Mobiles for Business

Firstly, airtime costs have to be reduced to expand use of the mobiles for business and reduce the frequency and costs of travelling on business. Secondly, since the mobile is still the preferred ICT, mobile companies and main stakeholders such as the Ministry of Trade and Industries, SIDO, COSTECH should work with ICT entrepreneurs to find products that are especially tailored for the local information needs of the MSE's.

2. Strategy to Expand the Training in the Use of the E-mail/Internet in Business

This strategy will need to consider the inclusion of training in the effective use of ICTs in the courses that are currently provided by SIDO and VETA that have been especially set up to enhance the business skills of MSE's. Timely information, easy and affordable communication and effective business networking based on ICTs should be key components of such training for improving businesses.

There is also need to have a pro-active policy access to ICTs in the formal education system beginning with at least the secondary school level. Most of secondary school leavers will end up having to engage themselves in the MSE sector. Since ICTs can make a difference the full understanding of the potential of the effective use of ICTs would help the new MSE's in developing their businesses.

3. Access to Cheaper Broadband Connectivity

The findings from Njombe indicate that there is a close relationship between the use of e-mail/internet and access to internet cafes. In 2010 one of the constraints in setting up internet cafes was the high cost of connectivity for the internet cafes which is mainly by VSAT from as far away as Dar es Salaam. Cheaper access to broadband is necessary for the internet cafes to be economically viable and offer affordable prices for the users to access the internet. GOT should also consider reducing or even eliminating taxes on equipment for internet cafes in order to encourage more business persons to open internet cafés.

4. Greater Access to Formal Credit Facilities

The MSE's in both locations had a low rate of bank loans (about 5%). This means that they have to depend on their own savings or those of their families for capital for their businesses which has the potential of MSE's cutting back on using ICTs. This will have a negative impact on the volume of business. The government needs to ensure that the Banks allocate a certain proportion of their funds for credit to MSE's at rates that are fair and where the conditions are transparent and within the scope of the MSE's.

5. Additional Studies to Assess the Impact of ICTs on MSEs

Both the ICT sector and the MSE sector are changing rapidly. Newer studies are required to assess the benefits and challenges of using ICTs in micro and small enterprises including how MSEs can progress into medium and even large business enterprises.

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