

IMPACT OF ICT ON FIRM'S PRODUCTIVITY IN CAMEROON

By NKETCHA NANA



Outline of the presentation

- Introduction
- Background
- Methodology and Data
- Empirical Results
- Discussions
- Conclusion



Introduction

- **ICT: an important tool for firms competitiveness (improve business processes, reduce costs, broaden market reach locally and globally, etc.).**
- **ICT are even more necessary for SME where widespread access and effective use of ICT for productive purposes can make a tremendous difference in competitiveness outcomes.**
- **Individual SME competitiveness collectively translate into positive results for the national economies: more job creation, more revenue generation and overall country competitiveness.**
- **Therefore, Governments and International Development Community alike have an interest in the promotion of ICT as an effective tool for sustainable enterprise development.**



Introduction

- **Efficient intervention requires timely and reliable information on the real contribution of ICT to firms performance.**
- **There are several factors, either at firm or at environmental level, that are important to help SME fully realizing the potential of their ICT investments:**
 - **At environmental level, regulatory framework, availability of power, quality and extent of networks use are important.**
 - **At firm level, the importance of organizational change and skilled staff is widely documented in the literature.**
 - **Organizational change= re-organization of planning, order processing, controlling, logistic as well as internal and external connection of computers.**



Introduction

- For example, for internet being used efficiently to improve orders processing or delivering of services to customers, the company must adopt a new online shop software that, usually, changes the routine.
- Skilled staff will be necessary to harness ICT in a way that is most appropriate to the needs of the company.
- Therefore, depending on what firms do with ICT, the same ICT tool can have varying impacts on two different firms.
- Following an econometric approach, this research investigates the impact of ICT on the productivity of firms operating in Cameroon.
- The emphasis is on the use of a robust method of estimation to reveal real rather than spurious impacts.



Background

- A nationwide survey carry out in 2006 revealed that 56% of firms have invested in at least one basic ICT equipment (NIS, 2006).
- However, ICT investments represent in average, less than 7% their total investments.
- Several factors can explain this slow adoption of ICT: high costs, unawareness of the potential of ICT to meet enterprises needs, poor telecommunication infrastructures, etc.
- More than 40% of SME stated that they have no need of ICT in their activities (RIA, 2006).
- There is thus a crucial need for sensitization about the potential of ICT for SME needs.



Objective

- **The aim of this research is to investigate evidences of positive impact of ICT on firm performances.**
- **Hopefully, such evidences might be useful to convince SME that access one way to improve their competitiveness is to invest in appropriate ICT and related organizational changes.**
- **We follow an econometric approach to estimate the sensibility of output to an increase in ICT-Capital.**
- **Previous study rely on OLS estimates which a likely to be bias and inconsistent due to potential endogeneity problems.**
- **The emphasis in this research is on the use of a robust estimator intended to obtains robust figures to reveal real rather than spurious effects.**



Methodology and Data

- The empirical model is specified as follow:

$$\text{Ln}Y_{it} = \alpha_1 \text{Ln}N_{it} + \alpha_2 \text{Ln}ICT_{it} + \alpha_3 \text{Ln}K_{it} + \mu_{it}$$

$$\mu_{it} = \gamma_t + \eta_i + \varepsilon_{it}$$

- System GMM estimator will be used to obtain the set of coefficient $(\alpha_1, \alpha_2, \alpha_3)$
- The data come from the short-term trend survey and the sample consists of 47 enterprises observed over the period 2000 – 2006.



Preliminary Results

	GMM -DIF		GMM - SYS	
	Coef.	P. Values	Coef.	P. values
Employment	-0.477	0.522	0.178	0.003
ICT – Capital	-0.012	0.985	-0.454	0.017
Conventional - Capital	0.873	0.007	0.911	0.000
M1		0.007		0.065
M2		0.105		0.251
Sargan		0.424		
Dif- Sargan				0.561

- The negative and significant coefficient of ICT- Capital imply that in average, firms operating in Cameroon are not realizing the productivity gains from ICT.



Discussions

- **However, this does not imply that firms should not invest more in ICT!**
- **Instead, attention should be focused on factors that are hindering productivity gains from ICT.**
- **Given the environmental context, it seems that the majority of firms in our sample have not invest in time-consuming organizational change and staff training after they invested in ICT.**
- **In an extension of this study, we try to integrate a measure of organizational change and skill qualification in the model to delineate their effects on the productivity of ICT.**
- **Hopefully, it will then be possible to show a channel through which the productivity gains of ICT can be harnessed.**



Conclusion

- So far, our empirical investigation has reveal that ICT does not have a direct positive impact on firms' productivity in Cameroon.
- However, it is clear that the impact of ICT on firm performance is mainly indirect, depending on how firms decide to use the technologies, and to what extent they take advantage of these technologies to introduce innovation in their business operations.
- It is therefore important to focus on those indirect links in an extension of this study, in order to clarify the rationale for firms to adopt ICT as a tool of competitiveness.
- Such results might be helpful to sensitize ICT- averse firms to take advantage of the new economy.