Market Innovation and Firm’s Performance: A Meta-Analysis of the Literature Reviewed

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Abstract

In this study, the performance of SMEs in Ethiopia was examined in relation to market innovation. The most recent international papers on market innovation served as a guidance for the study's meta-analysis. To scan, exclude, and include pertinent content, the researchers employed the effect size approach based on a forest and funnel plot. Based on a thorough literature assessment, researchers founded a link between the market Innovation and firm performance. Also based on the reviewed literature, the researcher found a connection between the government support program's moderation and the success of SMEs firms in the field of market innovation. An exploratory sequential mixed research methodology was used to conduct this study. The researchers used a forest plot to determine the effect size of the material they had read. Additionally, a funnel plot was used to account for publication bias. The study makes an effort to provide a conceptual framework and testable hypotheses based on the available literature. Market innovation has been shown to affect a firm’s success.

Introduction

Marketing innovation is the enhancement of a product's design, placement, promotion, or pricing (Wakjira & Kant, 2022). Empirical research has attempted to show potential connections between marketing innovation and the success of SME businesses. According to Peng, Shen, Ying, and Wang (2021), market-driven innovations function by improving present goods and services to better satisfy customer wants. According to the findings of Cuevas-Vargas et al.'s reading in 2021, there is a significant correlation between market advancement and GSP-enabled business performance. The inclusion of ICT as a GSP component modifies this relationship.

According to Yadete and Kant (2023), examples of organizational innovation include the capacity to create methods, techniques, and ideas for the workplace that contribute to improving the working environment Aduala and Kant (2022), as well as the motivation of
employees and the development of their skills and talents to achieve the highest levels of productivity goals and performance.

According to research by Yadete, Kant, and Kero (2023), ecological factors have tempered the relationship between performance and radical innovation. When there is a favorable association between the environment context and the adoption of market innovation, government support has a more significant impact as a moderator. Additionally, they find that external influences have minimal bearing on the relationship between incremental innovation and corporate success, which has a negative impact on incremental innovation methods. A survey method was adopted because there were no archives with the precise data required to evaluate corporate performance and innovation.

Market Innovation doesn’t always involve developing new products or services. It often focuses on improving what already exists, for example your business’ workflow, production or sales process. Such innovation can lead to great improvements in business performance and efficiency. Therefore, marketing innovations are significance to managers to aim at better addressing customer needs, opening up new markets, or newly positioning a firm's product on the market, with the objective of increasing the firm's sales. The study makes an effort to provide a conceptual framework and testable hypotheses based on the available literature.

1.1 Statement of the Problem

According to the findings cited below, MSM innovation is not progressing well in Ethiopian SMEs. For instance, studies by Gobena and Kant (2022) revealed that there are numerous barriers to innovation, including a lack of skilled people, a lack of R&D, the scale of the organization, and excessive spending on innovation. Similar to this, (Kassa & Getnet Mirete, 2022) discovered that administration support, communications, owner direction, and an entrepreneurial mindset all had an effect on the inventiveness of micro and small enterprises engaged in service and manufacturing. Another researcher found that the size of the business and its access to funding significantly affect how innovative Ethiopia's micro and small businesses are (Adula, Kant, & Birbirsa, 2023).

A firm's performance is impacted by innovation, which improves performance when properly supported by government aid schemes. This is because every proposal for government support programmes has both factors for inclusion and forces for exclusion (Gobena & Kant, 2022). However, the effect of innovation on business performance has been the focus of earlier empirical studies, some of which are included below.

According to the study's findings, the leadership of the owners, access to transportation, intention for startups and government assistance all had a major impact on how innovative service and manufacturing MSEs were (Bansal & Kant, 2018). The performance of SMEs' exports is positively impacted by their innovation skills (Yadete & Kant, 2023). Using sustainable strategies Wakjira and Kant (2022) discovered a substantial correlation between technical innovation and sustainable performance. According to Adam and Alarifi (2021), SMEs' innovation methods have a substantial impact on their performance and ability to survive, and it is crucial to have external support to further enhance this impact. Government Support significantly improved SME success and attenuated the association between innovation and SME sustainability in a favorable way.

The performance of manufacturing SMEs is positively and significantly impacted by marketing innovation. Both organizational modernization and culture of market innovation have a significant and advantageous effect on sustainable existence. The study's findings indicated that product innovation had a favorable impact on consumer interest (Cuevas Vargas, Fernández Escobedo, Cortés Palacios, & Ramírez Lemus, 2021). According to this study, there is an association between the performance of SMEs and SI (strategic innovation). They discovered a robust, positive association between government funding for innovation techniques and the performance of SMEs (Adam & Alarifi, 2021). The performance of SMEs is strongly correlated with each of the characteristics (Bansal & Kant, 2018). Government assistance plays a larger role as a moderator between the acceptance
of technical innovation in the context of the environment, where there is a constructive link, and the rate of alteration.

However, research has indicated that innovations with a focus on the market had the greatest impact on a firm's performance. Their effects are significantly lessened by the level of competition and the development of technology. Innovation-related variables and financial performance are inversely correlated (Peng et al., 2021). First, we find that product innovation hurts export performance whereas process innovation helps it. However, marketing innovation had a very small and insignificant effect. Aggregate innovation has little to no effect on a company's performance, either financially or otherwise. Of the four dimensions of innovation, only the marketing innovation has a significant impact on the various business successes of a company (Dereso, Kant, Muthuraman, & Tufa, 2023).

Researchers found that no Universal theory was used in previous studied literature. Different researchers used different theoretical base to access the relationship between variables. Some also tried to combine the related theories to magnify the effect between market innovations with firm performance.

2. **Empirical Literature Review**

Peng et al. (2021) examined the components of marketing innovations, the impact they have on company performance, and the ways in which market environmental factors mitigate that impact. In China, 352 business managers provided the writers with first-hand information between September 2018 and October 2019. The major effects of marketing innovation and the moderating impact of market environmental factors were investigated using hierarchical regression analysis. Study conducted between September 2018 and October 2019, 352 corporate managers in China provided the authors with first-hand knowledge. Hierarchical regression analysis was used to examine the main effects of marketing innovation and the moderating effect of market environmental factors. With supervisors' perceptions, this study examined research factors. The data for this study were gathered from a broad range of businesses in China; its applicability can be verified in other economies.

Cuevas Vargas et al. (2021) examined the impact of ICT adoption on marketing innovation as a crucial corporate performance strategy. The research employed the statistical method known as (PLS-SEM) and a descriptive design with a quantitative approach employing a sample of 228 SMEs. The performance of manufacturing SMEs is significantly and positively influenced by marketing innovation. ICT adoption moderated company growth and marketing innovation. The study has limitation of using only quantitative approach.

Hussain, Mahawar, Xia, Yang, and Shamsi (2020), study comprehend how market performance in the hotel/restaurant sector relates to marketing innovation. Gathering primary data from a population's defined sample. This study, which is connected to the theory of positivism, used a deductive research methodology. Only a quantitative research methodology was used in the investigation. The findings demonstrate that marketing innovation and sustainable marketing assets have significant and beneficial effects on the performance of the market. There is a problem with extrapolating the current study's conclusions to all of its clients. -Only quantitative research approach.

Del Carpio Gallegos and Miralles (2020) examine the connections between marketing innovation and outside sources of product innovation, and corporate creativity. The National Innovation Survey of the Manufacturing Industry was utilized to acquire the data. Exploratory Factor Analysis (EFA) was used to estimate the measurement model. The true impact and significance of marketing innovation for manufacturing organizations is not presented. One drawback is that diverse sectors were represented in the study sample.

Adam and Alarifi (2021) identified the connections between cutting-edge marketing strategies and the effectiveness of small businesses in the furniture industry. Research project used a quantitative methodology. Using the Mizutani, Yamane, and Motomura (1965) technique, a sample size of 203 respondents was selected to reflect employee relationships. Innovative marketing tactics have a favorable effect on SMEs' productivity.
The achievement of SMEs is strongly correlated with all of the variables. Only a quantitative technique was used in the investigation. A modest proportion of samples.

Fernández-Ruiz et al. (2020) investigated the link between business marketing inventiveness and environmental consciousness and to ascertain how manufacturing and service businesses differ in this relationship. Spanish companies’ secondary data is used in the study. The sample is split into two subsamples so that the contingency effect of the activity sector can be examined. The research model and suggested hypotheses are tested and validated using partial least squares path modeling. Creativity and environmental consciousness that is statistically significant. Companies’ size and industry of operation, significant disparities between manufacturing and service companies were also discovered. The use of merely the backup power database is one of the drawbacks of this research.

Amirruddin et al. (2020) Disruptive technology plays a moderating influence in the link between process innovation, market innovation, and the financial performance. A technique for collecting and analyzing data in order to find a solution is research design. This study's methodology is cross-sectional and employs a quantitative strategy based on reasoning by deduction. A favorable relationship founded between product procedure innovation and business revenue growth. Disruptive technology, however, modifies the interaction between processes. Investigator in this investigation made no mention of the study's limitations. However, the study only employed a quantitative technique.

Udriyah, Tham, and Azam (2019) studies implications of market emphasis and innovation on textile SMEs in Malaysia's competitive advantage and profitability. A 150-person sample is used. Quantitative data is the main sort of data utilized in the present investigation. Market focus and innovation help to some extent with the competitive edge. Using solely a quantitative technique, with a smaller sample size. Resources like time, energy, are also a restriction.

3. Meta Analysis of Reviewed Literature

<table>
<thead>
<tr>
<th>Study name</th>
<th>Partial Correlation</th>
<th>Partial Correlation (z)</th>
<th>Number of observations</th>
<th>Weight (fixed)</th>
<th>Weight (random)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peng et al., 2021</td>
<td>0.78</td>
<td>1.05</td>
<td>352.00</td>
<td>100.00</td>
<td>55.61</td>
</tr>
<tr>
<td>Cuevas-Vargas et al., 2021</td>
<td>0.52</td>
<td>0.58</td>
<td>230.00</td>
<td>156.25</td>
<td>69.52</td>
</tr>
<tr>
<td>Hussain et al., 2020</td>
<td>0.64</td>
<td>0.75</td>
<td>560.00</td>
<td>25.00</td>
<td>20.84</td>
</tr>
<tr>
<td>Del Carpio ; 2020</td>
<td>0.68</td>
<td>0.82</td>
<td>200.00</td>
<td>657.79</td>
<td>105.22</td>
</tr>
<tr>
<td>Adamu et al., 2020</td>
<td>0.38</td>
<td>0.40</td>
<td>203.00</td>
<td>267.74</td>
<td>85.33</td>
</tr>
<tr>
<td>Medrano et al., 2020</td>
<td>0.65</td>
<td>0.77</td>
<td>432.00</td>
<td>1266.21</td>
<td>113.98</td>
</tr>
<tr>
<td>Udriyah et al., 2019</td>
<td>0.69</td>
<td>0.84</td>
<td>203.00</td>
<td>688.62</td>
<td>105.98</td>
</tr>
</tbody>
</table>

Source: Meta Essentials (2023)

Figure 1: Forest Plot
Source: Meta Essentials (2023)
Through mathematical analysis, researchers at the above forest plot found that the top of the plot's x-axis represented the impact size scale of the studied systematic literature. The estimated effect size from a reviewed systematic study is displayed in each row, with the exception of the bottom row, as a point and (95%) confidence interval. As an estimate of the "actual" effect (of the examined systematic literature) was most likely to deceive, the effects of a specific learning were given in this statistically accurate way. Researchers believed that each study included in the meta-analysis was a study of a full probability sample of a specific population. In a forest plot, a smaller or larger projectile correlates to the point estimate. In a forest plot, a smaller or larger projectile correlates to the point estimate. The point estimate is represented in the forest plot by a smaller or larger bullet. The proportionate dimension of this metric reveals the significance of the inquiry in generating the meta-analytic result.

![Regression of Moderator on Correlation](image)

**Figure 2: Regression of Moderator on Correlation**

*Source: Meta Essentials (2023)*

<table>
<thead>
<tr>
<th>Intercept</th>
<th>B</th>
<th>SE</th>
<th>CI (LL)</th>
<th>CI (UL)</th>
<th>β</th>
<th>Z-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>cut off</td>
<td>0.85</td>
<td>0.74</td>
<td>-1.52</td>
<td>3.21</td>
<td>1.14</td>
<td>0.254</td>
<td></td>
</tr>
<tr>
<td>Moderator</td>
<td>0.00</td>
<td>0.05</td>
<td>-0.15</td>
<td>0.14</td>
<td>-0.27</td>
<td>-0.07</td>
<td>0.947</td>
</tr>
</tbody>
</table>

*Source: Meta Essentials (2023)*

Any variable that predicts the effect sizes is a moderator since the associations between two variables are represented by their effect sizes. When assessing the results of a moderation analysis, the researcher's primary concern was the importance of the interaction term. According to research that found the interaction term’s impact on the endogenous construct to be strong, the moderator Government support programme has a major moderating consequence on the relationship between market innovation and company success.

<table>
<thead>
<tr>
<th>Tests</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined effect size</td>
<td>0.80</td>
</tr>
<tr>
<td>$T^2$ (method of moments estimation)</td>
<td>0.00</td>
</tr>
<tr>
<td>$R^2$</td>
<td>7.55%</td>
</tr>
</tbody>
</table>

*Source: Meta Essentials (2023)*

$T^2$ was significant, and the researchers used this information to estimate the variance of the real impact sizes. While computing the variance of these effects, researchers assumed that "if we had an indefinitely large sample of studies, each itself infinitely big (such that the estimate in each study equaled the genuine effect), this variance would be $T^2$." In our meta-analysis, the between-study variation is 2. It is an estimation of the genuine effect sizes' underlying distribution’s variance. As the chart above demonstrates, there are several suggested methods to calculate $T^2$. 
4. Publication Bias Analysis

According to researchers, an area of research knowledge was prejudiced in many different ways. As a result, the study's estimated cumulative effect size may be higher than it actually is. The examination of publication bias aims to (1) alert the reader to this impending bias of publication and (2) correct the approximation for the total effect magnitude.

![Funnel Plot](source: Meta Essentials (2023))

The researchers performed six different analyses, all given by Meta-Essentials, to demonstrate publication bias. One kind of analysis is the funnel plot. When calculated with equivalent accuracy (i.e., with similar standard error), observed effect sizes are thought to be more or less symmetrically distributed around the total effect size. It is expected that, as already stated, results that are further away from the null would outnumber those that are closer to it. This is not the case, as evidenced by the preceding figure. The funnel plot demonstrates that there is no asymmetry in the distribution of effect sizes because the Trim-and-Fill method assumes there are no imputed data points. However, the Trim-and-Fill approach would attribute one or more studies and then change the overall impact.

<table>
<thead>
<tr>
<th>Study name</th>
<th>Partial Correlation</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peng et al., 2021</td>
<td>0.78</td>
<td>0.10</td>
</tr>
<tr>
<td>Cuevas-Vargas et al., 2021</td>
<td>0.52</td>
<td>0.08</td>
</tr>
<tr>
<td>Hussain et al., 2020</td>
<td>0.64</td>
<td>0.20</td>
</tr>
<tr>
<td>Del Carpio Gallegos &amp; Miralles, 2020</td>
<td>0.68</td>
<td>0.04</td>
</tr>
<tr>
<td>Adamu et al., 2020</td>
<td>0.38</td>
<td>0.06</td>
</tr>
<tr>
<td>Medrano et al., 2020</td>
<td>0.65</td>
<td>0.03</td>
</tr>
<tr>
<td>Udriyah et al., 2019</td>
<td>0.69</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Source: Meta Essentials (2023)

The Egger's regression test was used by the investigators to objectively assess this gap. A high correlation indicates the presence of effects from small studies. It examines the connection between the measured effect sizes and the study's standard errors (SEs). Egger’s test for a model's intercept returned a p-value of 0.775, which excluded any evidence of publication bias. Funnel plot suggests that there may be publishing bias. The rank correlation test by Begg and Mazumdar produced a p-value of 0.091, suggesting potential publication bias.
Table 5

<table>
<thead>
<tr>
<th>Test</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q</td>
<td>12.14</td>
</tr>
<tr>
<td>p₀</td>
<td>0.061</td>
</tr>
<tr>
<td>I²</td>
<td>48.54%</td>
</tr>
<tr>
<td>T²</td>
<td>0.00</td>
</tr>
<tr>
<td>T</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Source: Meta Essentials (2023)

The researchers observed that considerable heterogeneity ranged from 50% to 90%. When there is substantial statistical heterogeneity, in other words, not every study is estimating the same amount. This does not necessarily mean that the actual intervention effect varies, though. Methodological diversity or disparities in outcome assessments led to significant statistical variability.

Figure 4: Standardized Residual Histogram

Source: Meta Essentials (2023)

The Adjusted Remnant Graph is based on the researchers’ hypotheses that an even distribution should be anticipated to surround the total effect size for the standardized residuals, also known as z-scores from various studies. To check for any unusual effect sizes, researchers discarded the remainders and plotted them versus a predicted normal distribution. The dimension of the bar is determined by the ratio of residuals in every one of the nine bins used to group the standardized residuals (reference Figure top).

Figure 5: Galbraith Plot

Source: Meta Essentials (2023)

Researchers must first do an unweighted regression of z-scores on the inverse of the mean value with the intercept limited to zero in order to create the Galbraith plot or radial plot. Use this graph to identify effect size outliers. It is anticipated that the two (lighter-colored) confidence interval lines will encompass 95% of the study’s findings. Meta Essentials offers a map, a table with model estimates, and a table with studies.
To ascertain if data are normally distributed, researchers have also used normal quantile plots, sometimes referred to as Q-Q plots. The researchers predicted that the data would be distributed roughly along a straight line, which would indicate that the data would follow a traditional normal distribution. This part of Meta-Essentials includes a table with studies, a visual, regression estimates, and an input option for determining sample quantiles. The table displays the sample quantile, estimated normal quantile, and research titles. On the plot, a regression line and these normal and sample quantiles are displayed. The input option gives the user the choice of "Standardized residuals" or "Z-scores" as the basis for the sample quantiles.

![Normal quantile plot](image)

*Figure 6: Normal Quantile Plot*

*Source: Meta Essentials (2023)*

### Table 6

**Regression Estimate**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Estimate</th>
<th>SE</th>
<th>CI LL</th>
<th>CI UL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>0.01</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slope</td>
<td>0.62</td>
<td>0.01</td>
<td>0.54</td>
<td>0.72</td>
</tr>
</tbody>
</table>

*Source: Meta Essentials (2023)*

5. **Failsafe-N Tests**

The Publication Bias Investigation sheet's final part contains numerous estimations of the Failsafe figures. To illustrate this, researchers pretend that several additional articles for a certain subject are never published. Assume that the findings from this additional research are insignificant or that their impact sizes are nearly nil. In order to make the sum of the effects from the included and extra research insignificant, or almost zero, the failsafe number then estimates the roughly estimated amount of such more trials that are required.

### Table 8

**Failsafe Tests**

<table>
<thead>
<tr>
<th>Rosenthal</th>
<th>Overall Z-score</th>
<th>Failsafe-N</th>
<th>Ad-hoc rule</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>33.71</td>
<td>2934</td>
<td>Counterfeit</td>
</tr>
</tbody>
</table>

*Source: Meta Essentials (2023)*
6. Conclusion

Investigators used meta-analysis to evaluate the weighted average effect size, the variability of effect sizes, the level of uniformity (or heterogeneity) of the entire set of observed effect sizes and of segments, and the homogeneity (or heterogeneity) of effect sizes overall. They also used it to examine the applicability of potential modifiers. It is crucial to evaluate and understand the level of variability before drawing any conclusions. If there is no uncertainty about the homogeneity of the group or subset of observed effect sizes, "combined" effect sizes should only be used as an outcome for the domain that is determined by this particular collection of populations. Understanding the dispersion of real effects is the main result of the majority of meta-analyses because relevant heterogeneity is typically found by

Authors Contribution
Fisseha Dejene Yadete: Completed the introduction and result part.
Chalchissa Amentie Kero: Helped in literature review and statement of the problem.
Shashi Kant: Supervised and proofread the paper.

Interest of Conflict
The authors of this study report no conflicts of interest.

Reference


