

The impact of innovation in boosting agricultural performance of small and medium farmers: The role of managerial competency

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Abstract:

The study proposes a model that shows the moderating effect of managerial competency on the relationship between innovation and agricultural performance. After a critical review of the relevant literature, the proposed model was developed. From the model we argue that innovation has a direct impact on agricultural performance, but the impact will be stronger when managerial competency is put into consideration by the small and medium farmers. Farmers who possess the needed managerial competency have the opportunity to achieve a competitive edge over competitors.

Keywords: Innovation, managerial competency, agricultural performance, small and medium farmers.

INTRODUCTION

Innovation in agriculture is a continuous activity for agricultural business (Micheels & Nolan, 2016). Nelson and Winter (1982) also defined innovation as a 'change in routine'. Changes in routine may include the adoption of new technologies and practices such as new agricultural machinery, new crop varieties, and new production

practices by agricultural firms (Llewellyn, D'Emden, & Kuehne, 2012; Maertens & Barrett, 2012; Westgren, 1999). The process of adding value to old things or doing something new by changing the way they are done could also be regarded as innovation (Dawe & Guthrie, 2004). Innovation is also considered as one of the major factors leading to performance, profitability and competitiveness (Sauer, 2017a).

Crops and livestock yields have increased significantly over the years which is due to research and innovations thus, increase in agricultural performance (Andersen, 2015). The challenges facing agricultural sector all over the world could be addressed using technological innovations such as providing improved crop varieties for example rice, maize and wheat which are mostly consumed in developing nations as the world population is also expected to hit 9.7 billion people by 2050 (Ma, Gilmour, & Dang, 2017). The more investment in innovation the more the farmer is likely to produce more crops, (Sauer, 2017). An empirical evidence has shown that an increase in innovation leads to higher farm performance. The importance of innovation to agricultural performance cannot be overemphasized. Organic farming, which is one of the innovations in agriculture, have been documented as one of the source helping agriculture to grow sustainably (Padel, Vaarst, & Zaralis, 2015).

Innovation has been an important factor in transforming the agricultural sector for the past 150 years, it has offered solution to so many problems in the agricultural sector of many economies, thus, transformed and improved lives and livelihood of several people (Alston & Pardey, 2016). Farmers innovativeness plays a greater role in boosting agricultural productivity. Alston and Pardey (2016) attributed innovation as one of the main drivers of Australian economy due to its pivotal and remarkable role in transforming the agricultural sector and has contributed to the growth of the country's GDP. The author also posits that, new crop varieties, pesticides, fertilizers were introduced to the farmers, they adopted it on both the rainfed, and irrigation farms and it yielded good results.

In USA farmers who are innovative and adopt innovation in the farming business witness more crop yields compared to those that do not adopt new improved crop varieties which germinate and grow faster, most especially the irrigated farms (Kering & Broderick, 2018).

Gumble, Berghage, & Stearns (2015) also emphasized that the adoption of innovation by farmers in the USA have the potential of developing the agricultural systems that would be able to boost farm productivity in the urban neighborhood and rural towns who have limited access to food due to food insecurity. They also stated that the adoption of innovation equally increases the revenue of agricultural farmers. Thus, adequate investment in innovation and good policies significantly impacted the product, process, marketing and organizational innovation in Netherlands (Sauer, 2017b).

Empirical literature reveals that the relationship between innovation and agricultural performance have been examined (Acheampong & Owusu, 2015; Alston & Pardey, 2016; Beissinger, Goldberger, Benedict, & Inglis, 2017; Haile, Azzarri, Roberts, & Spielman, 2016). However, some of this findings differ (Bhavani, Chakravarthi, Roy, Joshi, & Chandrasekar, 2017). Moreover some of the studies revealed that there is positive significant relationship between innovation and agricultural performance (Al-ghzawi, Khalaf, & Al-ajlouni, 2018; Davies et al., 2016; Jaleta et al., 2016; Man, Shi, Yu, & Zhang, 2016) while some revealed no significant relationship (Bhavani et al., 2017; Nkhoma, Kalinda, & Kuntashula, 2017). However, despite these inconsistencies, no study has introduced a moderator to moderate the relationship between innovation and agricultural performance. Hence, this study proposes managerial competency as a moderator. The studies that use managerial competency as a moderator are very few, and most of them are in developed countries. In the African context, not many studies have employed managerial competency as a moderator which is the gap this study is trying to fill. Moderators are introduced in a study when there are inconsistent findings. The introduction of a moderator will help strengthen the relationship between innovation and Agricultural performance. Tiraieyari, Idris, Hamzah, & Uli (2011) posits that organizations that possess the required managerial competencies have more competitive advantage to achieve and reach the desired level of performance, since the organizations set of skills allow the organization and employees to achieve greater performance.

The term competency was defined by Boyatzis, (1982) as an essential characteristics that a person possesses which lead to achieving an outstanding performance. According to Davis (2015)

Competence is the ability of a person to do something efficiently and effectively. However, it has become imperative for the small and medium farmers to be competent in order to manage their farms effectively and efficiently, since they are regarded and seen as managers of their own farm Carter, (1998).

According to resource-based theory which is more concerned about how organization use its resources and capabilities within it to develop a competitive advantage over its competitors (Pradabwong, Braziotis, Tannock, & Pawar, 2017), competency is regarded as one of the most important intangible assets of the organization (OECD, 2000). With competency, which encompasses the skills, knowledge, abilities, traits and behavior, an individual or employee of an organization is able to perform a specific function assigned to him (Boyatzis, 1982). However, innovation has played a very important role in boosting agricultural performance of several farmers (Alomia-Hinojosa et al., 2018; Gumble et al., 2015). In other words, we are of the view that, with the adoption of RBV theory, innovation has a direct relationship with agricultural performance, nevertheless, the relationship will be more strengthened when managerial competency is take into consideration.

The objective of this paper is to present a model which illustrates conceptually, a moderating role of managerial competency on the relationship between innovation and agricultural performance. Relevant literature will be reviewed on innovation, managerial competency and agricultural performance in order to formulate the hypothesis which shows the relationship. A model showing the relationship will be and lastly the implication of the model will be discussed.

LITERATURE REVIEW

Innovation

Innovation is seen as the process of creating and combining new ideas to establish a relationship between present efforts and past experiences to solve future problems (Bartel & Garud, 2009). The process of adding value to old things or doing something new by changing the way they are done could also be regarded as innovation (Dawe & Guthrie, 2004). According to OECD-Eurostat (2005)

innovation refers to all scientific, technological, organizational, and commercial activities that lead us to, the implementation of technologically new or improved services.

Similarly, Samara, Georgiadis, & Bakouros (2012) view innovation as a multifaceted phenomenon which involves the transformation and utilization of technological knowledge into creating new products or processes. Therefore, Firm performance and innovation are usually linked together. To maintain certain level of performance, firms need to engage in innovation and invest in innovative activities (OECD-Eurostat, 2005). According to Levers, Butsic, Verburg, Müller, & Kuemmerle (2016) the increase in agricultural output witnessed today across Europe is because of the adoption of innovation, for example, the increase in fertilizer application, high soil quality, high labor productivity and less growing degree days is as a result of innovation. In another remark by Ouda, Hefny, Abdel-Wahab, & Abdel-Wahab (2018), innovation has also contributed to the decrease in water dependency in the planting of peanuts in Egypt by the small and medium farmers. This was achieved through the intercropping of peanut with sunflower and an increase in fertilization application, as a result, increased farm yield and profitability. However, the innovative advancement in soil fertilization, mechanization, genetic engineering, cultivating techniques, irrigation techniques and information technology have been the main drivers in agricultural productivity (Wang, Du, Sun, Guo, & Chen, 2018).

Furthermore, Alston and Pardey (2016) attributed innovation as one of the main drivers of Australian economy due to its pivotal and remarkable role in transforming the agricultural sector and has contributed to the growth of the GDP of the country. The author further stated that new crop varieties, pesticides, fertilizers were introduced to the farmers, they adopted it on both the rainfed and irrigation farms and it yields good results. Researchers have investigated the relationship between innovation and agricultural performance. Some studies proved a positive a relationship between innovation and agricultural performance (Coulibaly, Chiputwa, Nakelse, & Kundhlande, 2017; Gumble et al., 2015; Levers et al., 2016; Man et al., 2016). While some studies could not find a positive relationship between innovation and agricultural performance

(Lapple & Thorne, 2015; Ngoma & Angelsen, 2017). The inconsistencies in the literature indicate that there is still room for further investigation on the relationship between innovation and agricultural performance. Therefore, we hypothesize that

Hypothesis 1: there is a significant relationship between innovation and agricultural performance.

Managerial competencies

Over many years now the term “competency” has been studied more often in organizational literature by several scholars (Antonacopoulou & FitzGerald, 1996). Some of the studies that show competency systems are used in organizations to evaluate, and promote employees include (Bricoe & Hall, 1999; Lawler & McDermott, 2003). Spencer & Spencer (1993) stated that competency is seen as the ability of the employee to perform the required skills for a specific job.

Citing one of the researches that dates back half a century McClelland, Baldwin, Bronfenbrenner, & Strodbeck (1958), competency promoters have argued that assessing the employees’ competencies provide an effective system for predicting performance (McClelland, 1973; Spencer & Spencer, 1993). Although, competency systems have been constantly and increasingly adopted to selecting, rewarding and promoting managers, whether this argument can be extended to managerial jobs is an open question (Boyatzis, 1982; Goleman, Boyatzis, & McKee, 2002; Zenger & Folkman, 2002). In addition, Hollenbeck & McCall, (1997) argues that despite competencies are correlated to job performance for individuals, it is uncertain if competencies can be used to boost organizational performance. Thus, it is proposed that managerial competency affects the adoption of innovation positively and can be a possible moderator in the relationship between innovation and agricultural performance of small and medium farmers.

Hypothesis 2: managerial competency moderates the relationship between innovation and agricultural performance.

Innovation, managerial competency and agricultural performance

Agriculture is considered to be central for the global economic development of the world, and in 2014 it contributed to the one-third

of the world gross domestic product (GDP) (Roberts, Otieno, & Nyikal, 2017). Previous research prove that the adoption of innovation in agricultural sector and businesses increases production and improve quality, it grows the agricultural sector sustainably, transforms and improve the quality of lives (Alston & Pardey, 2016; Andersen, 2015; Padel et al., 2015). In other words, businesses and small and medium farmers who adopt innovation stand a chance to boost their farming businesses, witnessing increase in profit, ease of job task, and reducing the cost of running their farms. reducing the cost of running their businesses.

In the same vein, managerial competency has been studied and acts as a moderator between businesses and organizational performance. For example Khan (2011) study the relationship between total quality management and organizational performance using managerial competencies as a moderator. Although the result of the study shows that there is not significant relationship between total quality management, organizational performance and managerial competency. The author further stated that managerial competency should be use as a moderator on other variables. Thus, this study has proposed to use managerial competency as a potential moderator.

Proposed Model

As was stated earlier the main objective of this paper is to present a model that illustrates the relationship that exists between innovation, managerial competency and agricultural performance. The model was developed after a critical review of literature. The proposed model indicates the moderating effect of managerial competency on the relationship between innovation and agricultural performance. The thick black line shows the moderating role while the thin line shows the direct relationship. This indicates that innovation has a direct linkage to agricultural performance while the thick line shows that the relationship between innovation is reliant on managerial competency. Finally, it also shows that managerial competency is related to innovation and agricultural performance.

CONCLUSION

The study presents a model showing the moderating effect of managerial competency on the relationship between innovation and agricultural performance. Based on the available literature we can deduce that innovation is antecedent on agricultural performance. Similarly, managerial competency is an antecedent to both innovation and agricultural performance. The proposed model shows that managerial competency strengthens the relationship between innovation and agricultural performance. This depicts that innovation will have a strengthened impact on agricultural performance when the farmers employ and adopt the latest innovative technologies on their farms. Hence it has become paramount for framers to use the latest technologies in running their farms businesses to enhance the productivity their farms sustainably without causing damaged to the soil, compete competitively, sale their farm produces conveniently and improve the quality of their life. For farmers to be able to do this they must possess the needed managerial skills.

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