

Performance of Small and Medium-Sized Enterprises in Uganda: The Role of Innovation

*Ibrahim Okumu and
Faizal Buyinza*

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Abstract

Using the 2013 World Bank Enterprise Survey data for Uganda, this paper employs the quintile estimation technique to explain the relationship between innovation and firm performance in small and medium-sized enterprises (SMEs). Innovation involves the introduction of a new or significantly improved production process, product, marketing technique or organizational structure. Our results indicate that individual processing, product, marketing and organizational innovations have no impact on labour productivity as proxied by sales per worker. However, the results indicate the presence of complementarity between the four types of innovation. Specifically, the effect of innovation on sales per worker is positive

when an SME engages in all four types of innovation. Even then the complementarity is weakly positive with incidences of a negative relationship when using any combination of innovations that are less than the four types of innovation. Policy-wise the results suggest that efforts to incentivize innovation should be inclusive enough to encourage all four forms of innovation.

Introduction

Small and medium-sized enterprises (SMEs)¹ can potentially play a critical role in enabling households to engage in income-generating activities, thereby making available decent employment opportunities. Also, through offering forward and backward linkages, SMEs create a space for households to participate in the economy. Backward linkages involve the supply of inputs to SMEs, while forward linkages could be buying the output from SMEs as inputs higher up the value chain. Furthermore, SMEs are partly incubators of new innovations that could enhance an economy's productivity and economic growth potential. In Uganda, for example, SMEs in the industrial, services and agricultural sectors employ about 2.5 million people (Government of Uganda, or GoU, 2011), and contribute approximately 18 per cent to the GDP (GoU, 2015). Uganda's tax-to-GDP ratio has persistently failed to rise above 13 per cent and SMEs are a potential source of revenue to enhance domestic resource mobilization, given that recent tax reforms have intensively and extensively targeted SMEs both in the formal and informal sectors.

Conscious of the role SMEs play, and in an attempt to fulfil their potential, the GoU has, among other things: 1) designed a policy instrument for SMEs with the rationale of streamlining activities in the sector to fulfil its potential (GoU, 2015); 2) set up eBiz, which is Uganda's one-stop centre for starting a business²; 3) set up a directorate of micro, small and medium enterprises (MSMEs) in the Ministry of Trade, Industry and Cooperatives, which had a budget allocation of US\$593,000 in the financial year 2016/17 towards the Industrial Cluster Programme for MSMEs³; 4) also in the financial year 2016/17, US\$593,000 was budgeted to enable the Uganda National Bureau of Standards to support MSMEs in acquiring quality marks and product certifications; 5) under the Uganda Investment Authority, an SME division has been set up with the overall goal of developing sustainable domestic investment and SMEs; and 6) supported Enterprise Uganda to adopt the Empretec model, which is designed as a

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1. In this paper, it denotes firms employing 5–19 and 20–99 persons, henceforth small enterprises and medium enterprises, respectively.
 2. <https://www.ebiz.go.ug/>
 3. Note that the recruitment of staff in the directorate is on-going.

one-stop capacity-building programme to provide an integrated and comprehensive range of business support services for SMEs using a hands-on approach.⁴

While the aforementioned efforts by GoU to enable SMEs to fulfil their potential are commendable, their success partly depends on understanding the effect of innovation on the performance of SMEs. In an attempt to partly fill that void, this paper uses the 2013 World Bank Enterprise Survey (WBES) dataset for Uganda to examine the effect of innovation on the performance of SMEs. Where innovation takes the form of product, process, marketing and/or organizational innovation⁵. Marketing innovation could involve improvements in product design or packaging, product promotion, product pricing or even product placement. Product innovation typically involves improving a firm's existing goods or services, or simply introducing a new product or service. Organizational innovation could involve adopting new practices or policies, or a cultural re-orientation of a firm, while process innovation involves introducing a new or significantly improved method of manufacturing or offering services.

Note that the 2013 WBES dataset for Uganda is composed of 698 SMEs, of which 66% and 34% are small and medium-sized firms, respectively. The data reveal that 72% and 83% of small and medium-sized firms, respectively, engaged in innovation. Disaggregating across different kinds of innovation, 67%, 69%, 63% and 60% of the medium-sized firms are reported to have engaged in process innovation, product innovation, marketing innovation and organizational innovation, respectively.⁶ Conversely, the data show that 53%, 59%, 53% and 43% small scale firms engaged in process innovation, product innovation, marketing innovation and organizational innovation respectively. Overall, 59%, 62%, 56% and 48% of SMEs are engaged in process innovation, product innovation, marketing innovation and organizational innovation, respectively.

4. <http://enterprise.co.ug/about-us/>

5. With regard to marketing innovation, firms responded to the question "During the last three years, has this establishment introduced any new or significantly improved logistics, delivery, or distribution methods for inputs, products, or services?" and "During the last three years, has this establishment introduced new or significantly improved marketing methods?" With respect to organizational innovation, firms responded to the question "During the last three years, has this establishment introduced any new or significantly improved organizational structures or management practices?" Regarding product innovation, firms responded to the question "During the last three years, has this establishment introduced any new or significantly improved methods of manufacturing products or offering services?" Concerning process innovation, firms responded to the question, "During the last 3 years, has this establishment introduced any new or significantly improved method of manufacturing product or offering services?"

6. Note that one of the data constraints is that firms that had innovated three years prior to the survey are also coded as not having undertaken any innovation.

Engaging in marketing innovation involves improvements in logistical, distribution and marketing methods, which should result in market expansion. Process innovation involves new, efficient production methods leading to more product output at potentially lower unit cost. Product innovation involves product modification to reflect evolving customer preferences or bringing on board a completely new product. If successful, it is likely to attract new customers. Organizational innovation involves improvements in management practices and structures, which induces management efficiency gains that should be reflected in higher product output and increased market share. Therefore, irrespective of the nature of innovation, innovation could lead to increased sales per worker (labour productivity), higher value added per worker (labour productivity) and perhaps the growth and transition of a firm from small to medium sized or, better still, to a large firm, perhaps producing for both domestic and export markets.

Indeed, there is consensus in empirical literature on the developed world that innovation enhances labour productivity (Griffith et al., 2006; Griffith et al., 2004; Mairesse and Mohnen, 2010; Mairesse et al., 2005; and OECD, 2009). However, evidence in the developing world is rather contradictory, for example, using cross-sectional data from Kenya and Tanzania, Chowdhury and Wolf (2003), who proxied innovation using information and communication technologies (ICT),⁷ argue that innovation dampens labour productivity and has no impact on the revenue of SMEs. Similarly, Goedhuys et al. (2008) show that product or process innovation has no significant impact on labour productivity in Tanzania. Conversely, after distinguishing between formal and informal SMEs, Esselaar et al. (2007), using a cross-country dataset for sub-Saharan African countries,⁸ show that the adoption of ICT to proxy innovation enhances labour productivity in both formal and informal SMEs. The non-convergence of innovation and firm performance is equally prevalent in studies on other developing economies. For example, authors of empirical studies on Latin America have argued that innovation has no impact on firm labour productivity (Perez et al., 2005; Benavente, 2006; Raffo et al., 2008; and Crespi and Zuniga 2012). Conversely, Raffo et al. (2008) show that product innovation has a significant impact on labour productivity.

The lack of consensus on the relationship between innovation and labour productivity in developing economies could partly be associated with using inaccurate proxies for innovation such as ICT. In this regard, Lin & Chen (2007) argue that ICT may not be critical to firm performance, for example when compared to organizational

7. Such as mobile phones, internet, computers, telephones and fax machines.

8. This study considered Botswana, Cameroon, Ethiopia, Ghana, Kenya, Mozambique, Namibia, Nigeria, Rwanda, South Africa, Tanzania, Uganda, and Zimbabwe.

innovation. While in some instances, at least in Latin America, investment in Research and Development (R&D) was used as a proxy for innovation, while it could be relevant to developed economies as they are at the frontier of innovation, this may not be the case for developing economies that typically engage in imitation of innovation⁹ (Naudé et al., 2011). Investment in R&D as a proxy for innovation may not significantly impact firm performance in developing countries, but it enhances firm performance in developed economies (Crespi and Zuniga, 2012).

Our contribution to the empirical literature is through using the 2013 WBES data where innovation is measured through whether a firm introduced a new or significantly improved: 1) marketing technique, 2) organizational structure, 3) product or 4) production process in the last 3 years prior to the survey, to explain the relationship between innovation and labour productivity proxied by sales per worker. First, we believe that our measures of innovation are better than ICT especially when ICT is measured as the use of email, a website or having a mobile phone or fax machine to proxy innovation, as explained in Esselaar et al. (2007). ICT utilization has nothing to do with things such as product, process and organizational innovation. Second, investment in R&D may not be an appropriate innovation proxy, especially for a developing country like Uganda where innovation takes place through imitation (Naudé et al., 2011). We further contribute to the empirical literature by attempting to understand whether the relationship between labour productivity (proxied by sales per worker and value added per worker) and innovation could be associated with complementarity between the different innovation types. This study compares sales per worker and valued added per worker for firms that undertook only one innovation, two innovations, three innovations and all four innovations. We envisage that the degree of complementarity increases when a firm takes on all four innovations, as labour productivity is expected to be higher than when a firm has only one or two or even three innovations.

Our results suggest evidence of complementarity across product innovation, process innovation, marketing innovation and organizational innovation. When a firm engages in the four types of innovation, the results suggest that labour productivity increases as well, especially in low-productivity firms. The relationship becomes weaker when a firm engages in any three types of innovation, and becomes insignificant when a firm engages in only one type of innovation. With respect to business environment characteristics, the paper shows that sales per worker are depressed when firms perceive corruption and tax rate to be an obstacle. Furthermore, when firms perceive the labour force to be inadequately educated, the sales per worker is

9. Imitating innovation involves the purchase of innovation as opposed to actually investing in Research and Development with the rationale of coming up with new ideas

equally compromised. In terms of firm specific characteristics, engaging in exports and utilization of ICT enhances sales per worker. Conversely, certification of a firm's product is inversely related to sales per worker.

Descriptive statistics

This study uses the 2013 WBES data for Uganda, which was collected between January and August 2013. The survey employed a stratified random sampling technique in order to: 1) eliminate biased estimates for the entire population; 2) eliminate biased estimates for different subdivisions of the population with a given degree of informed precision; 3) ensure that different sectors are well represented in the final sample; and 4) benefit from the precision associated with population estimates in stratified sampling as opposed to simple random sampling techniques, among other things. The survey was based on a sampling framework obtained from the Uganda Bureau of Statistics. In terms of stratification, the survey employed three levels of stratification, that is: region, size and industry. Specifically, in terms of region, the survey was undertaken in Jinja (central Eastern Uganda), Kampala (city in central Uganda), Lira (Northern Uganda), Mbale (Eastern Uganda), Mbarara (Western Uganda) and Wakiso (Central Uganda). In terms of size, the survey covered small, medium and large enterprises. Small enterprises comprised firms with 5 to 19 employees and medium enterprises comprised firms with 20 to 99 employees, while large firms had 100+ employees. The data were collected only from formal (registered) companies with 5 or more employees.

For this study, a sample of 698 SMEs is used, of which 324 SMEs were surveyed in the manufacturing sector that included: food, textiles, garments, tobacco, leather, wood, paper, publishing, printing and recorded media, refined petroleum products, chemicals, plastics and rubber, non-metallic mineral products, basic metals, fabricated metal products, machinery and equipment, electronics, precision instruments, transport machines, furniture and recycling. Within the manufacturing sector, the number of small and medium-sized firms totalled 180 and 144, respectively. While the service sector had a total of 374 firms surveyed, which included: retail, wholesale, information technology (IT), hotels and restaurants, services of motor vehicles, construction and transport, among other things. Specifically, 280 and 94 small and medium-sized firms were surveyed, respectively.

Conclusion and policy recommendations

This paper set out to explain the relationship between innovation and labour productivity as proxied by sales per worker and valued added per worker. However, because too many values were missing, we could not estimate the relationship between innovation and labour productivity as proxied by valued per worker. Rather, the empirical estimation was only the relationship between innovation and labour

productivity as proxied by sales per worker. The results suggest that: 1) engaging in any one form of innovation has no impact on labour productivity; 2) there is evidence of complementarity between product innovation, process innovation, marketing innovation and organizational innovation in their relationship with labour productivity. Therefore, the implication of this study is that if a firm seeks to enhance labour productivity through innovation, due consideration ought to be given to product innovation, process innovation, marketing innovation and organizational innovation, otherwise each innovation on its own may not result in encouraging improvements in labour productivity.

For policy purposes, this study suggests that efforts to induce innovation should ensure inclusiveness. The presence of complementarity between the four kinds of innovation suggests that government cannot choose to incentivize marketing innovation at the expense of product, organizational or processing innovations. Innovation incentives should be designed in such a way that firms can embrace the four dimensions of innovation in order to guarantee a positive outcome for labour productivity.

Finally, while the results suggest that having an international certification does not guarantee an increase in labour productivity, this should not result in government withdrawing its support of SMEs' development through enabling the acquisition of quality marks and product certification. This is because having a product certification is a seal of approval that a product is suitable to be sold in the market. This protects government from incurring costs arising from households consuming products that are not suitable for human use.

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