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# THE EFFECTS OF PRODUCT INNOVATION ON THE PERFORMANCE OF SMALL AND MEDIUM-SIZED ENTERPRISES IN TANZANIA

**[1]EZEKIEL Kanire, [2]CAROLINE Ngereza** *and* **[3]CHRISTOPHER N. Mdoe**
Institute of Rural Development Planning – Lake Zone Centre, Mwanza, Tanzania

**Email**: [1]ekanire@irdp.ac.tz, [2]cngereza@irdp.ac.tz *and* [3]cmdoe@irdp.ac.tz

## Abstract
The main purpose of study was to examine the effect of product innovation practices on the performance of manufacturing SMEs in food processing industry in Mbeya, Tanzania. The study used multi-dimensional analytical approach to examine the effect of product innovation on the performance of SME. With STATA 17 software, the ordered logistic regression analysis was performed using data from a sample of 400 owners and/or managers of manufacturing SMEs in food processing industry. Findings of this study revealed that new product development, product improvement and product line extension has significant and positive impact on SMEs performance in terms of growth of sales ($\beta = 0.628$, $p < 0.05$) customer satisfactions ($\beta = 0.549$, $p < 0.05$), profitability ($\beta = 0.472$, $p < 0.05$), return on equity ($\beta = 0.465$, $p < 0.05$), production quality and delivery speeds ($\beta = 0.479$, $p < 0.05$).The findings of the study are relevant for managers and innovation decision-makers when designing innovation strategies to foster the business performance of SMEs. Additionally, the multi-faceted nature of the link between product innovation and business outcomes in SMEs is crucial in securing the desired performance outcomes in a context of limited resources for product innovation.

**Keywords:** Innovation, Product Innovation, New product development, Product improvement, Product line extension, SMEs Performance

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## Introduction

Small and Medium-sized Enterprises (SMEs) are pivotal drivers of global economic growth, accounting for approximately 90% of businesses and over 50% of employment worldwide (Kanire, Msuya, & Alphonce, 2024; Mang'ana, Ndyetabula, & Hokororo, 2023; World Bank, 2022). In emerging economies, formal SMEs contribute up to 40% of national income (GDP) (Kitole, Tibamanya, & Sesabo, 2023; World Bank, 2022). To achieve sustainable performance in an increasingly competitive landscape, SMEs must integrate new technologies and foster a culture of innovation across technical, managerial, and commercial domains (Gherghina, Botezatu, & Hosszu, 2020; Herte, Dianu, & Ciucos, 2021). The significance of SMEs is particularly pronounced in Sub-Saharan Africa, where they play a crucial role in poverty alleviation, GDP growth, and employment generation (Muiruri, 2017). African SMEs constitute over 95% of businesses, generate 60% of employment, and contribute approximately 40% to national GDPs (Kiyabo, & Isaga, 2019). In this context, innovation emerges as a critical determinant of SME competitiveness and sustainability (Kitole & Utouh, 2023; Utouh & Kitole, 2024; Sharma, 2016).

In Tanzania, SMEs contribute 35% to GDP and 40% to employment levels (URT, 2022). However, their performance has been suboptimal, leading to frequent business closures and impeding the realization of their full socio-economic potential (Kitole et al., 2023; Kiyabo & Isaga, 2019). A lack of innovative culture has been identified as a significant impediment to SME growth and sustainability in the country (Jeje, 2022; Sharma, 2016). Despite governmental efforts to create favorable environments for innovation intermediaries and infrastructure (URT, 2022), SME performance in Tanzania continues to decline. Alarmingly, approximately 70% of SMEs lack sustainability and fail to survive beyond five years (Ismail, 2022). This persistent challenge underscores the need for a more nuanced understanding of the relationship between innovation and SME performance.

Recent scholarly literature has extensively examined the effects of innovation on SME performance in both developed and developing economies (Kitole, Msoma, & Sesabo, 2024; Expósito & Sanchis-Llopis, 2019; Jeje, 2022). However, some studies have yielded conflicting results (Kitole & Sesabo, 2022; McDermott & Prajogo, 2012;Kitole & Gneda, 2024; Ndesaulwa & Kikula, 2016), partly due to the substantial resources required for innovation, which can pose significant barriers for resource-constrained SMEs (Hervás-Oliver, Parrilli, Rodríguez-Pose, 2021; Hvolkova, Klement, Kovalova, & Klementova, 2019).

This study aims to contribute new empirical evidence on the effects of diverse product innovation dimensions on SME performance in Tanzania. Grounded in the OECD Oslo Manual's conceptualization (OECD, 2005), the research analyses three distinct forms of product innovation outputs: New product development, product improvement, and line extension. SME performance can be evaluated using a comprehensive set of operational and financial indicators.

The present study addresses a critical gap by examining the multifaceted effects of various types of product innovation on SME performance, while also identifying key determinants and barriers to innovation adoption and implementation. Previous studies in Tanzania have been

limited in scope, focusing on narrow aspects of innovation and singular measures of business performance (Jeje, 2022; Mwaifyusi & Dau, 2023; Ringo, Tegambwage, & Kazungu, 2023), or relying on desktop reviews rather than robust empirical analysis (Ndesaulwa & Kikula, 2016). By addressing these limitations, this study seeks to provide a more comprehensive and nuanced understanding of the relationship between product innovation and SME performance in Tanzania. The findings will contribute to the broader literature on innovation and SME development in emerging economies, offering valuable insights for policymakers, practitioners, and researchers in the field of SME innovation and growth strategies.

**Theoretical underpinning**

Theories of innovation have been strongly influenced by Joseph Schumpeter's work. He claimed that innovation drive economic development through a dynamic process he called "creative destruction," in which new technologies replace the old one (Bloch, 2020). According to Schumpeter (1934), "incremental" innovations continuously enhance the process of change, whereas "radical" innovations produce significant disruptive changes. In 1934, Schumpeter outlined five different types of innovations: first, the introduction of new products; second, the introduction of new production methods; third, the opening of new markets; forth, development of new sources of raw material or other input supply; and lastly the creation of new market structures in an industry (Schumpeter, 1934).

This theory underlines the reasons why it is important for the businesses to innovate. The ultimate goal is to boost business performance, for instance by raising demand or cutting expenses. A new processes or product may give the innovative firm a competitive edge in the market through a cost advantage over its rivals, allowing a higher mark-up at the current market price or, depending on the demand elasticity, the use of a combination of lower price and higher mark-up than its rivals to increase market share and profits (Cherroun, 2014). Additionally, firms can boost demand by focusing on new markets, differentiating their products, and influencing consumer demand for already-existing products (Gehlhar et al., 2009). Organizational method changes can increase the effectiveness and quality of their operations, which can lead to an increase in demand or a decrease in costs (Hamdoun et al., 2018). By enhancing the firm's capacity for innovation, innovation can also increase performance. For instance, increasing the capabilities of production processes can enable the creation of a wider range of new products, and adopting new organizational practices can increase the firm's capacity for knowledge creation (Awan et al., 2021), and knowledge acquisition that can be applied to the development of additional innovations (Ode & Ayavoo, 2020).

A Schumpeterian viewpoint emphasizes innovation as market experiments and looks for significant, broad changes that fundamentally reshape markets and industries (OECD, 2005). According to this perspective, product innovation is a component of business strategy or a choice among several investments made to build capacity for new product creation or increase productivity. Therefore, this study adopted Schumpeterian innovation theory to examine the

product innovation practice among SMEs and whether they integrate types of innovation in their business strategy and operations.

## Methodology

This study applied cross sectional design, which is deemed effective and efficient for capturing of a large amount of data in a short period of time (Bailey, 1994; Ringo et al., 2023). The study was conducted in Mbeya region. The region was purposefully chosen because it is among the largest commercial city and top five leading regions with economic activities ( URT, 2022). In addition, the location was also selected due to its significant number of manufacturing SMEs (URT, 2022). The target population of this study is comprised of 274 manufacturing SMEs in food processing industry; and in operation for at least three years (2020 to 2023) in the same industry. The list was obtained from the Small Industries Development Organization (SIDO) in Mbeya region, supplemented with registered members of Tanzania Chamber of Commerce, Industry and Agriculture (TCCIA).

This study used Krejcie and Morgan (1970) table for determining sample size for a given population of 600 manufacturing SMEs in food processing industry. Therefore, this study comprised a total sample size of 400 SMEs as respondents; this number was suitable as it fulfills the requirements of representative, flexibility, efficiency, reliability, and precision of the study, given 5± level of precision. According to Hair, Anderson, and Tatham (2019), a general rule is that the ratio should never fall below 5:1, meaning that five observations are made for each independent variable in the variate. Although the minimum ratio is 5:1, the desired level is between 15 to 20 observations for each independent variable. When this level is reached, the results should be generalizable if the sample is representative (Hair et al., 2019).

This study collected primary data, which are cross-sectional in nature from target respondents who are owners and/or managers of SMEs in Mbeya. The data collected includes detailed information on innovation practices within the firm, the effect of product innovations on the SMEs performance, and the information regarding the barriers of innovation.

## Analytical Modeling

This study is quantitative in nature, which mostly involved quantitative methods of data analysis. The study applied descriptive analysis and econometric model analysis. The computer software STATA 17 was used to analyze data. In this study, the ordered logistic model is used to determine the effect of product innovation practices in SMEs performance. The use of ordered logistic model is because the dependents variable is categorized into ordered rank (Dimoso and Andrew, 2021; Theobald & Kitole, 2024) from the lowest to the highest order such that 1 = ‘‘much worse,’’ 2 = “Little worse,” 3 = ‘‘about the same,’’ 4 = “little better” and 5 = ‘‘much better.”

Ordered logistic regression is a statistical method used to model the relationship between one or more predictor variables and an ordinal dependent variable. The ordered logistic regression equation is used to estimate the probability of an event occurring within a specific

category of the ordinal dependent variable. The equation for ordered logistic regression can be expressed as follows:

Let's consider a single predictor variable, X, and an ordinal dependent variable, Y, with J categories (j = 1, 2, …, J). The ordered logistic regression equation for this scenario can be written as:

$$logit\left(p(y \leq j\,|X)\right) = \alpha_j - \beta_i X_i + \varepsilon$$

Whereas $p(y \leq j\,|X)$ represents the cumulative probability that $Y$ is less than or equal to $j$ given the value of $X$, $\alpha_j$ represents the threshold parameter for category $j$, $\beta_i$ represents the coefficient for the predictor variable $X$. For this study predictors (New product development, Product improvement and Product line extension). The logit function is used to model the relationship between the predictor variable and the cumulative probability of being in or below category $j$. The coefficients ($\beta$) are estimated using maximum likelihood estimation, and they indicate how the predictor variable influences the odds of being in or below a particular category of the ordinal dependent variable.

Once the coefficients are estimated, their interpretation involves considering how a one-unit change in the predictor variable affects the log odds of being in or below a particular category of the ordinal dependent variable. Additionally, statistical tests such as likelihood ratio tests or Wald tests can be used to assess the overall significance of the predictor variables in explaining the variation in the ordinal dependent variable. Moreover, other variables used in this study have been explained in Table 1.

**Table 1 Variables Measurements**

| Variable name | Variable type | Operational definition | Expected sign |
|---|---|---|---|
| **Dependent variable** | | | |
| Firm performance | Categorical | 1= ''much worse,'' 2= "Little worse," 3= ''about the same,'' 4= "little better" and 5= ''much better." | |
| **Independent variables** | | | |
| ***Product Innovation activities*** | | | |
| New product development | dummy | 0 = 'not implemented' 1= implemented | +/- |
| Product Improvement | dummy | 0 = 'not implemented' 1= implemented | +/- |
| Product line extension | dummy | 0 = 'not implemented' 1= implemented | +/- |

**Source:** Maldonado-Guzmán et al. (2018)**.**

## Findings

### Demographic summary of the respondents

Demographic summary of the respondents characterized by various criteria in undertaking the study. According to the findings, the main demographic characteristics used were; age, sex, marital status, level of education and business experiences. This helped to provide an overall image and meaningful data concerning the owner and/or managers of small and medium sized enterprises in food processing sector.

**Table 2 Demographic information of respondents**

| Demographic Information | Attributes | Number of respondents | Percentage (%) |
|---|---|---|---|
| Sex | Female | 247 | 61.73 |
| | Male | 153 | 38.27 |
| Age | 18-25 | 25 | 6.17 |
| | 26-33 | 60 | 14.81 |
| | 34-41 | 121 | 30.25 |
| | 42-49 | 131 | 32.72 |
| | 50 and above | 63 | 16.05 |
| Education level | Primary Education | 13 | 3.09 |
| | Secondary Education | 75 | 18.52 |
| | Certificate/Diploma | 134 | 33.33 |
| | Degree | 151 | 37.65 |
| | Masters | 27 | 7.41 |
| Marital Status | Married | 266 | 66.67 |
| | Single | 84 | 20.99 |
| | Widow | 30 | 7.41 |
| | Divorced | 20 | 4.94 |
| Business Experience | 0-3 | 67 | 16.67 |
| | 4-6. | 50 | 12.35 |
| | 7-9. | 60 | 14.81 |
| | 10 and Above | 223 | 56.17 |

The stipulated results in Table 2 shows that, majority of respondents were female by 61.73 percent while 38.27 percent were male. In term of age, the results shows that majority of respondents were between 26 to 49 years old with 76 percent. About marital status of respondents, the results show that married category formed largest part of respondents with about 66 percent. Furthermore, the pattern of education level of respondents as stipulated in Table 2 shows that, large number of respondents have attained higher education level including certificate/diploma, degree and masters with about 77 percent. Nevertheless, about business

experience of respondents, the results show that, about 56 percent of respondents have business experience above ten (10) years and the rest have experience between zero to nine (0-9) years.

**Table 3 Business profile of respondents**

| Business Information | Attributes | Number of respondents | Percentage (%) |
|---|---|---|---|
| Years Business in Operation | 0-3 | 55 | 13.58 |
| | 4-6 | 52 | 12.96 |
| | 7-9 | 62 | 15.43 |
| | 10 and above | 231 | 58.02 |
| Amount of Capital Invested | From Tsh 0 to Tsh 5 million | 42 | 10.49 |
| | Above Tsh 5 to Tsh 200 million | 275 | 68.52 |
| | Above Tsh 200 to Tsh 900 million | 83 | 20.99 |
| Number of Employees | 1-4 | 191 | 47.53 |
| | 5-49 | 198 | 49.38 |
| | 50-99 | 11 | 3.09 |

The stipulated results in Table 3 illustrates that majority of these SMEs for about 58 percent have been in operation for ten (10) years and above and the rest have been in operations between zero to nine (0-9) years. The results also shows that majority of respondents for about 68 percent have invested capital between five (5) million shillings to two hundreds (200) million shillings in their business. Nevertheless, results shows that majority of respondent business for about 49 percent have employed between 5 to 49 employees.

**Examining the determinants of Product innovation in SMEs**

The stipulated results in Table 4 indicates the respondents identified some of the determinants/factors behind innovations. The descriptive analysis used mean measures to find out the weighted average of the answers of respondents towards each statement. Personnel factors (average value of 3.537), market factors (average value of 3.925) and cooperation and partnerships factors (average value of 3.764) were the most highly rated key determinants of product innovation.

**Table 4 Determinants of product innovation practices**

| No | Determinant factors | Mean |
|---|---|---|
| | ***Personnel factors*** | ***3.537037*** |
| 1 | Availability of knowledgeable personnel to support product innovation | 3.537037 |
| | ***Financial factors*** | ***3.29629*** |
| 2 | Excess funds to support product innovation activities such as new product development | 2.790123 |
| 3 | Internal budget for product innovation (purchasing machinery & technology) | 3.95679 |
| 4 | Availability of grants for product Innovation | 3.962963 |
| | ***Government factors*** | ***3.11728*** |
| 6 | Suitable government innovation policy and regulatory requirement | 2.5 |
| 7 | Presence of financial support and subsidies to support innovation | 1.993827 |
| 8 | Presence of government training programmes for SMEs | 3.96913 |
| 9 | Government's assist in upgrading business technology | 3.728395 |
| 10 | Presence of protectionist measures for product innovation | 3.39506 |
| | ***Market factors*** | ***3.92592*** |
| 11 | Clear understanding of customer needs and expectations | 3.993827 |
| 12 | Put extra effort into understanding competitors | 3.845679 |
| 13 | Presence of large number of competitors in the market | 3.93827 |
| | ***Cooperation and partnerships factors*** | ***3.76419*** |
| 14 | Business network which assures availability of product innovation information | 3.98148 |

| | | |
|---|---|---|
| | | 1 |
| | | 3.87654 |
| 15 | Availability of partners with similar interests in product innovation initiatives | 3 |
| | Willingness of supply chain partners to exchange information on product | 3.43827 |
| 16 | innovation | 2 |
| | Available platforms or forums for SMEs to discuss about product innovation | 3.78395 |
| 17 | practices | 1 |
| | | 3.74074 |
| 18 | Sufficient cooperation of state, universities and enterprises | 1 |

The Market factor is the highest factor (first) that can potentially lead to innovation for those entering the food-processing sector with an average value of 3.925. More specifically, the understanding of customer needs and expectations (mean = 3.993), understanding of competitors (mean = 3.845) and presence of large number of competitors in the market (mean = 3.938) are the key drivers to SMEs owners and/or manager to adopt innovation practices.

Co-operation and partnerships factors is identified as the second factors influencing product innovation in SMEs (mean = 3.764). With regard to partnership and co-operation in the context of innovation, the respondent pointed out the business network (mean = 3.981), partners with similar interests (mean = 3.876), platforms or forums for SMEs (3.783) and sufficient cooperation of state, universities and enterprises (mean = 3.740), stimulate innovation in the business through availability of information on product innovation, and room to discuss about challenges and solutions for innovation practices. Personnel factors is the third identified factors to influence innovation among SMEs (mean = 3.537). The respondents reveal that the presence of knowledgeable personnel to support their product innovation activities make accomplish different product innovation initiatives.

On the other hand, the stipulated results on Table 4 shows that, financial factors (mean = 3.296) and government factors (mean = 3.117) are not key determinant or factors behind product innovation practices among SMEs. However, within these two factors, the respondent has acknowledged the availability of grants for product innovation (mean = 3.962), government training programmes for SMEs (mean = 3.969) and government's assist in upgrading business technology (mean = 3.728) have leverage their efforts to innovation activities.

**Examining the effect of product innovation practices on SMEs performance**

The ordered logistic regression analysis was applied to estimate the effect of product innovation on firm (SMEs) performance. As displayed in Table 5, six models were estimated in order to see how product innovations (new product development, product Improvement, product line extension) effect the firm performance in terms of growth in sales, employee, profitability, return on equity, customer satisfaction and production quality and delivery speeds. Separating the model estimations would help us to see the contribution of each innovation factor more clearly to

the specific dimension of firm performance. However, few variables that have seen in the firm performance literature was added in each model.

The estimated results are shown in Tables 5, which shows the estimated β parameters and their associated marginal effects and level of significance. Using ordered logistic regression analysis; six models were estimated in order to see how innovations (product innovation, process innovation, market innovation and organisational innovation) effect the firm performance in terms of growth in sales, employee, profitability, return on equity, customer satisfaction and production quality and delivery speeds.

Regarding to new product development, the results have shown that new product development has significant and positive impact on SMEs performance in terms of growth of sales ($\beta = 0.628$, $p < 0.05$).and customer satisfactions ($\beta = 0.549$, $p < 0.05$). While the results show that, no significant impacts detected of product innovation to other remained firm performance indicators, (growth in employee, profitability, return on equity, and production quality and delivery speeds). As regards to product improvement, results have shown that product improvement has significant and positive impact on SMEs performance in terms of growth of profitability ($\beta = 0.472$, $p < 0.05$), return on equity ($\beta = 0.465$, $p < 0.05$) and production quality and delivery speeds ($\beta = 0.479$, $p < 0.05$). While results show a more limited impact of this type of product innovation on growth in sales, employee and customer satisfactions.

**Table 5 A series of ordered Logistic regression model showing the effect of Innovation on the SMEs performance.**

| Variables | (1) Growth in Sales | (2) Growth in Employee | (3) Growth in Profitability | (4) Return on Equity | (5) Customer satisfaction | (6) production/ delivery |
|---|---|---|---|---|---|---|
| New Product Development | 0.628** | 0.0474 | 0.196 | -0.238 | 0.549** | 0.106 |
| | (0.314) | (0.189) | (0.23) | (0.173) | (0.264) | (0.191) |
| Product Improvement | -0.398 | 0.089 | 0.472** | 0.465** | 0.0479 | 0.479** |
| | (0.388) | (0.235) | (0.224) | (0.216) | (0.29) | (0.238) |
| Product Line extension | 0.728** | -0.0519 | 0.436** | 0.0916 | 0.586** | -0.102 |
| | (0.324) | (0.198) | (0.217) | (0.176) | (0.23) | (0.196) |
| Secondary Education | 1.428 | 1.117 | -0.833 | -0.703 | -0.923 | 0.911 |
| | (1.256) | (1.41) | (0.717) | (1.134) | (0.89) | (1.261) |
| Cert/diploma Education | 2.305* | 1.635 | -0.371 | 0.431 | 0.448 | 0.653 |
| | (1.191) | (1.367) | (0.696) | (1.076) | (0.87) | (1.212) |
| Degree Education | 3.638*** | 3.808*** | 1.983** | 1.666 | 0.963 | 2.857** |
| | (1.311) | (1.386) | (0.785) | (1.114) | (0.857) | (1.262) |
| Master's Education | 3.467** | 5.259*** | 2.053 | 2.500** | 15.60*** | 2.004 |
| | (1.752) | (1.529) | (1.627) | (1.22) | (0.909) | (1.465) |
| Business experience (4-6) | -1.794 | -1.009 | -2.018** | -1.652* | -0.469 | -1.564 |
| | (1.928) | (0.865) | (1.022) | (0.999) | (0.921) | (1.135) |
| Business experience (7-9) | 0.235 | -1.734 | -2.524** | -2.685*** | 2.825** | -0.958 |
| | (1.394) | (1.113) | (1.083) | (0.991) | (1.318) | (1.088) |
| Business experience (10+) | -0.873 | 0.0142 | -0.528 | -1.346 | 1.347 | -0.616 |
| | (1.209) | (0.767) | (1.054) | (0.827) | (1.119) | (0.848) |
| Years in business (4-6) | 2.266 | 0.645 | 2.172** | 2.103** | 1.223 | 0.561 |
| | (1.929) | (0.844) | (1.082) | (1.01) | (1.187) | (1.174) |
| Years in business (7-9) | -0.0209 | 2.152* | 3.131** | 3.300*** | -1.652 | 0.956 |
| | (1.351) | (1.098) | (1.268) | (1.1) | (1.321) | (1.169) |
| Years in Business (10+) | 2.775** | 0.401 | 1.043 | 2.461*** | -0.355 | 0.818 |
| | (1.265) | (0.706) | (1.105) | (0.891) | (1.322) | (0.878) |
| Capital (Tsh 5m to 200m) | -1.364 | -0.564 | 0.327 | 0.235 | 0.488 | 0.475 |
| | (1.122) | (0.57) | (0.64) | (0.624) | (0.894) | (0.621) |
| Capital (Tsh 200m to 900m) | -2.188* | -0.0562 | 1.537* | 0.909 | 0.678 | 0.134 |
| | (1.224) | (0.609) | (0.808) | (0.649) | (0.976) | (0.638) |

| | | | | | | |
|---|---|---|---|---|---|---|
| /cut1 | 1.621 | -1.029 | 5.978** | 3.374* | 2.64 | 1.057 |
| | (3.14) | (2.085) | (2.374) | (1.885) | (2.214) | (2.251) |
| /cut2 | 3.006 | 2.869 | 6.440*** | 4.802** | 4.398** | 1.793 |
| | (3.154) | (1.981) | (2.337) | (1.897) | (2.162) | (2.171) |
| /cut3 | 3.552 | 6.412*** | 6.906*** | 7.970*** | 5.227** | 4.067** |
| | (3.175) | (2.035) | (2.3) | (2.004) | (2.162) | (2.069) |
| /cut4 | 4.556 | | 8.482*** | | | 6.560** |
| | (3.204) | | (2.363) | | | (2.074) |
| Observations | 162 | 162 | 162 | 162 | 162 | 162 |

Regarding to product line extension, the results show that, there is a significant and positive relationship between product line extension and firm performance in terms of growth of sales ($\beta = 0.728$, $p < 0.05$), growth of profitability ($\beta = 0.436$, $p < 0.05$) and customer satisfactions ($\beta = 0.586$, $p < 0.05$). While the results show that, no significant impacts detected of market innovation to other remained firm performance indicators, (growth in employee, return on equity, and production quality and delivery speeds).

**Discussion of the findings**

**The determinant of Product innovation practices in SMEs**

Informed by the results in this study, product innovation practices among the SMEs were significantly influenced by market related factors, co-operation and business partnerships related factors and personnel related factors. The Market related factors were ranked as the highest factor (first) that can potentially lead to product innovation for those entering the food-processing sector. More specifically, the finding shows that understanding of customer needs and expectations as well as competition are the key drivers to SMEs owners and/or manager to adopt product innovation practices. This might imply that, the SMEs' owners and/or manager in food processing sector need to be innovative to capture the market and have a competitive edge. This result is in line with study by Ndesaulwa & Kikula (2017) which pointed out that meeting customer needs as another factor behind product innovation in the furniture industry while competition is needed to stimulate innovation in the business. In addition the study compliment the study findings by Modi & Rawani (2020) which suggested that product innovation is a significant result of market orientation. Modi & Rawani (2020) further suggested that SMEs with strong market adaptation engage in product innovation at a high level due to a greater understanding of client needs and market dynamics. From this perspective, the lack of market adaptation and product innovation limits SMEs' ability to understand consumer and competitor behaviour.

Co-operation and partnerships related factors were identified as the second factors influencing product innovation in SMEs. With regards to partnership and co-operation in the context of innovation, the results depicted that business network, availability of business partners with similar interests in value chain and presence of product innovation platforms or forums for SMEs; significantly stimulate product innovation in the business through availability of

information on product innovation, and room to discuss about challenges and solutions for innovation practices. This findings support the study findings by Ndesaulwa & Kikula (2017) which concluded that co-operation among workers and owners within firms and outside the firm boosts product innovation and enhances performance among SMEs in furniture industry. Therefore, it clear to implicate that business partnership and co-operation influence product innovation in SMEs as business networking allows SMEs to share ideas as they belong to one industry and deal with the same value chain and market.

Personnel related factors was ranked the third factors to influence product innovation among SMEs. The study results revealed that the presence of knowledgeable personnel to support their product innovation activities make accomplish different innovation initiatives. This might imply that any product innovation needs competent labour with specialized skills in the form of technicians, or engineers to develop and implement it. Furthermore, the results imply that non-R&D innovations like organisational and marketing innovations need specialised personnel with a solid understanding of management and marketing techniques. This findings is in line with the study by Sharma (2016) which founded that any product innovation requires competent and skilled labours for its development and implementation. Also, this findings complement the study by Ndesaulwa & Kikula (2017) which concluded that one has to understand something to innovate something.

**Examining the effect of Product innovation practices on the performance of SMEs**

Regarding new product development the results have shown that new product development has significant and positive impact on SMEs performance in terms of growth of sales and customer satisfactions. This might imply that, innovative products give SMEs in food processing sector the opportunities for sales growth and meeting customer expectations, as it helps firm to reach new markets and gives customers a variety of product options regarding the rise of consumer sensitivity on food products. These findings are consistent with Expósito and Sanchis-Llopis (2019), Asad (2018), and Maldonado-Guzmán, Marín-Aguilar, and García-Vidales (2018) who found new product development to have significant and positive effects on sales increase. Also the outcome of this study supports the results of Oduro (2019) that new product development strongly influences customer satisfaction in Ghana. In addition, Maldonado-Guzmán et al. (2018) argued that, product innovation can be achieved through exploiting new ideas and gives customers a variety of product options. Also Nandal, Kataria, and Dhingra (2020) confirmed that new product development give firms opportunities for growth, profitability, branching out into new markets and enable businesses to improve their readiness for action. However, these findings differ with some previous findings (Namusonge, Muathe, & Kiveu, 2019) that concluded new product development does not significantly influence both financial and non-financial performance of a firm. Therefore, from these overall findings, the study suggests to owners and/or managers of SMEs in food processing sector to take into considerations the food/product innovation as it helps businesses to discover competitive advantages and economic opportunities for growth. New products keep a food business updated with the newest food safety trends and generate maximum customer satisfactions.

As regards to product improvement, results have shown that product improvement has significant and positive impact on SMEs performance in terms of growth of profitability, return on equity and production quality and delivery speeds. This might imply that, product

improvement can give a business advantage from the manufacturing and processing environment, such as cost effectiveness and consistency of quality. These findings are in agreement with those of Expósito & Sanchis-Llopis (2019) who found that product improvement assert a significant and positive impact on both an augmentation in the firm's productive capacity and an improvement in product/service quality and return on equity. Other studies have also found that product improvement has significant and positive effect on both financial and non-financial performance of SMEs (Exposito & Sanchis-Llopis, 2018; Mugogo, 2020; Muharam, Andria & Tosida, 2020; Oduro, 2019). Muharеam et al. (2020) argues that product improvement has a direct and immediate impact on the productive performance of SMEs, it is especially important for firms that must compete fiercely. Consistent with this argument, Hanaysha et al. (2022) argued and concluded that product improvement can give a business advantage from the manufacturing environment, such as cost effectiveness, production speed, and consistency of quality, which can hinder competitors. Thus, these study findings support the fact that enterprises implementing product improvement are likely to be more competitive than those that are not.

Regarding to product line extension, the results show that, there is a significant and positive relationship between product line extension and firm performance in terms of growth of sales, growth of profitability and customer satisfactions. This might imply that, product line extension is important to SMEs in food processing sector for enhancing brand performance and achieving company's sales, through meeting customer needs, access new markets, or reposition a product on the market. These findings are consistence with Oduro (2019) who found and confirm that product line extension positively and significantly relates to performance of SMEs in the Cape Coast Metropolis of Ghana, in terms of sales, customer satisfaction, market share and competitiveness. Similarly, Tham and Ferdous (2019), found compelling evidence that product line extension affects firm performance in a beneficial way. Wadho and Chaudhry (2018) argued that, market innovation would increase sales due to rising product demand, which would increase profits for innovative SMEs in Pakistan. In addition Kahn (2018) argued that, in order to increase a company's sales, product line extension are employed to better meet customer needs, access new markets, or reposition a product on the market. In this way, the study support that marketing innovation serves to drive demand by creating awareness, brand recognition, and product uniqueness.

## Conclusion

This study finds that new product development significantly enhances SME performance, notably in sales growth and customer satisfaction. Similarly, product improvement positively impacts profitability, return on equity, and production quality and speed. Additionally, product line extension is significantly related to improved firm performance in sales growth, profitability, and customer satisfaction. These results suggest that market-related factors, cooperation, business partnerships, and personnel skills are crucial in adopting various product innovation practices, such as new product development, improvement, and line extension. Product innovation, therefore, presents a multifaceted phenomenon with diverse performance benefits, making it essential to distinguish between different innovation practices to identify those that are most advantageous.

The study emphasizes the critical role of continual investment in innovation for enhancing SME performance and long-term growth. It highlights the importance of fostering an innovative

culture within firms, driven by competent and specialized labor under the leadership of owners and managers. To optimize the benefits of product innovation, business managers should prioritize appropriate innovation strategies aligned with their operational and financial goals. The study recommends that government authorities design supportive policies, such as tax frameworks and access to finance, to reduce the cost of innovation and encourage SMEs to engage in innovative activities. Future research should consider longitudinal studies to explore the dynamic relationship between innovation and performance over time and examine the complementarity of innovation strategies within a multi-dimensional innovation-performance framework.

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