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Systematic Review on Takaful and Retakaful Windows: A Regulatory Development Perspective

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Abstract

This paper reviews the regulatory developments of takaful and retakaful windows in the international regulatory bodies and selected jurisdictions. The takaful and retakaful window operations as a business model has been adopted in some countries such as Indonesia, Nigeria, Pakistan and Turkey to achieve certain objectives, including encouraging financial inclusion, tapping a new market segment, and boosting competitiveness. On the flip side, takaful and retakaful window operations are banned by the regulators in other countries such as Brunei, Qatar and Saudi Arabia due to concerns on adherence to Shariah governance, and the performance of standalone full-fledged takaful operators, which have the capability of handling the demands of their respective markets. The paper investigates the takaful and retakaful window operations in the six jurisdictions i.e. Indonesia, Pakistan, Turkey, Nigeria, Kenya and Bangladesh. It also discusses the current regulatory development of transferring the takaful and retakaful windows business into full-fledged takaful players in Indonesia and Turkey, and the decision to maintain the windows model as the ideal model in Pakistan.

Keywords: Takaful Window; Retakaful Window; Systematic Review
1. INTRODUCTION

Takaful is a form of Islamic insurance\(^1\) that is well-known and common in both the industry and academia. It plays a role in providing financial protection within the boundaries of Islamic rules and principles. The Islamic Financial Services Industry Stability Report 2020 states that globally there are about 353 takaful/retakaful institutions operating in 33 countries. The report shows that almost one third of the 353 firms are functioning as takaful (88 firms) and retakaful (28 firms) windows and not full-fledged standalone operators. On a whole, the takaful market recorded a relatively steady average growth of 8.5% from 2011 to 2018, with takaful contributions reaching USD 27.07 billion (IFSB, 2020a).

The takaful market, both full-fledged and windows, is globally gaining acceptance and recognition in Muslim and non-Muslims countries, where many regulatory and supervisory authorities (RSAs) embrace the need to develop regulatory guidelines addressing the specificities of the takaful business. For example, the Inter-African Conference on Insurance Markets, a body represented by 14 jurisdictions located in sub-Saharan Africa, has amended the insurance code regulation to address the takaful activities (Atlas Magazine, 2019). Another example is Morocco, where takaful regulation has been passed and approved by different layers, e.g. the House of Councillors and the Parliament of Morocco (Middle East Insurance Review, 2019a). Turkey, where takaful window operations\(^2\) is well-established, has eight conventional insurance companies offering takaful windows (Middle East Insurance Review, 2019b).

Takaful windows are an essential component in the takaful market, as it helps to penetrate new regions and increase the growth and volume of the market as a whole. However, there is a noticeable dearth in the literature relating to takaful windows\(^3\), although several researches discuss the banking windows' background (Boone & Özcan, 2020; Shabbir, 2019; Hati & Yasin, 2017). The main goal of this paper is to explore the contributions by the international standard-setting bodies, and the practices of selected jurisdictions in relation to takaful window operations.

The paper is structured into six sections. The first section is introductory, followed by an overview of takaful windows. Section three, on international regulatory bodies, provides discussions on takaful windows' standards and guidelines. A discussion on the practices of the leading three jurisdictions in takaful window operations, namely Indonesia, Pakistan and Turkey, is presented in section four. The fifth section presents the challenges and opportunities of takaful windows market and the final section provides concluding remarks.

2. TAKAFUL AND RETAKAFUL WINDOWS: AN OVERVIEW

Takaful window is a unique business model. IFSB-25 defines it as a part of a conventional insurer/reinsurer (which may be a branch, a unit or a division) that provides takaful/retakaful services, but which does not have a separate legal identity (IFSB, 2020b). The conventional player that offers Shariah-compliant products is known as a host undertaking in the industry. The host should ensure proper financial segregation of the window operations and maintain separate accounts relating to assets, liabilities, capital, profits, and losses. This is important since there is an interrelation cash-flow between the host and its windows, e.g., partnership profit share and agency fee, as stated in paragraph 129 in IFSB-20 (IFSB, 2018).

Takaful windows are not commonly practiced in all jurisdictions, and where it is practiced, divergences and varying ways can be seen in its implementation. Asafa (2020) states that some jurisdictions ban

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\(^1\) The industry consists of several Islamic insurance models in different countries, i.e., Saudi Arabia uses the cooperative insurance model, Sudan adopts the mutual insurance model, Iran uses the insurance model, Turkey uses the participation insurance model, and finally the takaful model adopted in many other countries such as Kuwait and Malaysia. Regardless of the technical differences, all these models are considered Shariah-compliant.

\(^2\) “takaful windows” or “takaful window operations” is used to also include the retakaful business, unless otherwise specified.

\(^3\) The authors explore all takaful researches published in Scopus database using “TITLE-ABS-KEY (takaful OR (insurance AND (Islamic OR s?aria*)))” command, and there is no paper written about takaful window among 509 document results.
takaful window operations, e.g., Brunei, Malaysia, Qatar, Saudi Arabia, Sudan and the United Arab Emirates. He also presents those jurisdictions that allow it, e.g., Indonesia, Bahrain, Kenya, Mauritis, Nigeria, Pakistan, Turkey, the United Kingdom, and international financial centres such as the Labuan International Business and Financial Centre in Malaysia, the Dubai International Finance Centre in the UAE, and the Qatar Financial Centre.

Window operations are also allowed in some other jurisdictions, e.g., the Finance Law 2020 article 103 in the Algerian regulation permits conventional insurance to offer takaful activities (Atlas Magazine, 2020), and section 24 in takaful rules 2012 grants the conventional insurance players the right to establish Islamic windows. The RSAs that allow conventional insurance companies, generally known as the host, to launch a window under its umbrella have different goals to achieve through the window practices (Asafa, 2020). Among the justifications of the RSAs in supporting this business model are: 1) the window approach is considered a way of encouraging financial inclusion. Many Muslims who live in non-Muslim countries exclude themselves from the insurance system due to the prohibitions in conventional insurance. For example, SAAR Assurances, the Cameroonian insurance company that operates in different countries in Africa, established its window unit in 2020 to promote financial inclusion (Middle East Insurance Review, 2020a). 2) windows can be seen as an expansion tool for tapping a new market segment. For example, Kenya Re, a conventional reinsurance firm, saw the opportunities in takaful and started its retakaful window in 2013. It will expand to the Egyptian market as a window player (Middle East Insurance Review, 2020b). Some international players, e.g., AIG and Hannover Re, have also opened takaful and retakaful units to meet the demands of niche market in different regions. 3) windows can be a useful tool in boosting competitiveness and increasing the takaful market penetration, e.g., issuance of Takaful Rules 2012 in Pakistan (Vizcaino, 2012).

On the other hand, some RSAs do not allow conventional insurance to offer any Shariah-compliant products. In Kuwait, for example, Article 29 in law no 125 in 2019 states that conventional insurance is not allowed to offer takaful products (Abuljebain, Wakerley, & Garrett, 2020). In general, the RSAs that are not in favour of windows have specific considerations, which include: 1) Shariah governance framework might be difficult to maintain, which could create misunderstanding and a reputational risk on the authenticity of Shariah compliance. 2) the market has sufficient takaful players, who can meet the needs of the industry.

3. INTERNATIONAL REGULATORY BODIES

The Islamic financial system has various international regulatory bodies carrying different mandates, with the ultimate goal of improving the Islamic financial industry. The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) is one of the leading international organizations for the Islamic finance industry. As of January 2021, it has issued 100 standards covering different areas of concern, i.e., Shariah, accounting, auditing, ethics and governance. A few of these standards discuss takaful, but there is nothing specific to takaful windows.

The second organization that plays an important role is the International Islamic Liquidity Management Corporation (IILM), which is an international organization established to create and issue Shariah-compliant financial instruments to facilitate effective cross-border Islamic liquidity management. These instruments could be used by takaful, but this discussion is out of the scope of this paper. The third international organization is the Islamic Financial Services Board (IFSB). The IFSB’s work will be discussed in detail in the following section since it has significant contribution on takaful windows.

The IFSB is an international standard-setting organization which aims to promote and enhance the soundness and stability of the Islamic financial services industry by issuing prudential standards and

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4 FAS 12: General Presentation and Disclosure in the Financial Statements of Takaful Companies; FAS 13: Disclosure of Bases for Determining and Allocating Surplus or Deficit in Takaful Companies; FAS 15: Provisions and Reserves in Takaful Companies; FAS 19: Contributions in Takaful Companies
guiding principles for different sectors, i.e., banking, capital markets and insurance sectors. As of January 2021, the IFSB has issued 34 documents, including 24 standards, three technical notes, and seven guidance notes for the three sectors. For the takaful sector, the IFSB has published six standards and one guidance note\(^5\) which complement the conventional global regulations issued by the International Association of Insurance Supervisors (IAIS).

This paper explores the IFSB’s published standards and extracts the areas relevant to takaful windows (since there is no particular standard specifically on windows). It has to be noted that the earlier IFSB takaful standards – IFSB-8, IFSB-11, IFSB-14 – have not discussed the takaful windows in-depth, and have approached is as being the RSAs role to modify and adjust the regulations to be applicable and adaptable for takaful windows (IFSB, 2013; IFSB, 2010; IFSB, 2009). However, the more recent standards – IFSB-18, IFSB-20 and IFSB-25 – state several guidance elaborating on takaful windows operations (IFSB, 2020b; IFSB, 2018; IFSB, 2016). The following table extracts the key points relevant to takaful window operations.

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\(^5\) The six takaful/retakaful standards and one guidance note issued by the IFSB are:
- IFSB-8: Guiding Principles on Governance for Takāful (Islamic Insurance) Undertakings, published in 2009;
- IFSB-11: Standard on Solvency Requirements for Takāful (Islamic Insurance) Undertakings, published in 2010;
- IFSB-14: Standard on Risk Management for Takāful (Islamic Insurance) Undertakings, published in 2013;
- IFSB-18: Guiding Principles for Retakāful (Islamic Reinsurance), published in 2016;
- IFSB-20: Key Elements in the Supervisory Review Process of Takāful/Retakāful Undertakings, published in 2018;
- IFSB-25: Disclosures to Promote Transparency and Market Discipline for Takāful/Retakāful Undertakings, published in 2020;
- Guidance Note-5: The Recognition of Ratings by External Credit Assessment Institutions (ECAlS) on Takāful and ReTakāful Undertakings
<table>
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<th>Establishment of retakaful windows</th>
<th>Definition of takaful windows</th>
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<td>Paragraph 24 states the required high capital for full-fledged retakaful and the presence of technical expertise in conventional reinsurance may encourage the industry for retakaful windows.</td>
<td>Paragraph 129 defines the window as a specific division established within the conventional entity (referred to here as the &quot;host&quot;), with its own identified assets and liabilities, separate from those of the conventional insurance/reinsurance operations.</td>
<td>Paragraph 186 advocates for windows to provide information about the conventional host, stating the organizational relationship between the window and the host, since a window may be established in different forms.</td>
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<td>Paragraph 25 emphasizes the attention needed by the RSAs, where a close connection between a retakaful window and its host may impair the Shari'ah compliance of the operations of the window.</td>
<td>Paragraph 131 emphasizes the existence of appropriate Shari'ah governance in window operations. From a supervisory review perspective, RSAs should confirm that window operations have in place controls designed to secure end-to-end Shari'ah compliance.</td>
<td>Paragraph 185 states that many of the prudential disclosure requirements for takaful undertakings are applicable to takaful windows, or applicable with minor modifications reflecting the fact that a window is not a legal entity.</td>
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<th>Segregation of funds</th>
<th>Segregation of funds</th>
<th>Disclosure and segregation of funds</th>
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<td>Paragraph 114 states that the assets of a retakaful window should be segregated from the assets of the host entity, and the liabilities of a window should be ring-fenced.</td>
<td>Paragraph 132 states several points that need to be considered by an RSA in the supervisory review process, which are:</td>
<td>Paragraph 187 states several disclosure requirements that should be put in place by a takaful window as:</td>
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<td>Paragraphs 81 and 87 emphasize on the segregation of assets, where the assets of a window should be identified and should be in line with Shari'ah principles. These assets must not commingle with those backing the liabilities of the conventional operations.</td>
<td>i. whether a window has adequate policies and processes to prevent the commingling of conventional and takaful funds; ii. whether the separation of Islamic assets and funds from non-Shariah-compliant assets and funds is transparent; and iii. whether the operations of a window involve features that have the</td>
<td>i. arrangements for the segregation of funds from those of the host. ii. the possible flows of funds that may take place between a takaful window and its host (e.g. profit-sharing portion and wakalah fee). iii. any joint transactions between a window and its host – for example, joint placement of retakaful/reinsurance.</td>
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effect of undermining effective segregation.

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<th>Solvency</th>
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<td>Paragraphs 101 and 106 states the importance of Shariah compliance in the case of seeking support for capital and liquidity from the host. The Qard mechanism (draw-down or/and earmarked) should fulfil the requirements of the Shariah advisers with regard to Sharī`ah compliance.</td>
<td>Paragraph 188 relates to disclosing the Qard given by the host in supporting the window's financial position.</td>
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4. TAKAFUL AND RETAKAFUL WINDOWS IN SELECTED JURISDICTIONS

As stated earlier, takaful window operations are allowed in various countries. This section explores the experiences of six jurisdictions, i.e., Indonesia, Pakistan, Turkey, Nigeria, Kenya, and Bangladesh, in adopting this model. The maturity of regulatory framework may vary among the selected countries.

4.1 Indonesia

Indonesia’s takaful industry witnessed increase of 8.6% growth in 2018 compared to 2017, reaching USD 1.1 billion. The takaful contributions (premiums) were generated mostly from the family business lines. However, the industry growing in line with the broader Sharī‘ah ecosystem set in Indonesia’s Financial Services Master Plan.  

The Indonesian insurance market has 13 full-fledged takaful companies and 49 conventional insurance companies that have Islamic units (or what is referred to as takaful windows in this paper). The Financial Services Authority (OJK), the RSA for the insurance industry in Indonesia, has played a great role in developing the regulation over time. In 2003, the government issued a policy that allows window operations, and within a span of only four years, the number of window operators jumped to 40. The small amount of capital required – USD 200,000 – may have been the main reason of this growth in the number of players (Sukmana & Hidayat, 2014). OJK has since amended the regulations for not allowing Islamic units/windows in conventional insurance, and had requested all the 49 players to submit a spin-off plan for their Islamic insurance units in October 2020, with a four-year timeframe given for its implementation (Middle East Insurance Review, 2019c).

Insurers with Shariah-compliant windows are required by the new law to spin-off their Shariah business units into fully capitalized subsidiaries by 2024. The key to stepping up takaful operators’ genuine new value propositions include product differentiation, pricing, innovation and distribution. Currently, there are 13 full-fledged or standalone takaful operators, including four recent spin-off windows.

In 2014, OJK issued Insurance Law 40 stating that two conditions need to be considered by an insurer (host) that has a Shariah unit/window under its umbrella. The host should completely separate the operations in two separate entities, technically known as a spin-off when either one of the following situations occur: i) the value of a window’s funds have reached half of the aggregate insurance funds; ii) a window has been deemed non-viable by the regulator.

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8 In Indonesia, it refers to Tabarru’ fund and participants’ investment funds. Also a takaful operator is called a Shariah insurance company.
or ii) within ten years after the enactment of Insurance Law 40 (i.e. by October 2024). A further regulation issued in 2016, POJK 67, entitled “Licensing and Institution of Insurance Companies and Reinsurance Companies”, states that a window could be transferred into a newly licensed takaful (firm) or an existing takaful operator. An update to this, POJK 67, OJK issued a draft regulation9 in November 2019 to provide clear directions on the spin-off requirements to assist a host in assessing the feasibility of separating the licenses and having a standalone takaful operator (Milliman, 2019).

The draft regulation discusses various areas that concern windows and their hosts, e.g., capital requirements and spin-off process. A takaful operator must have at least IDR 100 billion for paid-up capital and IDR 50 billion for equity for capital requirements. However, the draft regulation grants flexibility to spin-off windows, allowing them to fulfill only half of the capital requirement at establishment. However, the firm needs to meet the full requirement within two years from the date of spin-off approval.

Sharing services between the conventional insurer “the old host” and the new takaful operator “the spin-off window” is another advantage accorded to them for a certain period of time, i.e., maximum three years. Upon the OJK’s approval, the regulation specifies the functions which can be shared and those otherwise, e.g., the new takaful operator should have its own board of directors, Shari'ah Supervisory Board and other mandatory bodies.

The draft regulation elaborates on the spin-off process – where a host is required to submit plans, including a timeline, on how the window’s separation will be conducted. This spin-off process requires transferring a portfolio of the window, including assets, liabilities, e.g. Qard and equity to the new takaful operator.

4.2 Pakistan

The Pakistani takaful market witnessed an evolution in gross written contributions (GWC), increasing by 20.7% compared to previous year and recording a total of USD 252 million in 2018. The growth is supported by the consumer’s acceptability, and an increase in the number of new takaful windows (IFSB Stability Report, 2020). Interestingly, the market consists of five full-fledged takaful operators and 29 takaful windows, where the windows represent 68% of GWC, i.e., USD 172.8 million.

The operations of takaful started in 2005 with the issuance of takaful rules by the Securities and Exchange Commission of Pakistan (SECP). At that time, conventional insurance was not allowed to offer any Shari'ah-compliant products. However, the regulations changed in 2012, where conventional insurance companies were granted the option to carry out takaful window operations, as stated in Section 24, Takaful Rules, 2012 (Middle East Insurance Review, 2019d). Vizcaino (2012) stated that SECP allowed window practices in the Takaful Rules 2012, to improve competitiveness and raise the takaful market share, especially since the conventional players had well-connected networks with larger distributional channels.

The following practices, derived from different Pakistani conventional insurers, provide an insight into the establishment10 of their window operations:

1) the host (known as an operator) has to form a Waqf fund (irrevocable fund), known in the industry as Participants’ Takaful Fund (PTF). This fund should be a separate and independent entity that is able to own and possess assets in different forms, e.g., cash, movable and immovable properties, as long as it complies with Shari'ah rules and principles.

2) To establish the PTF, the host, as required by Circular 8 of 2014, must transfer Rs 100,000 of statutory funds into a separate bank account for the window takaful operations. The host has to cede Rs 500,000 to the PTF as a Waqf money, which is to be invested in Shariah-compliant

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9 It is still at consultation stage to obtain the feedback from the market players.
10 The authors explored the legal status and nature of business under different operators e.g., Premier Insurance Limited, Jubilee General Insurance Company Limited
instruments, and any generated investment income could be used to pay benefits to participants or defray PTF expenses.

3) The host is responsible for managing the PTF against a predefined fee known as Takaful Operator's fee, taking into account the considerations of Waqf Rules11, which governs the relationship of Operator, Waqf and Participants for management of takaful operations, investment of Waqf and Operator's Fund as approved by the Shariah Advisor of the Operator.

4) The Operator maintains the Waqf accounts so that the assets and liabilities of Waqf remain separately identifiable. The Operator's financial statements are prepared so that the financial position and results from Waqf and the Operator operations are shown separately.

4.3 Turkey

In December 2017, the RSA for the insurance industry in Turkey, the Ministry of Treasury and Finance12 introduced a new regulation named "Procedures and Principles of Participation Insurance Business". The regulation aimed to set out the procedures and principles with regard to participation insurance or takaful, to ensure the system’s reliability and safeguard the participants’ rights and interests. Participation insurance13 is one of the models that classified as Islamic insurance.

The Participation Insurance Regulation stated in Article 4 that an insurer’s management may perform the activities by following one of the defined models below:

i. Proxy model: The insurance company’s management receives a proxy fee in return for the management of the risk fund management and other technical and legal operations related to the insurance.

ii. Partnership model: The insurance company’s management receives a proxy fee in return for the management of the risk fund management and other technical and legal operations related to the insurance. The fee is determined by profit distribution principles within the framework of the effort-capital partnership,

iii. Hybrid model: The insurance company’s management receives a proxy fee in return for the management of the risk fund management and other technical and legal operations related to the insurance. All profit is distributed to the participants. However, the investment profit is shared between the participant and the insurance company based on a pre-determined ratio.

iv. Flexible model: The management’s fees and ratios shall be determined between the insurance company and the participant before executing the insurance agreement. An Advisory Committee should approve this model.

In terms of separation of funds, Article 6 emphasizes that an insurance company shall manage the risk funds created by the participants and the funds of the shareholders/members separately.

The Turkey Insurance Association (TSB) reported the Turkish insurance industry witnessed a growth of 13.3% in 2019, recording TRY 69.2 billion in premiums. In the same year, the participation insurance market outstandingly grew by 54%, compared to 2018, contributing around 5% or TRY 3.4 billion to the industry’s premiums. The growth was recorded by four Islamic insurance and eight windows operators (COMCEC, 2019). However, the allowing of window operations expired in December 2020, and

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11 This represents both the Waqf Deed and PTF Policies
12 Şenocak, Kösoğlu, & Karakaşlar (2020) state that there are five Turkish regulatory bodies supervising the insurance and reinsurance sector – the Insurance and Private Pension Regulation and Supervision Agency (IRSA); Union of Chambers and Commodity Exchanges of Turkey; Financial Crimes Investigation Board; Ministry of Treasury and Finance; and Ministry of Trade.
13 Participation insurance is defined in the regulation as a type of insurance which is based on joint risk participation and cooperation where the participants contribute to the risk fund ("Risk Fund"), which is established to ensure the fulfilment of the compensation and/or saving payment requests of the participants and which is managed by an insurance company, in accordance with participation finance principles.
extended for two years. This is in line with Article 252 of the 11th Development Plan\textsuperscript{14} 2019-2023 to support and strengthen the overall Islamic finance system.

4.4 Nigeria

The National Insurance Commission (NAICOM) is the responsible regulatory and supervisory authority for insurance business in Nigeria. It has granted a licence to 58 insurance companies, including four full-fledged operators and two windows that operate based on Islamic principles. Initially, the takaful business was not guided by any regulatory initiative, where the African Alliance Insurance company introduced takaful services in 2004, alongside its core conventional insurance services (Middle East Insurance Review, 2020c). However, NAICOM recognised the development of the takaful business and issued Guidelines for Takaful-Insurance in 2013, with an aim to enhance financial inclusion, which subsequently reflected in the increase of insurance penetration and increase the contribution of insurance to the national GDP of the country.

The guidance materials provided in the Guidelines are applicable to window operators as stated in Paragraph 1.8. For example, the host of window operations should ensure the funds are segregated between the conventional and Islamic funds. Also, the host should establish investment policies for the window’s funds, bearing in mind the ‘ring-fenced’ concept, to avoid leakage and comingling with non-compliant funds at any point in the life cycle. This particular business generally confronts key challenges in finding diversified investable assets (Lotus Capital, 2020).

4.5 Kenya

The Insurance Regulatory Authority (IRA) is a statutory government agency established to regulate, supervise and develop the Kenyan insurance industry. IRA prepared the Strategic Plan 2013-2018\textsuperscript{15} to enhance the industry and make it effective to the economy, the Strategic Plan states that takaful is considered an emerging trend which shows a good opportunity to increase insurance penetration through promoting the inclusive and competitive insurance industry.

The IRA issued Takaful Operational Guidelines and Operations of Takaful Regulations in 2015 and in 2018 respectively, that enable conventional insurers to offer Islamic products. For window operations, the Guidelines and the Regulations state the host should consider the followings:

- Establish a separate wing/division to handle takaful business.
- Appoint a head for the takaful operations who has the relevant experience and knowledge.
- Report separately assets, liabilities, revenues and expenses of the window from the parent firm.
- Ensure separation of the takaful and conventional business.
- Ensure that the words “Takaful Window” are displayed in all documents pertaining to takaful operations.

According to the insurance industry annual report in 2019, the industry has 61 licensed insurers, including five reinsurers. Takaful Insurance Of Africa is the only full-fledged operator while Kenya Re is the first local company to launch a Retakaful window. Kenya Re started the operation in 2013, with an objective to penetrate new markets and develop new products that meet the rapid growth of Islamic finance in the region.

\textsuperscript{14} The Eleventh Development Plan (2019-2023) was approved in the 105th plenary session of The Grand National Assembly of Turkey on 18 July 2019, in accordance with the provision of the Law No. 3067 dated 30 October 1984

\textsuperscript{15} This Strategic Plan had been revised in June 2016.
4.6 Bangladesh

The Bangladeshi insurance industry is governed by the Insurance Development and Regulatory Authority (IDRA) since 2010. It follows the regulatory reforms by the Government of Bangladesh that enacted the Insurance Act 2010, repealing the Insurance Act 1938, to develop and regulate the insurance business. Article 7 in the Insurance Act 2010 grants permission only to conventional life insurance companies, not general insurers, to set up takaful windows.

The industry consists 78 insurers, including 11 firms that operate based on Islamic rules and principles. Islami Insurance Bangladesh Ltd. is the first Islamic insurance company that started operation in 1990 (Khan et al., 2016). The industry has 12 conventional insurers that offer Islamic products (GolzareNabi and Rahman, 2019). Takaful operators and windows face a challenge in meeting the regulatory requirements to invest 30% of their investable funds with government securities.

5. CHALLENGES AND OPPORTUNITIES OF THE TAKAFUL AND RETAKAFUL WINDOW MARKETS

Takaful window operations is a unique business approach, with its own challenges and opportunities. Researchers Dikko (2019), Laç prevala & Ünsal (2019), Magomadova et al. (2017), Hidayat (2014), and Odierno (2006) have written several key points related to this matter.

5.1 Challenges

Among the challenges in the implementation of takaful windows include: 1) lack of understanding on the related Shariah-compliance functions, resulting in possible failure in implementing a proper Shariah governance framework (since the window business may be operating based on the conventional mindset); 2) a limited range of investible assets or/and impose investment in governmmental securities; 3) Family takaful window products include both investment and protection elements. The takaful window may be involved in investments that include prohibited components, e.g., riba, gharar and maysir; 4) Difficulty in branding and marketing, where offering both takaful and conventional insurance products under the same umbrella may result in lack of clarity among potential customers on the differences between the products; 5) Insufficient knowledge and understanding in takaful among staff, which gives rise to the possibility of mis-selling and misleading the clients and potential clients. This lack of knowledge may also result in failure to explain the differences between takaful and conventional insurance products being offered; and 6) There is a high possibility that the risks borne by the host, including windows risk, would be ceded to its conventional reinsurance arm.

5.2 Opportunities

On the other hand, there are various interrelated opportunities of establishing takaful windows. These can include: 1) windows can meet the clients’ needs, e.g., minority Muslims in non-Muslims countries or in countries with fewer demand for takaful products, where its establishment under a host would make the business economically feasible since many functions are handled and managed by the host. This business model may boost takaful demand as it allows the showcasing of takaful’s features and characteristics, thus may be able to convince non-Muslim consumers on the value of takaful; 2) In markets unfamiliar with takaful, window operations could be the first stage in developing the necessary regulation to support the sector as it requires less time and resources compared to having full-fledged takaful operations; 3) The windows model allows the host to offer competitive prices in a low-scale demand due to shared resources and spreading of management expenses; 4) A takaful window can benefit from the host’s well-established brand and its distribution channels; 5) The windows business model should be a temporary solution to test the market at the initial stage, as its establishment does not require a large investment.
6. CONCLUSION

The RSA generally determines specific objectives to develop and strengthen its respective insurance industry, which may cover both conventional insurance and takaful. Each RSA may have a different plan as no one framework fits all in guiding the stability of the industry and protecting the policyholders/participants’ interests. Some RSAs may permit windows operations for financial inclusion purposes, to encourage foreign investments in a new region or increase the takaful market’s penetration by boosting competition. Nevertheless, some RSAs are concerned with ensuring a proper Shariah governance framework since a window is generally managed by a host, which may create issues of trust with regard to the verification of Shariah-compliant transactions.

Indonesia currently has the largest number of window operators. OJK recently updated POJK 67 (issued in 2016), with a new draft regulation in November 2019 to prepare and guide their windows operators for spin-off from their hosts, with a view that proper regulation may boost the confidence and reduce uncertainties in the market. Similarly in Turkey, the market is moving towards full-fledged takaful operations, and it is currently one of the components that the government is working on in its plan to develop the country’s Islamic financial system. However, Pakistan, Nigeria, Kenya and Bangladesh are still permitting windows operations. With their positive growth increasing from year to year. The regulators of those jurisdictions have not given any indication of preparing windows to spin-off from their hosts.

It can be concluded that implementing takaful windows bring about both challenges and opportunities for a jurisdiction, and since each jurisdiction has different and unique market environments, RSAs need to study all the aspects in their respective markets. This paper is limited to a study within the major jurisdictions with takaful window operations. However other countries may also have interesting regulatory developments.

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Article/id/60677/Type/Africa/Kenya-State-owned-reinsurer-eyes-setting-up-retakaful-
subsidiary-in-Egypt


Impact of Product Knowledge and Product Characteristics on Consumers’ Purchase Decision of Laptop Computers among Students of Ekiti State University, Ado Ekiti

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Abstract

The study to examine the impact of product knowledge and product characteristics on consumers’ purchase decision of laptop computers among students of Ekiti State University. However the specific objectives of the research are to examine the impact of product knowledge, product characteristics, product familiarity and perceived product quality influence consumers’ purchase decision of laptop computers among students in Ekiti State University. The population of this study was 13,753 full time undergraduate students of Ekiti State University. The sample size is 390 respondents using stratified sampling techniques. Data gathered were sorted, coded, and analysed using descriptive and inferential statistics. The descriptive statistics were mainly frequency table. Inferential statistics used was regression analysis. The result showed that product knowledge (t = 12.373, p = 000 < 0.05); product characteristics (t = 4.750, p = 000 < 0.05); product familiarity (t = 14.235; p = 000 < 0.05) and product knowledge (t = 1.449; p = 0.148 > 0.05). The results showed that product familiarity and product knowledge has moderate positive impact on consumer purchase decision than does product characteristics and perceived product quality influence on consumer purchase decision. The study concluded that product familiarity is the most potent motivating factors influencing consumers’ choice of brand of laptop computers meaning that the student purchase their laptop computers base on the familiar product.

Keywords: Product knowledge, product characteristics, consumer purchase, product familiarity, perceived product quality
Introduction

The key to successful adoption of laptop technology is to ensure that students remained academically engaged with the device on a regular basis so that they become accustomed to its use (Mang & Wardley, 2012). Newby (2000) asserts that a large, highly ranked public University implemented a requirement for all incoming undergraduates to own laptop computers. According to Sharma (2012), the need for anytime-anywhere access to information is pushing laptops demand in the market due to their convenience in terms of portability, flexibility and adaptability. In every field of life like, hospitality, railways, metro trains, corporate houses, academics, professionals etc, we have found the use of laptop computers for different purposes. Laptops are current day demands that simplify work and live as well. It contributes towards the upliftment of performance, work easiness by introducing the home office concept and provides a creative insight for the work. Students are one of the considerable populations of laptop consumers. Students like to use new technologies and need portable computers because of their preference in more details (Behzadian, Aghdale, & Razavi, 2011). Critical thinking, research, and evaluation skills are growing in importance as students have increasing volumes of information from a variety of sources to sort through, particularly in courses that are entirely electronic, students are much more independent than in the traditional setting (Jethro, Grace & Thomas, 2012).

According to Jethro, Grace and Thomas (2012), E-Learning involves the use of computer (laptop/desktop) with other internet technologies to deliver abroad array of solutions that enhance knowledge and performances. Laptop technology has made learning easy among medical educators to improve the efficiency and effectiveness of educational interventions in the face of the social and science. Laptop has gained popularity in the past decades, however, its use is highly variable among medical schools and it appears to be more common in basic science courses than clinical clerkship. Learning enhancement permits greater learner interactivity and promotes learners’ efficiency, motivation, cognitive, effectiveness, and flexibility of learning style (Jethro, Grace & Thomas, 2012).

Consumer purchase decision is the decision making process used by consumers relating to a market deal in form of purchase of products and services from seller or group of sellers consumers go through different decision criteria when making any purchase decision like brand, prices, quality, performance, features, conenience and user friendliness (Immran, Tauqir & Salman, 2012). According to Robin, Adesoji and Kimberly (1993), consumer preference and tastes are key factors affecting consumer purchase decision. Franz, Tobias, Bernd and Patrick (2006), opined that the knowledge about the product has a direct influence on consumer purchase decision. Shariq, Raza, and Zin-ur-Rahaman (2011), said that in marketing a purchase of any product, customers often rely on personal memory/knowledge to make decision. Li, Tsai and Fu (2006), elucidated that consumer psychology perception openly reflects consumer viewpoints on product knowledge and consumer knowledge of a product can help consumers to make their decision effectively. Kerr, Kline, Hobbs and Kagatsyme (1994) noted that the first steps in understanding any market, consumer must be able to identify product characteristics because product characteristics that are valued in one region may or may not be valued elsewhere. Products constitute an array of knowledge about content and characteristics that consumers use to determine product quality (Miyazaki, Grewai, & Goodstein, 2005). Olson and Jacoby (1972) asserted that intrinsic attributes cannot be changed without altering the nature of the product itself and are consumed as the consumed extrinsic cues are product-related but not part of the physical product itself. By definition, they are outside the product. Peter and Olson (2004), the key process in consumers’ decision making is the integration process by which knowledge is combining to evaluate two or more alternative behaviour and select one. From the analogy, it is
obvious that the behavioural purchase decision of students may not likely be the same in all organizations across the globe.

Despite this growth of scholarly publications on product knowledge and product characteristics, little empirical evidence exists in developing countries especially in Nigeria. To bridge this gap in literature, this study examines the relationship between product knowledge and product characteristics on consumer purchase decision among students of Ekiti State University, Ado Ekiti, Nigeria.

Laptop is playing dominant role among students, couple with the rapid development in IT sector accompanied by increased competition in the market has lead both academicians and practioners to concentrate on the consumers’ purchase decisions in portable personal computer industry. However, studies that relate product knowledge and product characeristics on consumer purchase decision in Nigeria institutions are not readily available. Also, studies that cover these variables of product knowledge and product characteristics among students of high institutions in Nigeria particularly the student of Ekiti State University, Ado Ekiti, do not seem to exist readily to researcher. With pontentials growth in student population in Ekiti State, marketers’ needs empirical evidence of the impact of product knowledge and product characteristics on consumer purchase decision that can help them to strategically reach prospective consumers. Hence, this study will investigate the relationship between product knowledge and product characteristics, product familiarity and product perceived quality of students purchase decision. These variables are not readily available in the Nigeria context, hence the need to carry out a study of this nature.

The broad objective of this research is to examine the impact of product knowledge and product characteristics on consumers’ purchase decision of laptop computers among students of Ekiti State University. However the specific objectives of the research are to product knowledge; product characteristics; product familiarity and perceived product quality influence consumers’ purchase decision of laptop computers among students in Ekiti State University.

Literature Review

Product Defined

Rapid technological advances in the last decades have sparked educational practitioners’ interest in utilizing laptops as instructional tools to improve students learning. There is substantial evidence that using technology as an instructional tool enhances student learning and educational outcomes Tella and Kosoko-Oyedeko (2013). Warschauer and Grimes (2005) asserted that laptops are used in a wide range of ways but overall teachers use the laptops mainly in the teaching-learning process, preparing and planning of lessons, and in finding resources. Continuous use of laptops do substantially increase competency in handling the ICT equipment. Khambari, Moses and Luan (2009), emphasized that laptop ownership gives users access to range of resources primarily from the Internet.

Product knowledge

Biswa and Sherrell (1993), conceptually defined product knowledge as information about functional attributes of products and about brand differences on attributes. In relation to consumer knowledge, Engel, Blackwell, and Miniard (1995), defined consumer knowledge as information relating to the products and to the brands which are stored in the memory of the
consumer. Consumer knowledge is seen as consisting of networks of associations (Anderson, 1983; Keller, 1993). It influences how consumers gather and organize information, and ultimately, what products they buy and how they use them. It is believed that consumer knowledge is made up of two complementary dimensions; familiarity (sometimes called experience) and expertise (Alba and Hutchinson, 1987; Jacoby, Troutman, Kuss, & Mazursky, 1986). Iwarere and Fakokunde (2011) asserted that it is difficult for consumer to evaluate the quality of services than quality of products due to certain distinctive characteristics of services such as intangibility, variability, perishability and inseparability. Sunday et al., (2009) opined that it is imperatively difficult for a buyer to perceive favourable impact of a product at the first sight of the product without initial trial that may lead to subsequent decision and that Buyer or customer needs series of information processing regarding the physical configuration, quality and value of product.

**Product Characteristics**

Characteristics are the stream of services, provided by a good / services, which the buyer consumes over the lifetime of the purchased product (Lancaster 1971). Kerr, Kline, Hobs, and Kagatsume (1994), noted that “the first step in understanding any market must be the identification of those product characteristics that are desired by consumer”. With respect to products, the characteristics approach is commonly used to analyze and categorize different types of product innovation. A product is described in terms of a list of features or characteristics’ (Swann, 2009). Lancater (1971) observed that all types of products (both manufactured goods and immaterial services) can be described by the bundle of attributes or ‘intrinsic characteristics’ which they embody.

Zeithaml (1988), product characteristics as intrinsic product cues are one of the most important factors consumers consider when evaluating a product before purchasing. Veale and Quester (2009) elucidated that consumers evaluate products after and before experiencing it through intrinsic and extrinsic cues. Intrinsic cues is any product characteristics which are related to the nature of good and extrinsic cues are those which can change and are not related to the inherent of the product such as; price and country of origin.

**Product Familiarity**

Korchia (2001) argued that a great number of articles published in consumer behaviour relate to knowledge of products, and not of brands. And that there should not be any obstacle to adapt the concepts or definitions suggested for categories of products in the case of brands. Korchia (2001) said that in variety of studies, product familiarity has been used interchangeably with other constructs including subjective knowledge 2nd consumer expertise, or some combination of the above, also as function of product experience, familiarity has been equated most frequently with product purchase, possession, and usage. The familiarity of the consumer with a product or service is a field of analysis that has attracted the attention of marketing researchers for a number of decades (Johnson & Russo, 1994; Desai & Hoyer, 2000). Alba and Hutchinson (1987), defined product familiarity as the direct and indirect experiences with the product category that has been accumulated by consumer. They also see familiarity as “the number of product-related experiences accumulated by the consumer”. In addition, Veryzer (1998) affirmed that unfamiliarity with a new product leads to consumers’ resistance to the product. Also, Charon and Hayashi (2001), defined familiarity as a composite measure of cognitive and behavioural experience. It has been reported that familiarity interacts with or even directly affect attitude, preference and choice of a product or service.
Perceived Product Quality

Perceived quality has been defined as the consumer’s judgment about a product’s overall excellence or superiority, and that perceived quality differs from objective quality (Tsiotsou, 2006). Perceived product quality is a global assessment characterized by a high abstraction level and refers to a specific consumption setting (Zenithmal, 1988). Objective quality refers to the actual technical excellence of the product that can be verified and measured (Monroe & Krishman, 1985) cited in Tsiotsou (2006). Perceived product quality act as a mediator between extrinsic cues and perceived customer value (Dodds, Monroe, & Grewal, 1991). Perceived quality is a critical element for consumer decision making; consequently, consumers will compare the quality of alternatives with regard to price within a category (Jin & Young, 2005). Davis, Aquilano and Chase (2003) cited in Yee, San, and Khoon (2011), opined that perceived quality is directly related to the reputation of the firm that manufactures the product. However, National Quality Research Center (1995), cited in Yee, et al., (2011), defined perceived quality as the degree to which a product or service provides key customer requirements (customization) and how reliable these requirements are delivered (reliability). Yee, et al., (2011), argued that consumers often judge the quality of a product or service on the basis of a variety of informational cues that they associated with the product. Zeithaml (1988) listed the perceived product qualities to include the product itself, product’s performance, features reliability, conformance, durability, serviceability and aesthetics while extrinsic attributes are the cues that are external to the products itself, such as price, brand image, company reputation, manufacturer’s image, retail store image and the country of origin. Perceived quality has direct impact on customer purchase decision and brand loyalty, especially during the time customers have less or no information of the products that they are going to purchase (Aaker, 1991; Armstrong & Kotler, 2003).

Concept of Purchase Decision

According to Peter and Olson (2004), the key process in consumers’ decision making is the integration process by which knowledge is combining to evaluate two or more alternative behaviour and select one. Most of the large companies are researching into consumer buying decision in increasing detail to answer questions about what consumer buys; where they buy; how and how much they buy; when they buy and why they buy (Kotler, Armstrong, Swee, Siew, & Chin, 2005). There are seven stages of the consumer buying decision process which are: need recognition; search for information; pre-purchase evaluation alternative; purchase; consumption; post-consumption evaluation; and divestment (Blackwell, Miniard, & Engel, 2006). Purchase decision is the fourth stage in consumer buying process in the consumer decision making process model and a purchase or intent to purchase is often influenced by other factors such as risk and involvement (Blackwell et al., 2006).

Research Method

The study employed descriptive survey design. The population of this study was 13,753 full time undergraduate students of Ekiti State University. This cut across all the different Faculties and College of Medicine of the University as at 2013 session. The sample size for study was derived using the Yamane (1967) model, cited in Israel (2009) and commonly called the Taro model. The model was given as:

\[ n = \frac{N}{1 + Ne^2} \]

Where \( n \) = anticipated total sample size; \( N \) = population size; \( e \) = degree of significance (0.05)
Therefore, the total sample size shall be computed as:

\[
    n = \frac{13753}{1 + 13753(0.05)^2} = 390
\]

From the above, the sample size will be 390 respondents.

This research adopted stratified sampling technique. For each of the Faculty, the following formula was adopted to estimate the number of possible respondents, thus:

\[
    n = \frac{n^1 N^1}{N}
\]

Where

- \( n \) = sample size for each Faculty
- \( n^1 \) = total sample size
- \( N^1 \) = population of the Faculty
- \( N \) = total population

An interpretation of this formula is number of students in each faculty (N), divided by the total population (N¹) and then multiplied by the total sample size (n¹).

Therefore, sample size for Faculty of Agricultural Science

\[
    N_{Agric.} = \frac{(390)(559)}{13,753} = 15
\]

Sample size for Faculty of Arts

\[
    N_{Arts} = \frac{(390)(2196)}{13,753} = 62
\]

Sample size for Faculty of College of Medicine

\[
    N_{CMed.} = \frac{(390)(127)}{13,753} = 4
\]

Sample size for Faculty of Education

\[
    N_{Edu} = \frac{(390)(3518)}{13,753} = 100
\]

Sample size for Faculty of Engineering

\[
    N_{Engr.} = \frac{(390)(592)}{13,753} = 17
\]

Sample size for Faculty of Law

\[
    N_{Law.} = \frac{(390)(131)}{13,753} = 4
\]

Sample size for Faculty of Management Sciences

\[
    N_{Mgt.Sc.} = \frac{(390)(2024)}{13,753} = 57
\]

Sample size for Faculty of Sciences
Sample size for Faculty of the Social Sciences

\[ N_{soc.sci.} = \frac{(390)(1858)}{13753} = 53 \]

Table 1: Reliability co-efficient of adopted instruments

<table>
<thead>
<tr>
<th>S/No</th>
<th>Measurement</th>
<th>No of Items</th>
<th>Cronbach Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Product Knowledge Product Knowledge Scale</td>
<td>5</td>
<td>.975</td>
</tr>
<tr>
<td>2</td>
<td>Product Characteristics Product Characteristics Scale</td>
<td>20</td>
<td>.994</td>
</tr>
<tr>
<td>3</td>
<td>Product Familiarity Scale for Product Familiarity</td>
<td>5</td>
<td>.980</td>
</tr>
<tr>
<td>4</td>
<td>Perceived Product Quality Perceived Product Quality Scale</td>
<td>2</td>
<td>.956</td>
</tr>
<tr>
<td>5</td>
<td>Consumer Purchase Decision Purchase Decision Involvement Scale</td>
<td>4</td>
<td>.979</td>
</tr>
</tbody>
</table>

*Source: field survey (2015)*

Method of Data Analysis

Data gathered were sorted, coded, and analysed using descriptive and inferential statistics. The descriptive statistics were mainly frequency table. Inferential statistics used was regression analysis. Multiple regression analyses were used to examine the impact of product knowledge; product familiarity and perceived product quality on consumers’ purchase decision of laptop computers among students in Ekiti State University.

Results and Discussion

To test for multiple regression of the five variables. The respondents’ scores on five variables, product knowledge, product characteristics, product familiarity, perceived product quality (independent) and consumers’ purchase decision (dependent) were computed and subjected into multiple regression analysis. The results shown on the Table 1. In Table 1, the results of the analysis was found to be significant \( r = 0.968 \) showing that product knowledge, product characteristics, product familiarity, and perceived product quality positively influences consumers’ purchase decision of laptop computers among student of Ekiti State University. That is students quest to buy laptop computers are influenced by product knowledge, product characteristics, perceived product quality. Adjusted \( r^2 \)- square showed that product knowledge, product characteristics, product familiarity, perceived product quality caused 93.7% variance of consumers’ purchase decision of laptop computers Students. In other words, an estimated 0.937 of consumer purchase decision of laptop computers is accounted by independent variables, product knowledge, product characteristics, product familiarity, perceived product quality. The result means that we reject the null hypothesis and accept the alternate hypothesis.
In Table 2, the unstandardised and standard beta co-efficient of product knowledge are 0.373 and 0.399 respectively with \( t = 12.373 \) and \( p = 0.000 < 0.05 \). The unstandardised and standard beta co-efficient of product characteristics are 0.130 and 0.130 with \( t = 4.750 \) and \( p = 0.000 < 0.05 \). The unstandardised and standard beta co-efficient of product familiarity are 0.468 and 0.446 respectively with \( t = 14.235 \) and \( p = 0.000 < 0.05 \). The unstandardised and standard beta co-efficient of product knowledge are 0.30 and 0.032 respectively with \( t = 1.449 \) and \( p = 0.148 > 0.05 \). The results showed that product familiarity and product knowledge has moderate positive impact on consumer purchase decision than does product characteristics and perceived product quality influence on consumer purchase decision. The results also showed that even though perceived product quality has a positive influence, it is not significant. This means that respondents’ reason for purchasing laptop computers is not strongly influenced by perceived product quality.

The multiple regression analysis is shown as:

\[
CPD = 0.049 + 0.373P_k + 0.130P_c + 0.458P_f + 0.03P_{pq}
\]

(Where \( CPD = \) Consumer purchase decision; \( P_k = \) Product knowledge; \( P_c = \) Product characteristics; \( P_f = \) Product familiarity; and \( P_{pq} = \) Perceived product quality)

### Table 2: Product Knowledge, Product Characteristics, Product Familiarity, Perceived Product Quality and Consumers’ Purchase Decision of Laptop Computers among Student

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coeff.</th>
<th>Std. Error</th>
<th>t-value</th>
<th>Sig. value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>.049</td>
<td>.035</td>
<td>1.385</td>
<td>0.167</td>
</tr>
<tr>
<td>Product Knowledge</td>
<td>.373</td>
<td>.031</td>
<td>12.152</td>
<td>0.000</td>
</tr>
<tr>
<td>Perceived Product Quality</td>
<td>.030</td>
<td>.021</td>
<td>1.449</td>
<td>0.148</td>
</tr>
<tr>
<td>Product Familiarity</td>
<td>.458</td>
<td>.032</td>
<td>14.235</td>
<td>0.000</td>
</tr>
<tr>
<td>Product Characteristics</td>
<td>.130</td>
<td>.027</td>
<td>12.431</td>
<td>0.000</td>
</tr>
<tr>
<td>R</td>
<td>.968</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R Square</td>
<td>.937</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adj. R²</td>
<td>.937</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F Stat.</td>
<td>1968.356(.000)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Dependent Variable: Consumers’ Purchase Decision

### Discussion of findings

The first states that product knowledge has no significant impact on consumers’ decision to purchase laptops among students in Ekiti State University. The score was computed using items in research instrument (questionnaire). This score was subjected to statistical analysis using regression analysis. The result showed that there is a moderate and positive relationship between product knowledge and consumers’ decision to purchase laptops among students in Ekiti State University. The null hypothesis was rejected while the alternative hypothesis was accepted. This implies that product knowledge has significant impact on consumers’ decision to purchase laptops with \( r^2 \) which was found to be 0.044 showing the strength of relationship between that is 4.4%. This study is in line with the findings of Chandon, et al. (2005) which that showed the reactive effect of the measurement of purchase intentions is entirely mediated by self-generated validity and not by social norms, intention modification, or other measurement effects that are independent of pre-survey latent intentions. Lee et al. (2009) concluded that consumer product knowledge also has a positive impact on purchase decision, consumer information search intention and consumer purchase intention; and that product knowledge is an important
parameter that has effect on decision making of consumer. Lin and Chen (2006) indicated in their study that the country of origin image, product knowledge and product involvement all has a significantly positive effect on consumer purchase decision under different product involvement.

The second stated that product characteristics do not have any significant influence on consumers’ decision to purchase laptops among students in Ekiti State University. The score was computed using items in research instrument (questionnaire). This score was subjected to statistical analysis using regression analysis. The result showed that there is a moderate and positive relationship between product knowledge and consumers’ decision to purchase laptops among students in Ekiti State University. The null hypothesis was rejected while the alternative hypothesis was accepted. This implies that product characteristics has significant influence on consumers’ decision to purchase laptops with $r^2$ which was found to be 0.075 showing the strength of relationship between that is 7.5%. The findings of Sharma (2012) revealed that students found themselves connected with the entire world with the help of laptops and by means of this they contribute a lot for nation’s development. The findings are also in line with Johnson and Russo (1984) that revealed highly familiar subjects are also taught to develop experts. Product use and knowledge may be related, and however, experimentally each variable may have a different impact on the consumers’ information search strategies. Zaichkowsky (1985) further revealed that generally involvement and product use are correlated.

The third stated that Product familiarity do not have any significant impact on consumers’ decision to purchase laptops among students in Ekiti State University. The score was computed using items in research instrument (questionnaire). This score was subjected to statistical analysis using regression analysis. The result showed that there is a moderate and positive relationship between product familiarity and consumers’ decision to purchase laptops among students in Ekiti State University. The null hypothesis was rejected while the alternative hypothesis was accepted. This implies that product familiarity has significant influence on consumers’ decision to purchase laptops with $r^2$ which was found to be 0.073 showing the strength of relationship between that is 7.3%. Likewise the work of Khan, Ghari and Majeed (2012) revealed that all brand related factors show positive relationship with purchase intention of customers and that companies should improved their brand related attributes to increase purchase decision of customer, which is key to their value generation.

The four stated that Perceived product quality does not have any significant influence on consumers’ purchase decision of laptop among students of Ekiti State University. The score was computed using items in research instrument (questionnaire). This score was subjected to statistical analysis using regression analysis. The result showed that there is a moderate and positive relationship between perceived product quality and consumers’ decision to purchase laptops among students in Ekiti State University. The null hypothesis was rejected while the alternative hypothesis was accepted. This implies that perceived product quality has significant influence on consumers’ decision to purchase laptops with $r^2$ which was found to be 0.065 showing the strength of relationship between that is 6.5%. The findings of Shaharudin, et al. (2011) stated that consumer perception does not have significant impact on consumer purchase decision which is reversed related with finding. Shaharudin, et al. (2011) further revealed that customers are looking at other elements beyond quality perceptions on their purchase decision and only they understand what they are actually looking for while Iwarere and Fakokunde (2011) in Nigeria revealed further that customers’ are insatiable and in most cases, purchase decisions are highly dependent on their perception of service quality.
Conclusion

The study concluded that consumer knowledge through subjective and objective knowledge stimulate the consumers level of awareness, and subsequent recognition of preferred laptop computers in terms of product characteristics, outward appearance and technical value among competing brands.

Finally, consumers’ purchase decision is greatly influenced by the product knowledge of the quality. Product characteristics has a significant influence on consumers’ purchase decision, hence, there exist a high and close relationship among product knowledge, product characteristics, product familiarity perceived product consumer purchase decision.

Recommendations

Consequent on the study result and findings, the researcher suggests the following recommendations are made to the consumers’ of laptop computers and the manufacturers in tertiary institutions, interested in purchasing laptop computer and marketers of the products:

i. Marketers of laptop computers and companies should be aware of the level of product knowledge and product characteristics of their prospective consumers so that if the product is bought the tendency of hardware crashing will be reduce to bearest minimum.

ii. Manufacturers should continue to invest in technologies through reconstruction, development and in to create differentiation in terms ram size, battery back time, hard disk size and to guarantee the utmost confidence of consumers in purchasing laptop computers.

iii. The product knowledge and product characteristics show a positive significant relationship on consumers purchase decision this is an advantage to marketers’ to continue to educate the consumers about the newly added functionality of the product.

iv. The significant relationship between knowledge and characteristics of product such as price processor speed, processor type, ram size, weight, battery backup time, hard disk size, power supply influenced purchase decision of laptop computers, the marketers of this product should design laptop computers that will match students lifestyle, that is laptop computers that can help students achieve their academic pursuit with such as having long lasting battery backup time, functions easy browsing, bigger capacity of ram size and hard disk size.

Suggestions for Further Research

The study was limited to students in Ado Ekiti, southwestern, Nigeria, similar studies could be conducted in other part of country to verify the findings on impact of product knowledge and product characteristics on consumers’ purchase decision of laptop computer. Secondly, further studies of this nature could be carried out on related variables in other organisation apart from academic arena. The variables that are product knowledge, product characteristics, product familiarity, perceived product quality be independent variables could be study individually on consumer purchase decision.
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Impact of Microfinance Banks’ Credit on the Performance of Small and Medium Scale Enterprises in Oyo State

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Abstract

The contribution of microfinance banks’ credit to the performance of small and medium scale enterprises in Nigeria has been an issue that has gained momentum among scholars of repute. Different studies have been conducted in this light and their findings have been generically validated over time and have become basis for further researches. However, much studies have not been articulated towards underpinning impact of microfinance credit on performance of small and medium scale enterprises, with profitability and market size as performance indicators. This study was anchored on growth theory, propounded by Harold (1939) and Dolmar (1946). Two hypotheses were formulated and tested using regression analysis. The results showed that microfinance bank credit had significant impact on profitability and market size of small and medium scale enterprises. It was recommended that government should create an enabling environment for business opportunities to thrive in the country and that the conditions for accessing the credit facilities by the small and medium scale enterprises should be less stringent.

Keywords: Performance, Small and Medium Scale Enterprises, Profitability, Market Size, Credit Facilities

JEL Classification: G34; E59; G21
1. Introduction

In order to promote and achieve effective performance of Small and Medium Enterprise (SME) sector, the contribution of the Microfinance banks in terms of granting credit facilities and other assistance of relevance becomes sacrosanct. Although, optimizing the performance of the economy could be predicated on the contribution of the small and medium scale enterprises. Conversely, globally SMEs carry diverse connotations. SMEs perform the role of economic development and provision of jobs in a country. Small and medium scale enterprises (SMEs) make a significant impact by improving a country’s economic performance (Anyanwu, 2001; Afolabi, 2012; Uremadu et al., 2014). SMEs result in creating more direct jobs compared to big enterprises; and they are training grounds for those who want to develop technical and entrepreneurial skills (Kira, 2013; Uremadu et al., 2014).

According to Quaye et al. (2014), Microfinance banks have succeeded in the provision of finance and gradually helping SMEs to acquire financial assistance. Competence, effective, and efficient Microfinance banks serve the financial needs of informal sectors. Many microfinance institutions acknowledge that the market is large enough to accommodate the traditional and universal banks. SMEs are determined to dominate and have their market share before the open market competition is in full effect in a country (Uremadu et al., 2014; Theriou, 2016; Havlicek et al., 2013; Breckova and Havlicek, 2013; Anureeev et al., 2017).

There is a notion that microfinance banks are bad risk and that their services may not be sustainable and aid the survival of small and medium scale enterprises and as a result therefore have slight concern for funding the sector. This is in addition of to issues of high contract costs and short length of payback period when funding is taken into consideration. Since a robust economic growth cannot be achieved without putting in place well focused programmes to reduce poverty through empowering the people by increasing their access to formal financial services. The Central Bank of Nigeria in 2005 as part of its banking reform agenda started licensing Microfinance Institutions (MFIs) aimed at providing financial services to small and medium scale enterprises that are not served by the conventional financial institutions (Ozioko, 2010). Emphasis, therefore, shifted from large-scale industries to SMEs, which have the potentials for developing domestic linkages sufficient for rapid and sustainable industrial development.

According to Yarron (1998), Nigeria is blessed with remarkable entrepreneurs who need support at Micro, Small and Medium Scale Enterprises levels as well as big businesses. A common characteristic of these enterprises is their need for good financing. An obvious and probable development of Small and Medium Scale Enterprises (SMEs) in Nigeria is attached to the backing of banks through issuing of bank credits to SMEs. Annually, loans to SMEs appreciate and largely greater than the progression in the total of bank credit. A known way of raising capital for SMEs is through the process of borrowing from financial institutions.

Credit is a financial facility that allows a person or business entity to borrow money, to buy products and pay it back within the prescribed period. The problem faced by Small and Medium Scale Enterprises (SMEs) in Nigeria can fundamentally be regarded as internal and external (Hamid and Susilo, 2010; Susilo, 2010).

According to Hamid and Susilo (2010) and Susilo (2010), the problems that could be regarded as internal factors are: (1) lack of capital, (2) limited human resources and (3) weak business networks and market penetration capability. In another vein, the external factors include the following: (1) the business environment is not yet conducive, (2) limited facilities and business infrastructure, (3) regional autonomy implication, (4) the nature of the product life time which is
short, (5) lack of market access and (6) the implications of free trade. Requiring capital, SMEs want the backing of financial institutions most especially banks.

It is crystal clear from literature that the access to finance of most small and medium scale enterprises is still low. In essence, there are several issues generating this problem one of which is the profile of the prospective debtors of small and medium scale enterprises. It is obvious that most of the SMEs do not have what it takes to apply for financial assistance in terms of loans and advances from the banks. In this regard, feasibility study of the small and medium scale enterprises is considered by the microfinance banks and often times the SMEs are found unable to meet up with the basic requirements for accessing loans or other bank facilities (Hamid and Susilo, 2010). In the postulation of Susilo (2010) and Hamid and Susilo (2010), funding small and medium scale enterprises is highly crucial in order to ensure the promotion of workable economic progression and plummeting poverty in the country. There is need for government intervention which perhaps is a veritable tool for optimizing economic performance in Nigeria. The intervention could be in form of policy transformation through reduction in interest rate charged by microfinance banks, interest-free loans and other industrialization-oriented policies. This policy change would essentially ensure the stimulation of economy and promote performance of small and medium scale enterprises in Nigeria.

**Statement of the Problem**

The development of every country perhaps hinges on the performance of small and medium scale enterprises (SMEs). In the light of this, it is appalling that Nigeria has experienced poverty of mindset when it comes to developing and improving the performance of small and medium scale enterprises. The conduit by which the optimization of their performance can be ensured could have been through the granting of credit to them by the microfinance banks. However, most microfinance banks have not been forth-coming thus impairing the performance of these SMEs.

The microfinance banks though projects the willingness to help these SMEs, however, the stringent conditions attached to some of these credit facilities makes it inaccessible. Therefore, yearly, most of the small and medium scale enterprises do not seem to make any substantial progress over time. They have been stagnated in terms of performance. Most of them are even backward and thus considering quitting the business as the owners of such businesses could not meet up with their daily basic obligations. This problem of lack of access of small and medium enterprises to secure financial facilities by the banks should be addressed, or else, it could stunt the economic development of the country.

**Objectives of the Study**

The broad objective of the study was to examine the impact of microfinance banks’ credit on the performance of small and medium enterprises in Oyo State, Nigeria. The specific objectives are to:

i. examine the impact of microfinance banks’ credit on the profitability of small and medium scale enterprises in Ibadan, Oyo state, Nigeria.

ii. ascertain the impact of microfinance banks’ credit on the market size of small and medium scale enterprises in Ibadan, Oyo State, Nigeria.

**Research Hypotheses**

In order to achieve the stipulated objectives of the study, the following hypotheses were formulated:
i. there is no significant impact of microfinance banks’ credit on the profitability of small and medium scale enterprises in Ibadan, Oyo state, Nigeria.

ii. there is no significant impact of microfinance banks’ credit on the market size of small and medium scale enterprises in Ibadan, Oyo State, Nigeria

2. Literature Review

Theoretical Framework

This study is anchored on the theory promulgated by Harold (1939) and Dolmar (1946), and this is called the Harold Dolmar growth model. The supposition in the model is that, for steady state of progress, total demand must grow at the same rate as an economy’s output capacity grows. The model has the following implications on this study, first there is a need for investment if an entrepreneur has to grow and this necessitates access to loans and savings given by MFIs. This will facilitate more investment by SME owners. The implication is that despite the effort made to lend to entrepreneurs, their business prosperity is limited by the country and global economic performance.

As national economic performance grows the SMEs and members also perform well because there will be more business opportunities. The theory believes that the activities of the microfinance banks in form of credit provision, savings mobilization, insurance, training etcetera serves as a useful instrument for snowballing the creative capacity of the users. The essence of microfinance banks in stimulating development has been widely discussed in literature. Bencivenga and Smith (1991) posited that development of microfinance banks and effective financial intermediation add value to economic performance of rural area by channeling savings to high productive activities and reducing risks that may endangered productive capacity of SMEs.

In a study conducted by Dionco-Adetayo et al. (2006) on how the programme’s promotion policy affects the development of small enterprises. The study aimed at identifying programmes, promote small-scale industries, assess them on how they meet their objectives and test the effects of these programmes on business growth. The study was conducted in Lagos State where industrial and commercial activities are highly concentrated. The independent variables consist of: small business development measured by the size of the amount of labour, business structure and technology development. On the other hand, the dependent variable is company promotional programme that is operated and measured with Likert scale. Descriptive and inferential analyses were used to analyse the data obtained through structured questionnaires. It was revealed that the corporate promotional programmes focused on the development of small industry in terms of technical aspects, education, training, technology adaptation and commercialization and information services. The awareness level of SMEs of such programmes is still low which hampered small industries in utilizing these programmes.

In another study carried out by Babagana (2010) and Hassan and Olaniran (2011) examined the impact of the role played by microfinance banks (MFBs) in promoting the performance of SMEs in Nigeria. The research results indicated a positive impact of MFBs in fostering the performance of SMEs in the country. Akingunola (2011) also examined the specific financing options available to SMEs in Nigeria and their contributions to economic growth. Financing aid agencies have contributed to the development of SMEs in Nigeria with particular reference to the Industrial Development Center (IDC). Their SME financing aid agencies proved that they were able to increase the output of SMEs.

Obasan and Arikewuyo (2012) examined the effects of pre-post bank consolidation on the accessibility to finance by SMEs in Nigeria. Research results indicated that prior to banking
consolidation, access to SMEs to get credit was very difficult and this curtailed the growth of SMEs in Nigeria. With banking consolidation, the impact on the growth of SMEs and economic growth of Nigeria tended to be positive. Ahiawodze and Adade (2012) investigated the effects of the company’s access to credit for Small and Medium Enterprises SMEs in Ho Volta Region of Ghana using both surveys and econometric methods. The survey involved a sample of 78 SMEs in manufacturing sector of the Ho Municipality. Econometric model defined the company’s growth as the dependent variable and the independent variables included access to credit, total investments, age of the company, the initial capital, the level of education and the annual turnover of the company. Both surveys and econometric results showed that access to credit provided a significant positive effect on the growth of SMEs in Ho-city of Ghana.

Joseph and Dansu (2013) examined the relationship between business risk and sustainability of SMEs in Nigeria. They asserted that SMEs faced a number of risks that require risk management efforts that are objective and transparent. Primary data were generated from fifty (50) SMEs in Lagos State. Data analyses and hypotheses testing were done using Chi-square and descriptive statistics. The results showed that the risk management strategies of SMEs did have a positive impact on the sustainability of their businesses.

Ogujiuba, et al., (2013) Katua, (2014) analysed the availability of credit for small and medium enterprises in Nigeria and the importance of new authorized capital for SMEs. Aberejo and Fayomi (2005) also examined innovative approaches to financing SMEs across the world, especially private equity financing in order to identify best SMEs practices. It was found that there were still many challenges for banks across the world to overcome difficulties in implementing SMEs credit scheme, challenges related to cash flow, structuring investments, increased monitoring / value, liquidity and exit strategies.

Kira(2013), Quaye et al. (2014) and Katua (2014) conducted a study on the effect of bank loans to SMEs on economic growth of the country. They observed that though Small and Medium Enterprises are potential for creating value-addition, in reality, they have not been maximally developed as evidenced by many shortcomings that hamper SMEs to flourish. One significant factor is capital (investment). This hampers SMEs from raising the scale of production and expansion. The study however found a positive relationship between easy access for SMEs to credit and economic growth (Kira, 2013; Quaye et al., 2014; Katua, 2014).

Concept of performance

Performance according to Obiwuru, Okwu, Akpa and Nwankwere (2011) refers to ability of an organization to achieve such objectives as high profit, quality product; large market share, good financial results and survival at pre-determined time using relevant strategies for action. Consequently, Wang, (2010) viewed performance as product accomplishments, results and achievements in an organization. Williams and Andersons, (1991) also defined performance as employee's achievement level in his/her responsibilities and duties assigned in the workplace. Understanding determinant factors of SMEs performance is considered an important area of focus in enterprises (Rosli, 2011). This is because SMEs contribute to employment growth at a higher rate than larger firms. Anastasia (2008) posited that organizational performance can be measured by effectiveness, efficiency, satisfaction and innovation of products. Apolot (2012) in his study measured organizational assessments of performance in sales growth, customer satisfaction and profitability in their businesses. This study therefore adapts the definition of both Apolot (2012) and Anastasia (2008).
Concept of Microfinance

Microfinance is a poverty alleviation tool which has gained worldwide recognition since the 1990s and proven to have positive impact on poverty levels and entrepreneurship development in developing countries (Hossain et al., 2008). Microfinance is the provision of financial services to the poor, aiming at empowering low income population by providing them with access to credit and other financial services.

Through MFIs, the poor can obtain collateral-free loans at relatively low interest rates and use the money for creating microenterprises (small businesses owned by poor people), funding children's education and improving households, among others. Aside from microcredit, MFIs have also developed numerous financial services such as micro-insurance and micro-mortgage designed to accommodate the poor’s financial needs. Most of these institutions have also required their clients to open up savings accounts which could be used for emergency and investment purposes (Carr & Tong, 2002).

The Canadian International Development Agency (CIDA) defined microfinance as the provision of a broad range of financial services to poor, low income households and micro enterprises usually lacking access to formal financial institutions (CIDA, 2002). It is the provision of financial services and the management of small amounts of money through a range of products that are targeted at the poor people. This product includes loans, savings, insurance et cetera (United Nation, 2005). According to Almeyda and Branch (1999), micro finance is the provision of credit, savings and other financial services to lower-income groups. In addition, Otero (1999) defined microfinance as the provision of financial services to low-income poor and very poor self-employed people. Microfinance came into being from the appreciation that micro-entrepreneurs and some poorer clients can be ‘bankable’, that is, they can repay both the principal and interest on time and also make savings provided financial services are tailored to suit their needs.

Concept of Microcredit

According to Micro-credit Summit (2002), Microcredit is the extension of small loans to entrepreneurs too poor to qualify for commercial bank credit. It is the provision of cash and in kind loans in smaller amounts to micro, small entrepreneurs meant to improve their business operations. Sinha and Matin (1998) described microcredit as small loans, whereas microfinance is appropriate where NGOs and Microfinance Institutions (MFIs) supplement the loans with other financial services such as savings, insurance, etcetera. Thus microcredit is a component of microfinance in that it involves providing credit to the poor. Credit however provides the basis for increased production efficiency through a specialization function (Kimemia, 2004).

Concept of SME in Nigeria

Small scale businesses, Small scale industries and small scale entrepreneurship are often used interchangeably to mean a Small and Medium Scale Enterprise. In Nigeria and worldwide, there seems to be no specific definition of small business. Different authors, scholars, and schools have different ideas as to the differences in capital outlay, number of employees, sales turnover, fixed capital investment, available plant and machinery, market share and the level of development, these features equally vary from one country to the other.

In Nigeria, for example, the Third National Development plan defined a small scale business as a manufacturing establishment employing less than ten people, or whose investment in machinery and equipment does not exceed six hundred thousand naira (Kayode, 2010). Similarly, Central Bank of Nigeria (CBN) in its credit guidelines, classified small scale business as the businesses with an annual income/asset of less half a million naira (₦500,000) (Kayode, 2010). Also, the Federal Government Small Scale Industry Development Plan of 1980 defined a small
scale business in Nigeria as any manufacturing process or service industry with a capital not exceeding ₦150,000 in manufacturing and equipment alone. In the same vein, the Small Scale Industries Association of Nigeria (1973) also defined small scale business as those having investment (i.e. capital, land building and equipment of up to ₦60,000 (pre-SAP Value) and employing not more than fifty persons. While, the Federal Ministry of Industries defined it as those enterprises that cost no more than ₦500,000 (pre-SAP Value) including working capital to set up. In addition, the Centre for Management Development (CMD) definition of small industry in the policy proposal submitted to the federal government in 1982 defined small scale industry as, “a manufacturing processing, or servicing industry involved in a factory of production type of operation, employing up to 50 full-time workers” (Kayode, 2010). While in the United States, the Small Business Administration (SBA) defines a small business as one that is independently owned and operated and is not dominant in its field and meets employment or sales standard developed by the agency (White & Chacaltana, 2002).

3. Methodology

Study Area

The study was conducted in Oyo State, focusing on three Local Government Areas of Oluyole, Ibadan North and Ibadan South West. These three local governments were picked in Oyo State owing to the concentration of small and medium scale enterprises in these areas. The study essentially concentrated on the small and medium scale enterprises in these Local Government areas.

Scope of the Study

The study focused on the impact of microfinance banks’ credit on the performance of small and medium scale enterprises in Ibadan North, Oluyole and Ibadan South West Local governments. The study intended to study only the microfinance banks’ credit to SMEs.

Research Design

The design that was used in this study is the survey design of a descriptive nature. This involves the use of questionnaire to elicit response from the participants.

Population and Sample of the Study

The study population was the entire small and medium scale enterprises owners in of Oluyole, Ibadan North and Ibadan South West Local governments, while the sample size for the purpose of the study was 150 owners of small and medium enterprises.

Procedure of Data Collection and Instrumentation

Data was collected with the aid of a questionnaire. The questionnaire was administered on the owners of the small and medium scale enterprises in the selected local government areas. In the process of data collection, the researcher employed research assistants who helped in taking the questionnaires to these SME owners and their responses were retrieved after some of them have successfully filled the questionnaires.

Two instruments were used for this study. The first instrument used for this study was the microcredit and micro-savings questionnaire developed by Msoka (2014). Small and medium scale enterprises performance was measured by profitability, sales growth, innovation, effectiveness, efficiency and customer satisfaction questionnaire was adapted from Anastasia (2008). The instruments had a five-point rating scale of Strongly Agree, Agree, Disagree, Undecided and Strongly Disagree response options.

The model that as estimated for the study is presented below:
SP = α + β1IF + β2IC + ε

Where:
SP - Information on SME's Performance
α - Intercept of the model
β - The slope coefficient
IF - Information on Micro-loan
IC - Information on Micro-savings
ε - Random disturbance term.

4. Presentation of Result

Hypothesis one states that there is no significant impact of microfinance banks' credit on the profitability of small and medium enterprises in Ibadan, Oyo state, Nigeria.

Table 1: Summary of Regression analysis showing the Impact of Microfinance Banks’ Credit on the Profitability of Small and Medium Enterprises In Ibadan, Oyo State, Nigeria

<table>
<thead>
<tr>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>.457</td>
<td>.214</td>
<td>.143</td>
<td>14.773</td>
</tr>
</tbody>
</table>

ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>2368.426</td>
<td>1</td>
<td>543.456</td>
<td>2.501</td>
<td>.007</td>
<td>Sig.</td>
</tr>
<tr>
<td>Residual</td>
<td>14663.562</td>
<td>149</td>
<td>217.316</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>17031.998</td>
<td>150</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Table 1 shows the impact of microfinance banks’ credit on the profitability of small and medium enterprises in Ibadan, Oyo State, Nigeria. The table further shows that a coefficient of multiple correlation (R = .457; R² = .214 and adjusted R² = .143; P<.05). This implies that 14.3% of the variance was accounted for by the predictor variable (microfinance credit). The table also shows that the analysis of variance for the regression yielded (F = 2.501; P<.05). This implies that microfinance credit significantly predict profitability of the small and medium enterprises in Oyo State, Nigeria.

Hypothesis two states that there is no significant impact of microfinance banks’ credit on the market size of small and medium enterprises in Ibadan, Oyo State, Nigeria.

Table 2: Summary of Regression Analysis Showing the Impact of Microfinance Banks’ Credit on the Market Size of Small and Medium Enterprises in Ibadan, Oyo State, Nigeria.

<table>
<thead>
<tr>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>.312</td>
<td>.110</td>
<td>.093</td>
<td>14.773</td>
</tr>
</tbody>
</table>

ANOVA

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
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<td>1</td>
<td>720.214</td>
<td>4.946</td>
<td>.018</td>
<td>Sig.</td>
</tr>
<tr>
<td>Residual</td>
<td>24159.154</td>
<td>149</td>
<td>145.627</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>25214.105</td>
<td>150</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Table 2 shows the composite impact of microfinance banks’ credit on the market size of small and medium enterprises in Ibadan, Oyo State, Nigeria. The table also shows a coefficient of multiple correlation (R = .312 and R² = .110 and adjusted R² = .093; P<.05). This implies that 9.3% of the
variance was accounted for by the predictor variable (microfinance banks’ credit). The table also shows that the analysis of variance for the regression yielded (F-ratio = 4.946; P< 0.05). This implies that microfinance banks’ credit has a significant positive relationship on the market size of small and medium enterprises in Ibadan, Oyo State, Nigeria.

Discussion

This study investigated impact of microfinance credit on the performance of small and medium scale enterprises in Oyo State, Nigeria. The performance indicators considered in this study are profitability and market size. Two hypotheses were tested in this study. Hypothesis one states that there is no significant impact of microfinance banks’ credit on the profitability of small and medium enterprises in Ibadan, Oyo state, Nigeria. The result from this study shows that there was significant impact of microfinance credit on the profitability of small and medium enterprises in Oyo State, Nigeria. This was corroborated by Obiwuru, Okwu, Akpa and Nwankwere (2011).

Hypothesis two states that there is no significant impact of microfinance banks’ credit on the market size of small and medium scale enterprises in Ibadan, Oyo State, Nigeria. The result shows that microfinance credit had significant impact on the market size of small and medium scale enterprises in Oyo State, Nigeria.

5. Conclusion and Recommendations

To ensure maximum performance of small and medium enterprises in terms of profitability and market size, there is need for microfinance banks to make available sustainable credit facilities to SMEs. This can be done in different forms through loans and advances. It is worthy of note that credit facilities of the microfinance banks would improve the market size and profit margin of the small and medium scale enterprises.

Therefore, subject to the above findings, the following recommendations are made:

I. That government should formulate policy that would make business activities of small and medium scale enterprises amenable and easy to conduct.

II. That credit facility which is interest friendly should be made available by the microfinance banks to small and medium scale enterprises.

III. The requirements for accessing credit facilities should be less stringent to allow every small and medium scale enterprise owner access credit without restriction.

IV. That adequate sensitization should be made by the microfinance banks to educate the owners of small and medium scale enterprises on the various facilities available and how to access it.
References


Remittances and Openness to Trade in ECOWAS Countries: Evidence from Panel Data

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Abstract
This paper explores the relationship between trade openness in ECOWAS countries using panel data. This is evidenced from the significance of foreign remittances over time and its potential in boosting trade relation. The theoretical framework is rooted in the Mercantilists approach which advocate the positive impact of remittance flows on exports thereby increasing the ability to finance imports. The pooled OLS, fixed effect and random effect estimations are adopted. Results show indirect impact of remittance flows on openness to trade for the fixed and random effect estimations while there exists a positive influence of remittance flow on trade openness in the pooled OLS estimation. Economic boom, gross capital formation and money supply impact positively on trade openness. A weakening institutional quality is demonstrated by the negative impact of it on trade orientation. Therefore, it is important that distribution of remittances be well guided, stiff trade policy including bureaucratic bottlenecks should be regulated and adequate infrastructure be put in place to further boost the region’s trade relation.

Keyword: Trade openness, Remittance, Pooled OLS, Fixed effect, Random effect

1. Introduction
In the present days, issue of migration has attracted more and more attention from the world economists. Based on (World Bank 2016a) statistics, total migrants around the world are up to 250 million in which 150 million international migrants translating to about 60% of the total are within the working class. Accordingly, share of immigrants in the world population increased from 2.4% in 1960 to 3.3% in 2015, about 0.9% point difference. The increasing number of migrants in the past few decades is consequent upon availability of job opportunities, labour shortages due to decline in birth rate, push forces such as internal conflict, natural disasters, climate change among others (World Bank, 2016a). International migrants now see financing their home countries as important. Thus, remittance inflows have now been seen as a major supporter of economic growth and a hindrance to poverty in the recipient countries and most importantly, the developing countries. Remittances received by developing countries, sent mostly by citizens of developing countries working as migrant workers abroad, have reached an all-time high in
recent years. The value of remittances is thrice the value of official development assistance exceeding 10 percent of GDP in most of the recipient countries worldwide (Mohapatra & Ratha, 2010). Statistics has shown that global remittances reached $601 billion from which the developing countries received the share of 73.3% of the total amounting to $441 billion. Remittance inflows bring about increase in import demand and with low levels of exports; this may result into slower economic performance (Tausch & Heshmati, 2012).

One of the arguments of globalisation is increased trade and hence openness to trade among nations, regions, and continents to the extent that the share of global trade has become a major determinant of economic performance and a country’s standard of living. IMF (2001), referencing the economic success of East Asia, concludes that these countries achieved substantial improvements in the living standards of their citizens as a result of increased global trade. A country’s ability to trade globally signifies the major difference between developed or industrialised countries and Developed Countries.

Contribution of African continent to global trade remains negligible; one of the reasons for the poor performance of African economy. A call for reversal has been made on the basis of the persistent continent’s dependent on trade in raw materials and unfinished products with the rest of the world (Nkurunziza, 2015). Between 2000 and 2018, African exports to the rest of the world ranged from 80-90 percent (AfDB, 2019) which is less than 3 percent of total global exports (Schmieg, 2016). Accordingly, (Schmieg, 2016) indicates that revenue from international trade accounts for more than 50 percent of total income; hence the dependence of African economy on world trade.

Arguments have arisen that international capital flows such as remittances impact positively on trade performance on the basis that foreign capital boosts domestic investment, reduce unemployment, encourage new managerial skills including technology transfer to the receiving economies (Wafure & Nurudeen, 2010). It has been observed that countries experiencing economic depression can achieve economic success if local conditions are attractive to foreign capital flows that are directed at enhancing trade diversification. In West Africa, foreign capital inflows have the potential to enhance local production, inspire private sector activities and set the base to sustain growth and economic transformation through trade relation (Adjovi, 2010). Reports also show that remittance flows have contributed towards increased investment in human capital including education and health together with small businesses in various recipient communities across countries. These apart, it could also support increased trade relation, investment, knowledge and technology transfer from contribution of the people in the diaspora. In another view, remittances may create hurdles in economic development by inflating prices and reduce work incentives among migrants’ family members (Le, 2009).

ECOWAS countries rely mostly on inflows of capital more so as remittances remain a significant part. This enable the countries to finance domestic investment and import demand and cover up domestic imbalances. However, the huge capital flows do not seem to improve the economic performance of the region as poverty, unemployment and infrastructural deficiency among other economic menaces including poor technological development, low workers’ skills and poor marker access (Ahmed, Arezki, & Funke, 2005; Antra’s & Cabellero, 2009; and Marwa, 2014) among others still persist. Moreover, the large cost involved in sending remittances between countries could not clearly show the quantity of remittances which significantly contributes to growth as greater portion has to go through informal channels (World Bank, 2016b). While remittance flows have positive impacts of the economies of recipient countries, it has also been deduced that such inflows can results in negative impacts such as increasing inequality levels within poor countries because different households may have difference size of remittance flows resulting in some having higher income than the others.
Remittances form significant part of the financial resources which can give support to international trade flows between countries though this has not been given a strong evidence in some parts of the world. Several evidence however exit in Africa. (Bourdet & Falck, 2006) suggest that remittance flows can trigger prices of non-tradables and subsequently cause exchange rate depreciation and thus reduce exports competitiveness in support of import demand. While this may seem related to a single country case, much evidence is still lacking for a group of countries such as ECOWAS. This study is motivated by further enhancing substantial evidences on the contribution of remittances on international trade flows for a cross country case like ECOWAS. Consequently, the objectives of the paper are to examine the contribution of remittance flows to trade performance in the ECOWAS and to provide a suitable model for estimating the relationship between remittance flows and trade.

2. Theoretical literature

In the classical theory, the mercantilism emphasises the need to create more wealth for a nation through increasing the volume of export and based on (Kumar, 2008) policies that should regulate trade flows need be put in place for a favourable balance of trade. Adam Smith criticised this on the basis of free trade and that exporting more goods than importing gives the importing country undue advantage as it tends to make available fewer imports such as jewelry and gold compared to what would have been exported. Theory of absolute advantage as explained by Smith involves countries trading in goods for which they have a least comparative cost disadvantage. Labour is considered as the only factor of production so that productivity can be a major determinant of trade imbalance. He advocates that it is important to have subsidies and other policies that can encourage exports and discourage imports. Specialisation in production of goods that a country has least absolute cost disadvantage put both countries engaging in it at advantage. The theory of absolute advantage is criticised on the basis that countries can still trade even with a country having absolute advantage in engaging trade in two goods.

In the theory of Mercantilist, there is need to export to gain currency to finance imports. With remittances, the receiving countries are placed in a position to finance their imports of goods and services (Kumar, 2008). Such countries without having to export can be motivated to import given the foreign reserves. However, it is assumed by the Adam Smith and David Ricardo that there is no movement across the border, hence there is no explanation on how remittances affect trade balance.

Remittance flows educate the receiving countries residents on allocation and distribution of the resources. With this, it is expected that productivity of the receiving countries improves which subsequently encourages export and reduces import thereby creating a favourable balance of trade. This invariably increases the extent to which the countries partake in global trade and permit foreign firms to do business in their domestic markets.

In the Keynesian model, free trade between countries causes trade imbalances. Countries with trade surplus reduce global aggregate demand as it results in negative externality. A proposed international bank by Keynes (Deardorff, 2014) meant to clear trade imbalances explains the role of international currency in measuring trade imbalances and borrowing to clear imbalances. This would stabilise international trade within countries. However, given that there is no trade balance, there may be chaos as predicted because if the countries with trade deficit are unable to pay for loans borrowed, then this keeps countries with trade surplus on the loss (Seyoum, 2009). While borrowing is expected to improve domestic trade and lessen imports, countries may not even embark on investment that would generate positive returns. As suggested by the theory, international borrowing for investment can reduce trade deficits and hence remittances can be useful for investment and thus reducing dependence on imports.
The monetary views support remittances as they finance imports steadily. Though this can increase trade deficits, the locals enjoy more foreign goods rather than keeping the worthless paper money (Seyoum, 2009).

In summary, classical theory sees trade balance as being a loss to the economy as it induces outflow of wealth. The Keynesian theory explains that trade deficit does not benefit countries in engaged in trade while the monetarists support that trade deficit is good for the country involved. Even though no clarification on how remittances influence trade balance, it is a means of improving human capital relevant for encouraging comparative and absolute advantage. Human capital development here enhances knowledge for better utilisation of remittances and securing jobs that can facilitate productivity and hence reduce trade deficits (Loveth, Alfred, Eckes & Brinkman, 2004) which in turn increase trade openness.

It is important to view remittances as having some negative implication to the receiving countries. One of such is that such financial flows can be diverted from beneficial uses to a suspicious avenue; hence the need to pay attention more to the informal channel of transfer, a reason for the International Monetary Fund (IMF) has advocated for more efficient national supervisory system during the second convention on Hawal, 2004 (Salomone, 2006).

Empirical issues have been developed within the context of remittances and trade and in line with the theoretical ideas above. In a study conducted by Kurshid et al (2018) on the effect of remittances on trade balance of the low, lower and middle income countries for 1988-2014, using the Generalized Method of Moment (GMM) approach, findings show that foreign remittances to these receiving countries demonstrate a Dutch disease. Hien (2017) explores the impact of remittances on trade balance in Malaysia using the Ordinary Least Squares (OLS) method for 1990-2015. Results show that foreign remittances contribute positively to trade balance in this country. Maduka, Madichie&Ekesiobi (2019) investigate the impact of remittances on trade balance in Nigeria. Using the OLS method, a negative impact of remittances on trade balance is discovered.

3. Econometric Methodology

The theory employed for this research is rooted from the Mercantilist assertion in which concentration on export increases foreign and create more avenue to finance imports. Essentially, this theory hinges on maintaining a favourable balance of trade given that there is movement across the border. The favourable balance of trade further increases the participation of the countries in question in global trade in terms of revealed openness and policy openness. Trade openness involves the ratio of the sum total of export and imports to gross domestic product and in some cases, it may be referred to the average of the exports and imports. A favourable trade balance occurs if exports \( X \) outweigh imports \( M \) of a country such that:

\[ X - M > 0 \]  
(1)

But \( X \) depends on international output \( (Y_i) \), international price \( (P_i) \) and macroeconomic policy \( (M_p) \) such as monetary policy, fiscal policy, trade policy, tax policy and other factors determining imports and exports such that the export function is:

\[ X = X(Y_i, P_i, M_p) \]  
(2)

Import depends on domestic output \( (Y_d) \), domestic price \( (P_d) \) and Macroeconomic policy as in the export function. Import specification is therefore

\[ M = m(Y_d, P_d, T_p) \]  
(3)
As observed from the theory, remittances flows encourage export for foreign exchange earnings and subsequently, for import financing. Thus, foreign remittances create injection into the economy through increasing exports and hence a favourable balance of trade. This further exposes countries to trade. Thus trade openness can be well fostered through foreign capital flows among other factors. The trade openness model can simply be specified as follows:

\[
\text{TOPENNESS} = f (\text{REM}, \text{EBM}, \text{GCF}, \text{GEX}, \text{BMS}, \text{INST}, \text{INF}, \text{NRES}, \varepsilon,)
\]

\[
\text{TOPENNESS} = \beta_1 + \beta_2 \text{REM} + \sum_{i=1}^{7} \beta_i X_i + \varepsilon
\]

Where \(X_i\) indicate other control variables including economic boom (EBM), gross capital formation (GCF), government expenditure (GEX), broad money supply (BMS), institutional quality (INST), inflation rate (INF) and natural resources (NRES). \(\beta_1, \beta_2, \ldots, \beta_i\) are \(\varepsilon_1 = \varepsilon_2 = \varepsilon_3 = \varepsilon_4 = \varepsilon\) is the error term which independently and identically distributed.

Data for this study is mainly collected from the World Development Indicators

4. Estimation and Discussion

Table 1: Descriptive statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>Std. Dev</th>
<th>J-B Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOPEN</td>
<td>63.28</td>
<td>57.88</td>
<td>30.58</td>
<td>0.00</td>
</tr>
<tr>
<td>ECOBM</td>
<td>5.15</td>
<td>4.78</td>
<td>3.35</td>
<td>0.00</td>
</tr>
<tr>
<td>GEX</td>
<td>12.89</td>
<td>12.78</td>
<td>5.59</td>
<td>0.00</td>
</tr>
<tr>
<td>INST</td>
<td>25.29</td>
<td>21.03</td>
<td>16.99</td>
<td>0.00</td>
</tr>
<tr>
<td>GCF</td>
<td>20.12</td>
<td>18.99</td>
<td>10.54</td>
<td>0.00</td>
</tr>
<tr>
<td>INF</td>
<td>9.06</td>
<td>4.85</td>
<td>14.52</td>
<td>0.00</td>
</tr>
<tr>
<td>ΔMS</td>
<td>25.59</td>
<td>22.10</td>
<td>15.17</td>
<td>0.00</td>
</tr>
<tr>
<td>NATRES</td>
<td>1.91</td>
<td>0.0004</td>
<td>4.48</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Source: Computed using E-views

Descriptive statistics shows the statistical distribution of the variables employed. First, the mean ranges from 1.91 to 63.28 with trade openness variable appearing with the largest mean value and natural resource variable having the lowest mean value over the period. In the same vein, the two variables still have largest and lowest median values. The openness variable also has the greatest spread of 30.58 showing its fluctuating trend over the period. The high level of spread may be connected with the increasing trade relationship in the recent period. The variables do not give evidence of normal distribution as observed from the Jarque-Bera probability values.

Table 2: Panel Unit root test summary

<table>
<thead>
<tr>
<th>Variable</th>
<th>Test Method</th>
<th>Prob.</th>
<th>Cross sections</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOPEN</td>
<td>L, P &amp; S, ADF, PP</td>
<td>0.00, 0.03, 0.04</td>
<td>15,15,15</td>
<td>516,516,516,516</td>
</tr>
<tr>
<td>ECOBM</td>
<td>L, P &amp; S, ADF, PP</td>
<td>0.00, 0.00, 0.00</td>
<td>15,15,15</td>
<td>327,327,327</td>
</tr>
<tr>
<td>GEX</td>
<td>L, P &amp; S, ADF, PP</td>
<td>0.00, 0.00, 0.00, 0.00</td>
<td>15,15,15</td>
<td>481,481,481,497</td>
</tr>
<tr>
<td>INST</td>
<td>L, P &amp; S, ADF, PP</td>
<td>0.00, 0.00, 0.00, 0.00</td>
<td>15,15,15,15</td>
<td>225,225,225,240</td>
</tr>
<tr>
<td>GCF</td>
<td>L, P &amp; S, ADF, PP</td>
<td>0.02, 0.00, 0.00, 0.00, 0.00</td>
<td>15,15,15</td>
<td>484,484,484,499</td>
</tr>
<tr>
<td>INF</td>
<td>L, P &amp; S, ADF, PP</td>
<td>0.00, 0.00, 0.00, 0.00, 0.00</td>
<td>15,15,15</td>
<td>422,422,422,438</td>
</tr>
<tr>
<td>ΔMS</td>
<td>L, P &amp; S, ADF, PP</td>
<td>0.00, 0.00, 0.00, 0.00, 0.00</td>
<td>15,15,15,15</td>
<td>479,479,479,496</td>
</tr>
<tr>
<td>NATRES</td>
<td>L, P &amp; S, ADF, PP</td>
<td>0.00, 0.00, 0.00, 0.00, 0.00</td>
<td>6,6,6,6</td>
<td>210,210,210,210</td>
</tr>
</tbody>
</table>

Source: Computed using E-views
In the pre-estimation tests, the variables employed are subjected to panel unit root to checkmate any likely occurrence of spurious results. The study employs the unit root under “summary” encompassing all the available test statics. The variables-government expenditure, institutional quality, gross capital formation representing domestic investment, inflation and natural resources are stationary in their levels for all the test methods while trade openness and economic boom are stationary for at least three of the methods in their level forms. However, broad money supply is only stationary in its first difference for all the methods.

Table 3: TOPEN estimation Results

<table>
<thead>
<tr>
<th>Variable</th>
<th>OLS POOLED</th>
<th>F.E</th>
<th>R.E</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>4.45</td>
<td>0.17</td>
<td>0.86</td>
</tr>
<tr>
<td>REM</td>
<td>0.81</td>
<td>1.35</td>
<td>0.18</td>
</tr>
<tr>
<td>EBM</td>
<td>0.30</td>
<td>1.22</td>
<td>0.23</td>
</tr>
<tr>
<td>GCF</td>
<td>0.48</td>
<td>2.59</td>
<td>0.01</td>
</tr>
<tr>
<td>GEX</td>
<td>-0.07</td>
<td>-0.12</td>
<td>0.91</td>
</tr>
<tr>
<td>BMS</td>
<td>1.05</td>
<td>2.87</td>
<td>0.01</td>
</tr>
<tr>
<td>INST</td>
<td>-0.18</td>
<td>-0.87</td>
<td>0.44</td>
</tr>
<tr>
<td>INF</td>
<td>-0.03</td>
<td>-0.14</td>
<td>0.89</td>
</tr>
<tr>
<td>NRES</td>
<td>1.06</td>
<td>2.08</td>
<td>0.04</td>
</tr>
<tr>
<td>AR(1)</td>
<td>0.94</td>
<td>0.04</td>
<td>0.00</td>
</tr>
<tr>
<td>R²</td>
<td>0.88</td>
<td></td>
<td>0.64</td>
</tr>
<tr>
<td>Adj R²</td>
<td>0.87</td>
<td></td>
<td>0.55</td>
</tr>
<tr>
<td>F-STA</td>
<td>66.82</td>
<td></td>
<td>6.69</td>
</tr>
<tr>
<td>DW</td>
<td>2.04</td>
<td></td>
<td>0.46</td>
</tr>
<tr>
<td>FE TEST</td>
<td></td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>HAUSMAN RCD test</td>
<td></td>
<td></td>
<td>0.00</td>
</tr>
<tr>
<td>RCD test</td>
<td></td>
<td></td>
<td>0.04</td>
</tr>
</tbody>
</table>

Source: Computed using E-views

The results of estimation on table 3 show the relationship between trade openness, remittance flows and other factors that affect openness for the pooled OLS, fixed effect and random effect models. First, remittance flows, the key variable relate positively with the trade openness only in the pooled OLS but shows negative impacts on openness in both fixed and random effect estimations. For the pooled OLS, a 1% increase in remittances flows increase openness to trade by about 0.8%. By implication, as remittance flows into the receiving countries of ECOWAS facilitate trade through increasing participation within and the global level. This result follows the mercantilist theory that remittance flows increase trade to finance more imports. Economic boom represented by the positive growth of GDP relate positively with trade openness across all equations with the highest coefficient from the random effect model which demonstrates that a 1% positive increase in growth results in about 0.7% increase in trade orientation. A growing economy is expected to facilitate trade relation as demonstrated and is theoretically plausible.

The positive relationship between domestic investment represented by the gross capital formation growth and trade is in line with expectation across all the equations and is significant for the pooled OLS. Increasing domestic investment can facilitate export promotion and hence trade integration. Increase in money supply also facilitates trade as a 1% increase in money supply results in about 1.1% growth in openness to trade. With money supply growth, funds are
readily available for investment purpose with low interest rates. This further ensures higher investment for trade participation. Government expenditure has the largest significant positive coefficient for the random effect model. This is a demonstration that public expenditure can be relevant for trade. Government expenditure is expected to increase trade orientation; however, huge expenses on less productive amenities are not likely to foster trade and hence this retards growth. However, institutional quality has a negative impact on trade openness for each of the pooled OLS, fixed and random effect models. Weak institutional quality in terms of improper trade policy framework ranging from tax, bureaucratic bottlenecks across borders among other malpractices makes trading environment be frustrating and hence retard trade innovation. A 1% increase in inflation slows down trade orientation by about 0.03% in the pooled OLS. Inflation which represents economic instability hinders trade relation. During the period of high economic instability, it is expected that trade integration slows down and vice-versa. Natural resources as expected increases trade openness. A well-diversified natural resources can foster trade and investment environment.

The model has a good fit. The percentage variation in the trade openness left unexplained ranges from 12% to 52% showing that the explanatory power of the independent variables. The D-W value shows absence of serial correlation only in the pooled OLS while the F-statistic values shows the adequacy of the model across all estimations.

On the choice between the fixed effect and the pooled OLS, the redundant fixed effect test statistics supports the fact that fixed effect is a better estimation than the pooled OLS. The Hausman test statistics also supports that fixed effect is better.

For the post-estimation tests, the Residual Cross Sectional Dependence (RCD) test carried out show that residuals are cross sectionally dependent. The heteroscedasticity test statistics confirms the presence of non-homoscedastic error process.

5. Conclusion

A strong argument of globalisation is the increased trade openness among nations, regions and the global world and as such share of trade in global trade has become a good measure of countries’ economic performance. Increase in the volume of trade has increased the standard of living of some notable countries. As a way of boosting trade performance, attention has been called to the relevance of international capital flows such as remittance flows into the region as this increases domestic investment, trade relation and reduces poverty. The poor performance of the African economy has been linked among other reasons to low trade performance. Remittance flows believed to demonstrate some positive impact on trade is seen diverted to suspected irrelevant uses. In this paper, the link between trade openness and remittance flows in ECOWAS region is the focus with the theoretical framework routed from the Mercantilists approach which support remittance flows as key to export promotion to further finance imports. The pooled OLS, fixed effect and random effect estimation methods are employed. Results showed that in the pooled OLS estimation, remittance flows improved trade orientation while it retarded trade orientation in the fixed and random effect estimation for the ECOWAS region while control variables such as economic boom, domestic investment and money supply impacted positively on trade openness in all the estimation methods. However, institutional quality demonstrated negative impacts on trade openness in all estimation methods showing the general institutional quality weakness within ECOWAS region.

Policy implication for the region should be a close monitoring of remittance flows to channeled to productive uses. Trade integration should be fostered through relaxing some stiff trade policy and various bureaucratic bottlenecks. Provision of infrastructural facilities is equally encouraged to pave ways for a well-defined and helpful business and trading environment. This will ensure
massive improvement in domestic productivity for export promotion and hence high foreign exchange in the region.

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Rural Electrification and Small and Medium Entreprises’ (SMEs) Performances in Mvomero District, Morogoro, Tanzania

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Abstract

In recent years, Tanzania has been experiencing increasing in number of SMEs business in rural areas particularly in areas where Rural Electrification Programs (REA) have been well implemented. These programs are always associated with low connecting costs which attract many households to use the energy. This study examined the effects of rural electrification programs to the SMEs’ performances measured in revenues collected by these SMEs. The study was done in Mvomero district, Morogoro. The Ordered Logistic Regression (OLR) model was employed in the data analysis. Tests such as Oparallel and Brant were used to assess the assumptions of parallel lines. Findings on the determinants of electrical adoption reveals that 59.385 percent of SMEs’ owners who have higher revenues adopt electricity while education influence on the electrical adoption among SMEs’ owner is only 8.29 percent. Moreover, findings on the effects of rural electrification programs on SMEs’ performances shows that distance to the nearby transformer, willingness to pay for REA, affordability of the REA programs and adoption of the REA energy among SMEs increase SMEs performances significantly. Consequently, the government is advised to ensure that, through policies and other regulatory roles that rural SMEs get growing up. This can be done if these rural SMEs are enabled to solicit credits from financial facilities to expanding their businesses and making beneficial utilization of REA services. The economic outcome, through multiplier effects in employment creation and subjective economic welfare, might be tremendous.

Keywords: Rural Electrification, SMEs’ Performance, REA programs, Mvomero District.
1. Introduction

Tanzania is a low-middle income country, with a population of about 57.6 million in 2020 (National Bureau of Statistics, 2020). About 73% of the population lives in rural areas. Despite a high rate of growth of 7% in the past decade, poverty reduction has been slow, with approximately 12 million of citizens living in dire poverty while a significant portion of the non-poor population lives just above the poverty line and risks falling into poverty unless proper measures are in place (World Bank, 2017). In the next fifteen years, Tanzania’s labor force is expected to increase from 20 million in 2014, to close to 50 million by 2030 (WB, 2020). Access to affordable, reliable and efficient electricity supply is vital for the increased productivity needed to generate jobs, enhance the living conditions of Tanzanian households and support the attainment of the country’s socioeconomic goals.

Rural electrification is described as a process of improving electrical accessibility to remote and rural part of the country that can be achieved through the mini-grids, national grids networks or the use of expanded renewable energy system such as the use of solar panel or wind power plant and other sources such as bio fuels. Rural electrifications programs in Tanzania began in 1970s with the major aim of increasing accessibility and availability of the reliable sources of power which has been beneficial for multipurpose usage in industrial, domestic or in different commercial activities. Rural electrification is one of important strategy for the increased growth of the economy and socioeconomic development of a country; therefore it has been addressed in a national framework for the reduction of poverty as well as in the Tanzania Development Vision 2025 (URT, 2018).

Access to affordable and reliable electricity is vital for Tanzania’s attainment of its socioeconomic goals such as expanding access to affordable, reliable and modern energy; and ensuring operational and financial sustainability of the sector. Electricity is a fundamental driver of development of SMEs. The growing businesses trend in rural areas in Tanzania increases a need for the electrification in order to facilitate the fastest growing of the sectors and improving the livelihood of the people in the rural areas (Ng’ang’a et al., 2009). Tanzania government has confirmed its commitment to promote SMEs as the result of its great contribution in the gross domestic product (GDP) and employment of which these fall into development programs and policy implications.

Balla (2003) argued that the successfullness of different programs and polices worldwide can only be achieved if there is availability and accessibility to power/energy of which is more important to the rural household in order to increase their production and livelihood. Although, until 2014 the global shortage of electricity was 16 percent with severe burden experienced to the poor and marginalized groups.

Table 1: Small Business Owners by Areas in Tanzania

<table>
<thead>
<tr>
<th>Total SMEs</th>
<th>Dar es Salaam</th>
<th>Other Urban</th>
<th>Rural Areas</th>
<th>Zanzibar</th>
</tr>
</thead>
<tbody>
<tr>
<td>2,754,697</td>
<td>405,902</td>
<td>814,557</td>
<td>1,459,167</td>
<td>75,071</td>
</tr>
</tbody>
</table>

Source: MSMEs National Baseline Survey, 2013

Table 1 identifies that majority of SMEs activities are being carried in rural areas in Tanzania. These different kinds of SMEs can be categorized based on the characteristics of their activities, number of employees and capital available for investment (Table 2) as well as the kind of energy
used during productions or provision of services. Activities such as fish drying, production of charcoal, bricks burning, ceramics firing and the making of local beer to a large extent in most of these rural areas are using biomass as the source of energy. On the other hand, saloons, bars, welders, different types of shops and wood processing SMEs normally use electricity for the refrigeration, entertainments and lightning or processing and cutting woods into pieces (Sawe, 2004).

Moreover, as postulated in the World Bank report (2005) that there is no universally accepted single definition of SMEs in the world. Although there doesn’t exist single acceptable definition of small businesses universally, in the view of this study a small and medium enterprises refers to individually owned and controlled businesses at a local place, the members of the business are mostly but not usually members of the family living under the same roof. The management of the business is individual based so do ownership.

In the context of Tanzania SMEs policy of 2003 provides that micro enterprises are those engaging up to 4 people in most cases family members or employing capital amounting up to Tshs 5 million. The majority of SMEs fall under the informal sector (United Republic of Tanzania SMEs Policy, 2003). Small enterprises are mostly formalized undertaking engaging between 5 to 49 employees with capital investments from Tshs 5 million to Tshs 200 million. Medium enterprises employ between 50 to 99 people or use capital investments from Tshs 200 million to Tshs 800 million.

<table>
<thead>
<tr>
<th>Business Size</th>
<th>Number of Employees</th>
<th>Capital Investment in Machinery (Tzs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro Enterprise</td>
<td>1 to 4</td>
<td>Up to 5 million</td>
</tr>
<tr>
<td>Small Enterprise</td>
<td>5 to 49</td>
<td>Above 5 to 200 million</td>
</tr>
<tr>
<td>Medium Enterprise</td>
<td>50 to 99</td>
<td>Above 200 to 800 million</td>
</tr>
<tr>
<td>Large Enterprise</td>
<td>100+</td>
<td>Above 800 million</td>
</tr>
</tbody>
</table>

Source: MSME National Baseline Survey, 2013

The Tanzania Development Vision (TDV) 2025, highlighted small and medium-sized enterprises (SME) sector as one important contributor to the country’s long-term development. It is estimated that Tanzania’s SME sector consists of more than 3 million enterprises which contribute to 27% of overall GDP. Most of them are in the agricultural sector of which majority of the people employed in agriculture are living in rural areas, and more than half are owned by women. Therefore, examining the rural electrification impacts on the SMEs performance is important in assessing both electrification program and the difference between SMEs using energy and those which are not for the purpose of improving policy and these programs at the same time.

1.1 Rural Electrification Programs

Rural electrification program are defined as programs that aim in facilitating processes of bringing electrical power to remote and rural areas of the country in order to enhance the livelihood improvement. The history of rural electrification programs in Tanzania began in 2000s but officially launched in 2007 after the establishment of the Rural Electrification Agency (REA)
whose main role is to promote and facilitate improved access to modern energy services in rural areas of Mainland Tanzania.

An improved energy supply in the rural areas through public and private sector participation, will contribute significantly in improvement of the livelihoods of the rural population and the attainment of sustainable economic growth. For these reasons, the Rural Energy Board (REB), the Rural Energy Agency (REA), and the Rural Energy Fund (REF) were established and entrusted with the role of promoting, stimulating and facilitating improved access to modern energy services in rural areas through empowering both public and private sector initiatives in rural energy. The Rural Energy Fund (REF) was established by The Rural Energy Act, 2005 for the purpose of providing grants to qualified project developers. The Fund represents a mechanism by which the Rural Energy Board (through REA) fulfills its mandate.

On the other hand, sources of funds for running these programs include:

i. Government, in an annual budgetary allocation

ii. Contributions from international financial organizations, multilateral and bilateral agencies and other development partners

iii. Levies of up to five percent (5%) on the commercial generation of electricity to the national grid; as fees in respect of programmes, publications, seminars, consultancy services and other services provided by the REA

iv. development partners’ contributions to Special Purpose Funds for rural energy

v. Interest or return on investments.

In Mvomero district alone, more than 21 villages have been connected with the REA program under three different phases of which under Phase I only two villages were connected with electricity while 20 and 2 other villages were later connected with electricity under Phase II and III respectively. The development of these projects has been associated with the increase of needs and the number of small businesses and vendors in the districts (URT, 2016)

2. Literature Review

2.1. Rural Electrification and Performance of SMEs

Scholars and researchers are having different opinions on the effects of rural electrification to the performances of the SMEs in the rural areas; with this diversity here are some of the studies that try to explain the electrification effects to the performance of the SMEs.

A TANESCO study of 1992 that assessed the technical, financial and socio-economic impact of REA programs in four districts in Tanzania revealed that three of four energy consumers were entrepreneurs who were dealing with small business mentioned small shops, restaurant (cafeterias) and guest houses. Moreover, the remaining one third of the population used electricity for running light industries in their areas. Therefore, an investment in rural electrification programs is the decision to improve not only the availability and accessibility of the energy but also allowing the smoothly growing of the SMEs sector in the economy (TANESCO, 2016).

Person and Swanson (1996) investigated the effect of electricity supply on the performance of SMEs by making comparisons between SMEs connected in the national grid with those that were not connected to the national grid. The study discovers that all firms that were utilizing the
electricity under the country’s grid had good performances compared to firms that had no electricity at all.

Maleko (2005) made a research on effects of electricity supply services on SMEs in Tanzania. From findings it was shown that SMEs growth rate was noticeably higher in areas with electrical services comparing to those areas that are not connected with electricity. The livelihood situations of most entrepreneurs as well as employees have changed due to the electrification projects which increase performance of SMEs. Improvements in financial assets have been experienced together with an increase of income. Maleko (2005) concluded that rural SMEs are strengthened by increased availability and the reliability of different electrification projects. These stimulate the establishment and expansion of SMEs. Therefore, blackout of electricity or power rationing for these types of enterprises causes low production or stop services provided resulted into low income and slow down a strategy for poverty reduction.

Shahidur et al. (2012) found that businesses in rural areas of developing countries with access to electricity such as home businesses, small commercial shops, grain mills, saw mills, coffee and tea processing and other small-scale enterprises can benefit from rural electrification programmes. In his book “Rural Electrification and Rural Development” Cook (2012) points out that the effect of rural electrification on small businesses should be determined by the nature of the local community, the complimentary programs and the ability of rural entrepreneurs (Shahidur et al., 2012).

Tarun et al., (2013) reports a study on effects of electrical energy access to rural small and medium enterprises. The study intended towards assessing impacts of electrical accessibility on business operation as well as performance for these SMEs in rural areas in Bangladesh. Results are mainly based on a survey study conducted in Khulna, Paikgacha. The study found significant changes on cost of production and increased profit margins as the result of electrification. The study suggested that there is a need to increase number of stakeholders in different areas for improving amount of electrical energy produced in the grid electricity services and supporting rural electrification programs.

Akpan et al., (2013) study on Impact of Rural Electrification to Rural SMEs at Delta villages in Nigeria shows that, average SMEs that are connected with electrical grid in these communities are 16.2 percent higher chances of earning income comparing to SMEs found in communities that are not linked with the electrical grid. Rural electrification is effectively in enhancing development of improvement of rural and urban residents’ livelihood as electricity has multiplier effects in the promotion of investment and welfare betterment. The study further showed that an increase access for capital for investments in electrical generation appliances, rural electricity enables projects in rural context to be able to use electrical devices.

Kidole (2015) did a study on contribution of rural electrification to household income in Moshi District, Tanzania. Specifically, the study aimed at identifying income generating activities undertaken using grid electricity, assessing the contribution of grid to household income as well as identifying the challenges in utiliziation of grid electricity services in income generating activities. The study identified among others, iron wedding, compact disc burning and grain milling as income generating activities influenced by presence of grid electricity. The household annual income ranged from 800,000 TZS to 46,000,000 TZS and there were statistically significant differences in income between households with grid electricity services and those without. In addition, the study identified reliability of services, high application standards, and higher bill as challenges associated with grid electricity services. The study concludes that grid electricity contributes to increased household income. Furthermore, the study recommends that, the
government and development partners should secure necessary financial resources to invest in rural electrification.

In 2015, African Union conducted a study that examined effects of electricity supply in the growth of MSMEs revenues in Ghana by the use of the WB Ghana’s MSMEs data that were collected in 2013 that comprises of 710 MSMEs. The results showed that persistent power blackouts due to the shortage of electricity had negative effects in the growth of the MSMEs revenues. The study further highlighted that, most of the perishable commodities were rotten and hence affecting these businesses heavily and affects owners’ capital. In order to solve these problems that have been seen to lower the growth rate of the MSMEs in Ghana, the study recommended that, Ghana government and African states at large are required to empower the rural electrification programs through establishing policies and initiatives that lead to the proper and timely implementations of the rural electrification programs that will be having a goal of improving people’s life. Through proper investment in the energy sector, African governments will stimulate the expansion of the private sectors in their countries which in turn will open door for the expansion of employment opportunities and hence economic growth (AU, 2015).

Gerald et al., (2018) report a study on the significance of rural electrification in Zimbabwe. The survey included key respondents from the rural electrification agency, provincial stakeholder and beneficiaries in Mudzi district sampled from a population frame of households, businesses, government departments and local leaders. The study concludes that rural electrification has been significant in social development, with low impact on economic development. Many cottage industries including tailoring and welding as well as grocery and workshops had sprung up due to the establishment of electrified rural service centers, this has enabled self-sustaining and repairs to be done within the major growth point thereby speeding up the turn-around times for most activities. The recommendation is that rural electrification in Zimbabwe should be suspended for the next 7 years. Given the shortage of financial resources in the country, the focus on electricity development of the country should be towards reducing or eliminating the energy deficit.

Antoine et al., (2017) did a study on effects of electrifications on rural household and business communities in testing resource based theory for entrepreneurship. The study findings showed that there is an important difference to entrepreneurship opportunities that accelerate the growth SMEs as electrification was reported to increase number of SMEs creation when there is an increase of electrification sites to 33 from 20. Therefore, effects of electrification projects were experienced to households and individual business entrepreneurs’ income as well as increase of their faith and commitment of doing business. Also, future expectations of individuals are strengthened as their communities are connected to electricity. In addition to that, despite of the income gap between men and women, studies have found that electricity programs benefits women largely comparing to men.
2.2 Conceptual Framework

Conceptual framework in Figure 2.1 shows the relationship between electricity adoption and connectivity with the SMEs performances

**Independent Variables**

**Adoption of Electricity**
- Education
- Age
- Gender
- Marital Status
- Family Size
- Distance to nearest transformer
- Capital of business
- Credit Membership

**Connectivity of Electricity**
- Willingness to pay for electrification
- Experience in SMEs activities
- Affordability of electricity
- Quality of electricity
- Operating cost

**Dependent Variable**

SMEs Performance

Figure 2.1: Conceptual Framework

Source: Own Construction, (2020)

Despite of the above discussed literatures yet there are no studies that have discussed impacts of Rural Electrification Programs in the growth of SMEs in Tanzania. Therefore this paper examines impacts of REA programs in the growth of SMEs from the view of selected wards in Mvomero district. Mvomero is one of the six districts in Morogoro region of Tanzania. It is bordered to the north by the Tanga Region, to the northeast by the Pwani Region, to the east and southeast by Morogoro Rural District and Morogoro Urban District and to the west by Kilosa District. The district is situated between 8000° and 10000° South of the Equator and between longitudes 7000° and 8022° East in North East of Morogoro region. With the approximated 7,325 square kilometers of land, the district has 30 wards with famous wards being Melela, Mlali, Doma, and Mgeta which are the areas of the study while others includes Mzumbe, Lubungo, Mtibwa, Dakawa and so forth (NBS, 2019).
2.3 Theoretical Framework

This study employed Cobb-Douglas production function to determine the technical relationship between regressors and regressand. Whereas, Q represented the quantity of productivity of SMEs (regressand), L and K represented the factors influencing SMEs production (regressors) and latter A represents the Total Factor Productivity (TFP) that measures the change in output that is not the result of the inputs. Typically, this change in TFP is the result of improvement in efficiency or technology. The alpha and beta characters reflect the output elasticity of the inputs. Output elasticity is the change in the output that results from a change in either labor or physical capital.

$$Q(L, K) = A \times L^\alpha K^\beta$$  \hspace{1cm} 1.1

Whereby Q is the quantity of products; L is the quantity of labor; K is the quantity of capital; A is a positive constant or total factor productivity while \( \beta \) and \( \alpha \) are constants between 0 and 1.

Electricity infrastructure and consumption or the use of electricity generally it increases with productivity and growth. A number of studies support the conclusion that electricity enhances productivity at the economy wide and the small and medium enterprises (Kirubi, 2008; Grimm et al., 2012). Many small manufacturing firms use electricity predominantly for lighting and communication. Overall, firms with access to electricity tend to have higher productivity than firms without. However, pre-existing conditions (location, access to finance, and management competence) have a strong impact on how access to electricity affects SMEs. Electricity access seems to have higher positive impact on productivity of SMEs (World Bank, 2008; Grimm et al., 2011).

3. Data and Methodology

3.1. Data

Through the cross sectional design a primary data collection techniques were used to collect data from Rural Energy Electrification sites at Mvomero district in Morogoro region of which 257 questionnaires were disbursed out of 720 SMEs who were connected to the REA programs by the use of stratified random sampling which is more flexible than simple random sampling.

$$n = \frac{N}{1 + N(e^2)}$$  \hspace{1cm} 1.2

Whereas;

N – Total number of household heads engaging in SMEs connected to REA

e – Random error at 5 percent level

n – Sample size

$$n = \frac{720}{1 + 720(0.05^2)}$$

$$n \approx 257$$

3.2. Regression Model

Ordered logit model is based on a continuous latent variable. The study used ordered logit model to investigate and determine the effect of variables of Education level of the respondents measured in years of schooling, Distance to the nearest transformer (Km), Experience, Business Capital, Marital Status, Gender of the respondents, Credit Membership, Willingness to pay, Affordability and Operating Cost and the insignificant factors reported were Family Size, Age Squared, and Age of the respondents and impact of each variable on the likelihood of individuals
Ordered logit model is expressed as follows:

\[ y^* = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \cdots + \beta_k x_k + \epsilon_i \]

\[ y^* \text{ being different levels of income of SMEs} \]

\[ y^* = \begin{cases} 
\text{less than 300,000} & \text{if } y^* \leq \mu_1 \\
\text{between 300,000 and 500,000} & \text{if } \mu_1 < y^* \leq \mu_2 \\
\text{between 500,000 and 800,000} & \text{if } \mu_2 < y^* \leq \mu_3 \\
\text{above 800,000} & \text{if } \mu_3 < y^* \leq \mu_4 
\end{cases} \]

\[ y^* = \beta_0 + \beta_1 Edu + \beta_2 DisTransformer + \beta_3 BusCapital + \beta_4 WTP + \beta_5 MaritalStatus + \beta_6 FamilySize + \beta_7 Gender + \epsilon_i \]

### 3.3. Estimation Techniques

The ordered logistic model was used to examine relationship or effects of adoption of rural electrification and connectivity of rural electrification on the performance of SMEs, of which the performances of rural SMEs is measured in term of levels of income generated categorized into three levels of higher, intermediate and lower income in ordered scales (Greene, 2012).

The model is as follows:

\[ y_i^* = \beta' x_i + \epsilon_i \quad -\infty < y_i^* < -\infty \]

Where

- \( y_i^* \): Levels of income of SMEs
- \( \beta' \): Vector of parameters that should be estimated
- \( x_i \): Observed vector of non-random explanatory variable, which shows the characteristic of \( i^{th} \) variable
- \( \epsilon_i \): Residual error, which is logistically distributed

Since \( y_i^* \) is a latent variable, standard regression techniques are not applicable to estimate the sample size. If \( y_i \) is considered as a discrete and observable variable which shows different levels of small and medium enterprises income, the relation between latent variable \( y^* \) and observable variable \( y \) is obtained from ordered logit model as follows:

\[ y_i = 1 \quad \text{if } -\infty \leq y_i^* < \mu_1 \quad i = 1, \ldots, n \]

\[ y_i = 2 \quad \text{if } \mu_1 \leq y_i^* < \mu_2 \quad i = 1, \ldots, n \]

\[ y_i = 3 \quad \text{if } \mu_2 \leq y_i^* < \mu_3 \quad i = 1, \ldots, n \]

\[ y_i = J \quad \text{if } \mu_{j-1} \leq y_i^* < +\infty \quad i = 1, \ldots, n \]

In which \( 'n' \) is the value for the sample size. \( '\mu' \) and \( 's' \) are the thresholds that define observed discrete answers and should be estimated. The probability of \( y_i = j \) should be calculated by the following relation:

\[ \Pr(y_i = J) = \Pr(y_i \geq \mu_{j-1}) = \Pr(\epsilon_i \geq \mu_{n-1} - \beta x_i) = F(\beta x_i - \mu_{j-1}) \]

In cumulative probability expression, ordered logit model estimates the likelihood of person 'I' to be at \( j^{th} \) level or less (1 ..., \( j-1 \)). It should be noted that the answer groups in ordered logit model are ordered.

Ordered logit model is expressed as follows:
\[
\log \left[ \frac{y_j(x_i)}{1 - y_j(x_i)} \right] = \mu_j - [\beta_1 x_{1i} + \beta_2 x_{2i} + \cdots + \beta_k x_{ki}] \tag{1.9}
\]

Whereby \( j = 1 \ldots, J; \ i = 1 \ldots, n \)

In which, \( y_j \) is a cumulative probability of the following:

\[
y_j(x_i) = y(\mu_j - \beta' x_i) = P(y_i \leq j|x_i) \tag{2.0}
\]

\( \beta' \) is the column vector and of \( \beta_1, \beta_2 \ldots \beta_3 \) parameters and \( x_i \) is the column vector of explanatory variables. \( \mu_j \) is only dependent on probability of predicting category and is not dependent on explanatory variables. Furthermore, the other part,

\[
\beta_1 x_{1i} + \beta_2 x_{2i} + \cdots + \beta_k x_{ki} \tag{2.1}
\]

It is the independent part of the category. These two characteristics ensure that the answers groups are ordered and show that the results are a series of parallel lines.

In order to evaluate the hypothesis of equality of the parameters for all the groups, parallel regression test is used. This test compares the estimated model with a series of coefficients for all the groups with a model with a separate series of coefficients for each group. In this case, if the current model, which is the null hypothesis, is accepted, it proves that the status parameters are the same for all the answer groups. \( x^2 \) statistic in parallel regression test is calculated as follows:

\[
x^2 = -2 \log \text{Likelihood}_{\text{cm}} - (-2 \log \text{Likelihood}_{\text{gm}}) \tag{2.2}
\]

in which, \( \text{Gm} \) and \( \text{Cm} \) represent the current and general model respectively. If the calculated \( x^2 \) in more than \( x^2 \) in the table, it indicates the rejection of the null hypothesis that means the current model is estimated correctly. Parameters are estimated by maximum likelihood estimation method, which maximizes the probability of categorization.

\[
L(y|\beta; \mu_1, \mu_2 \ldots \mu_{j-1}) = \prod_{i=1}^{n} \prod_{j=0}^{\beta_j} [(\mu_j - \beta' x_i) - y(\mu_{j-1} - \beta' x_i)]^{z_{ij}} \tag{2.3}
\]

Where \( 'z_{ij}' \) is a binary variable. It equals to 1 when the observed group for person ‘\( i \)’ is ‘\( j \)’, and if they are not equal to zero. Newton-Raphson algorithm is used in maximizing process.

In this model, the interpretation of \( R^2 – \text{pseudo} \) is different and it does not have the typical interpretation. With the increase of the estimates of the model, its value also increases and its value is between zero and one. Berman and Benaque in 1985 introduced the classification accuracy to evaluate the goodness of estimates of the model, which expresses the percentage of correct and incorrect predictions of the dependent variable.

Regarding the interpretation of the coefficients, it should be noted that coefficients are not directly interpreted in this model. In case the predicting variable increases, changes in probability are dependent on two factors: one of them is the predicting value and the other is dependent on other variables; considering the fact that changes in probability are not constant, coefficients are not directly interpreted. Thus, marks are used to change the probability in this model for the extreme groups (first and last). For instance, the positive mark next to \( \beta_k \) coefficient indicates that \( x_k \) increase in predicting variable, decrease the probability of the first category \( (y_i = 1) \), while the probability of the last group \( (y_i = J) \) increase, each act in the opposite direction. In such situations, the directions of the middle categories are not clear. The calculation of the marginal effect of one unit in \( x_k \) predictor on the probability of ‘\( j \)’ category is as follows:

\[
\frac{\delta P(y_i=j|x_k)}{\delta x_k} = \left[ \frac{\delta y(\mu - \beta' x_i)}{\delta x_k} - \frac{\delta y(\mu_{j-1} - \beta' x_i)}{\delta x_k} \right] = \left[ \sigma(\mu_{j-1} - \beta' x_i) - \sigma(\mu_j - \beta' x_i) \beta_k \right] \tag{2.4}
\]
Of which \( \mu_j = +\infty, \mu_* = -\infty, \sigma_j(x_i) = \frac{\delta y_j(x_i)}{\delta x_k} \).

Making decisions about using variables’ value in estimation is very important, because the marginal effect depends on the values of all explanatory variables. Since total probability always equals 1, the total marginal effect for each variable is zero. But it should be noted that the marginal effect is not direct binary variable and it can be obtained by calculating the difference between the two possible probabilities.

4. Discussion of Findings

4.1. Descriptive Statistics

Results on Table 3 Column 3 shows that average age of 257 respondents participated in the survey was 34 years, this is good since it is the age of maturity for most of the respondents and hence have enough experience in the industry. Moreover, majority of the respondents have an average 9 years of schooling implying that most of the respondents have attained the secondary education. Nonetheless, average distance from SMEs businesses to the nearby transformer is 1.46 kilometers while the average capital to all SMEs in Mvomero is Tshs. 400,782.

Table 3: Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Observation</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>257</td>
<td>34.23735</td>
<td>9.826328</td>
<td>17</td>
<td>65</td>
</tr>
<tr>
<td>Education</td>
<td>257</td>
<td>9.645914</td>
<td>2.267965</td>
<td>4</td>
<td>15</td>
</tr>
<tr>
<td>Marital Status</td>
<td>257</td>
<td>0.015564</td>
<td>0.2495131</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Distance to nearest Transformer</td>
<td>257</td>
<td>1.46642</td>
<td>0.6958715</td>
<td>0.01</td>
<td>2.9</td>
</tr>
<tr>
<td>Capital</td>
<td>257</td>
<td>400782.1</td>
<td>336936.1</td>
<td>20000</td>
<td>3600000</td>
</tr>
<tr>
<td>Farm Size</td>
<td>257</td>
<td>4.700389</td>
<td>2.636826</td>
<td>1</td>
<td>12</td>
</tr>
</tbody>
</table>

Figure 3.1 shows the distribution of SMEs owner by gender of which the numbers of male SMEs owner were 159 (62%) while female owners were 98 (38%) of which this is concurrent to the national baseline survey report which shows that male SMEs owners in rural areas of Tanzania entails 32.3%, female were 17.7% and those owned nd managed by both males and females were 47.1% (National MSME Baseline Survey, 2012).

Figure 3.1: Distribution of SMEs Owner by Gender
4.2 Regression Results

In order to establish good analysis on the effects of rural electrification programs; an analysis on the determinants for the electricity adoption has been made in order to capture the clear picture on the effects

4.2.1 Determinants of Electricity Adoption

<table>
<thead>
<tr>
<th>Determinant</th>
<th>Probit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male = 1</td>
<td>0.0853705</td>
</tr>
<tr>
<td>Female = 0</td>
<td>[0. 2388851]</td>
</tr>
<tr>
<td>Age</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0337133***</td>
</tr>
<tr>
<td></td>
<td>[0. 0116483]</td>
</tr>
<tr>
<td>Years of Schooling</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0829076*</td>
</tr>
<tr>
<td></td>
<td>[0. 0453649]</td>
</tr>
<tr>
<td>Marital Status</td>
<td></td>
</tr>
<tr>
<td>Married = 1</td>
<td>0.6549307***</td>
</tr>
<tr>
<td></td>
<td>[0. 2284346]</td>
</tr>
<tr>
<td>Single = 0</td>
<td></td>
</tr>
<tr>
<td>Farm size</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0522817</td>
</tr>
<tr>
<td></td>
<td>[0. 0380566]</td>
</tr>
<tr>
<td>Distance to nearby Transformer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.3834045***</td>
</tr>
<tr>
<td></td>
<td>[0. 1364013]</td>
</tr>
<tr>
<td>Dummy of affording electrical cost in business</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-0.0450976</td>
</tr>
<tr>
<td></td>
<td>[0. 237839]</td>
</tr>
<tr>
<td>Years of experience in business</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-0.0189352</td>
</tr>
<tr>
<td></td>
<td>[0. 0305586]</td>
</tr>
<tr>
<td>Capital</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.54e-07</td>
</tr>
<tr>
<td></td>
<td>[3.64e-07]</td>
</tr>
<tr>
<td>SMEs Revenues</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.593852***</td>
</tr>
<tr>
<td></td>
<td>[0. 1136861]</td>
</tr>
</tbody>
</table>

***, ** and * show significance level at 1%, 5% and 10% respectively. Standard errors are in parenthesis.

SMEs revenues, years of schooling (education), gender, farm size and capital have been found to influence entrepreneurs’ decision to adopt the usage of electricity positively despite not being statistically significant.

On the other hand, education measured in years of schooling has been found to influence electricity adoption by 8.290 percent. Married entrepreneurs have higher chances of adopting electricity by 65.493 percent comparing to single or unmarried entrepreneurs.

On top of that, distance to the nearby transformer increases probability of SMEs’ decision to adopt electricity by 38.340 percent; therefore the more transformers are built closer to SMEs activities the more it influences their decisions to adopt it.
Moreover, SMEs revenues have been also found to influence entrepreneurs’ decisions on adopting the use of electricity by 59.385 percent of which this can further be interpreted as entrepreneurs with higher revenues have higher chances of adopting electrical usage.

### 4.2.2 Effects of Rural Electrification Programs on SMEs Performances

Results presented in odds ratio at Column 2 of Table 4 shows that variables such as gender, education measured in years of schooling, credit membership willingness to pay, distance to the nearby transformer, ability of the SMEs to afford cost of paying REA, years of experience in business, business capital and operating costs are significant factors in the study while factors like age, marital status, farm size and household electrified by REA were not statistically significant.

Female SMEs business owners whose household have been electrified by REA are experiencing an increase in the odds of getting higher revenues by 1.249 times greater than males SMEs business owners. This is seconded by the study of Shamdur et al., (2012) who found that females’ entrepreneurs enjoy higher revenues than male in India.

On the other hand, the odds of SMEs owner with higher education measured in number of years of schooling is 1.313 higher in getting higher revenues and performing well in business than SMEs owner that have less number of years of schooling revenue compared to those who have spent fewer years in education at schools when all factors are remained constant.

An increase in the willingness of the SMEs to pay for the REA electrification services increases the odds of SMEs having higher revenues and enjoying good business performances by 2.149 higher than those who are not willing to pay for the energy. This result is concurrent with the study made by Obeng (2007) in Ghana who found that SMEs willingness to pay for the energy increases their monthly revenues comparing to those who quit from the energy use and turned into other sources of energy other than rural electrification. Moreover, when the cost of paying REA is increasing its odds reduces chances of SMEs having higher revenues comparing to uncertainty related with decision and perception of increasing costs.

### Table 4: Ordered Logistic Regression

<table>
<thead>
<tr>
<th></th>
<th>ologit</th>
<th>Odds Ratio</th>
<th>Marginal Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male = 1</td>
<td>1.249467***</td>
<td>3.488482***</td>
<td>-0.0587919***</td>
</tr>
<tr>
<td>Female = 0</td>
<td>[0.4205253]</td>
<td>[1.466995]</td>
<td>[0.01972]</td>
</tr>
<tr>
<td>Age</td>
<td>-0.0948171</td>
<td>0.9095393</td>
<td>0.0053736</td>
</tr>
<tr>
<td></td>
<td>[0.0874236]</td>
<td>[0.0795152]</td>
<td>[0.00504]</td>
</tr>
<tr>
<td>Age squared</td>
<td>0.0013997</td>
<td>1.001401</td>
<td>-0.0000793</td>
</tr>
<tr>
<td></td>
<td>[0.0011596]</td>
<td>[0.0011613]</td>
<td>[0.00007]</td>
</tr>
<tr>
<td>Years of Schooling</td>
<td>0.2727012***</td>
<td>1.313508***</td>
<td>-0.0154548***</td>
</tr>
<tr>
<td></td>
<td>[0.0660406]</td>
<td>[0.0867448]</td>
<td>[0.00455]</td>
</tr>
<tr>
<td>Dummy of Marital Status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married = 1</td>
<td>-0.4546439</td>
<td>0.634674</td>
<td>0.0253351</td>
</tr>
<tr>
<td>Single = 0</td>
<td>[0.3357022]</td>
<td>[0.2130614]</td>
<td>[0.019]</td>
</tr>
<tr>
<td>Dummy of Credit Membership</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member of Credit</td>
<td>1.367808***</td>
<td>3.926732***</td>
<td>-0.1078945**</td>
</tr>
<tr>
<td>Not Member</td>
<td>[0.4129186]</td>
<td>[1.621421]</td>
<td>[0.04562]</td>
</tr>
</tbody>
</table>

60
<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>t-value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm size</td>
<td>-0.0646493</td>
<td>0.0587497</td>
<td>-0.0036639</td>
<td>0.9373962</td>
</tr>
<tr>
<td>Dummy of Willingness to Pay</td>
<td>0.7650367***</td>
<td>0.3413827</td>
<td>2.149073**</td>
<td>0.0469299***</td>
</tr>
<tr>
<td>Willing to Pay = 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not Willing to Pay = 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distance to nearby Transformer</td>
<td>-0.3634139*</td>
<td>0.2008998</td>
<td>-0.0469299**</td>
<td>0.00336</td>
</tr>
<tr>
<td>Dummy of affording electrical cost in business</td>
<td>2.136546***</td>
<td>0.3857013</td>
<td>8.470133***</td>
<td>-0.1830599***</td>
</tr>
<tr>
<td>Dummy of SMEs household electrified by REA</td>
<td>0.3556335</td>
<td>0.3747453</td>
<td>0.0183508</td>
<td>0.3747453</td>
</tr>
<tr>
<td>Electrified = 1</td>
<td>1.427084</td>
<td>0.5347932</td>
<td>0.05122</td>
<td></td>
</tr>
<tr>
<td>Not electrified = 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dummy of Increasing cost</td>
<td>-1.711018***</td>
<td>0.4541463</td>
<td>0.1621815**</td>
<td>0.06422</td>
</tr>
<tr>
<td>Increasing cost = 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncertainty = 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dummy of Decreasing cost</td>
<td>-1.320476***</td>
<td>0.3640058</td>
<td>0.0958262**</td>
<td>0.03401</td>
</tr>
<tr>
<td>Decreasing cost = 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uncertainty = 0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years of experience in business</td>
<td>0.2085332***</td>
<td>0.0510564</td>
<td>-0.0118182***</td>
<td>0.00353</td>
</tr>
<tr>
<td>Capital</td>
<td>1.14e-06**</td>
<td>[5.67e-07]</td>
<td>-6.44e-08**</td>
<td>[0.00000]</td>
</tr>
<tr>
<td>Average operating cost</td>
<td>1.19937***</td>
<td>[0.19596]</td>
<td>-0.067972***</td>
<td>[0.01532]</td>
</tr>
</tbody>
</table>

**Strength of Instrument**

<table>
<thead>
<tr>
<th>Metric</th>
<th>Coefficient</th>
<th>Standard Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pseudo R square</td>
<td>0.3616</td>
<td>0.3616</td>
</tr>
<tr>
<td>Chi 2</td>
<td>0.0000</td>
<td>0.0000</td>
</tr>
<tr>
<td>Number of observation</td>
<td>257</td>
<td>257</td>
</tr>
</tbody>
</table>

***, ***, *** and * show significance level at 1%, 5% and 10% respectively. Standard errors are in parenthesis.

An entrepreneur with higher years of experience in the use of REA energy source in their businesses has greater odds of having higher revenues by 1.231 emphasizing that increase in years of experience increase ability for these SMEs to find better means of acquiring higher income compared to those with fewer years’ counterparts. These results are similar to the findings obtained by Tarun and Ambarish (2013) when examining impacts of rural electrification to SMEs of which showed that SMEs owner with more years of experience in the use of this energy source had more revenues comparing to those with less years of experience.

SMEs capital was found to be a significant predictor of what an entrepreneur gets in terms of revenue after adopting rural electricity. Therefore an increase in SMEs business capital by 1 Tshs increases odds of SMEs to earn more revenues through their activities. Hence, those who had good business performances in Mvomero were more likely to have higher business capitals compared to those whose performance was fair or bad.
Nonetheless, an increase in the average distance to the nearby transformer by 1 km increases odds of having higher revenue by 0.695 due to the multiplicative effects of unit energy price, distance that lead to the increase of SMEs products’ prices and later lead to the increase in the SMEs revenues. This can be justified with the results shown at Column 1 in Table 3 which shows that an average increase of distance the nearby transformer reduces the SMEs revenues by 36%. Therefore, those who stay nearer to the transformer were more likely to get higher SMEs revenue compared to those who stay far from the transformer, when all factors are remained constant.

In addition to the above findings, entrepreneurs being members of credit association increases odds of having higher revenues by 3.926 than those who are not members of any credit association. Through being members they are getting loans which help them paying for electrical bills that enhance the increase in the revenues. The results are similar to the study made by Akpan et al., (2007) in Nigeria that indicated that being member of credit association increase chance for both having better SMEs performances and rural electrification by 22%.

There is a notion that married couples earn more comparing to singles. Results on Table 4 Column 2 show that the odds ratio of married SMEs owner having higher revenues is 0.634. These findings are consistent with those of Shahidur et al., (2012) who argued that couples tend to support each other in various activities to increase the household and business income in different adversities.

SMEs owners who are engaging in the agricultural actives have odds ratio of 0.937 in earning higher revenues from businesses comparing to SMEs owners who are only engaging in business activities alone. This has been further documented by Tarun et al., (2013) that SMEs who are engaging in agricultural activities can use income generated from agriculture to stimulate growth of their businesses at times when their business are growing slowly and hence overcome numerous business challenges.

**Testing Model Assumptions**

<table>
<thead>
<tr>
<th>Table 5: Brant Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brant</strong></td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td>Brant</td>
</tr>
</tbody>
</table>

There are several ways of testing proportional odds or parallel lines assumptions of the ordered logit model with the famous one being brant test which clarifies exact assumption. Table 5 brant test results shows results for each individual independent variable.

<table>
<thead>
<tr>
<th>Table 6: Tests of the Parallel Regression Assumption (Oparallel Test)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chit²</strong></td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td>Wolfe Gould</td>
</tr>
<tr>
<td>Brant</td>
</tr>
<tr>
<td>Score</td>
</tr>
<tr>
<td>Likelihood ratio</td>
</tr>
<tr>
<td>Wald</td>
</tr>
</tbody>
</table>

A significant test static at Table 6 provides evidence that the parallel regression assumptions has been violated of which is due to fact that the sample is small hence it is not at all unusual to find out that proportional odds assumptions is violated.
Table 7: Chi Square

<table>
<thead>
<tr>
<th>SMEs level of Performance based on Revenues collected</th>
<th>Home/Residence Electrified by REA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than Tshs 300,000</td>
<td>No</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>34</td>
</tr>
<tr>
<td>Between Tshs 300,000 and 500,000</td>
<td>No</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>50</td>
</tr>
<tr>
<td>Between Tshs 500,000 and 800,000</td>
<td>No</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>63</td>
</tr>
<tr>
<td>Tshs 800,000 and above</td>
<td>No</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
<td>61</td>
</tr>
<tr>
<td>Total</td>
<td>No</td>
<td>49</td>
</tr>
</tbody>
</table>

Pearson $\chi^2 (3) = 14.7742$

$Pr = 0.002$

5. Conclusion

The principal finding emerging from this study justifies that REA programs enhances the growth of businesses and employment creations. As observed from Mvomero district of which 257 SMEs owners who are electrified by REA from Melela, Mlali, Doma and Mgeta wards provision of grid access improves the performance of Small and Medium Enterprises. A clearly positive effect of electrification can be observed by the creation of electricity reliant firms in the access region. They use more electric appliances and have better market access because they offer new products to the local population as well as selling semi-finished products to other enterprises in the Mvomero region.

As a consequence, the reliant firms perform better and generate income exceeding those of other connected and non-connected manufacturing firms. Nevertheless, potential crowding out effects on firms that had existed already before electrification potentially reduces the net effect on the local economy. Therefore, the study have justified that increase accessibility and affordability of Rural Electrification programs have multiplier effects in the growth of SMEs business and increase in the level of the SMEs performances measured in revenues collected by these SMEs.

6. Policy Implications

The following are the policy implications based on the major findings and conclusions. First, limited market access in Morogoro region can be suspected to be major reason for weak productive take up of electricity. Hence, if substantial productive electricity uses are desired, the electrification programs should preferentially be targeted at regions that have sufficient market potential to accommodate expanded production as it has found in this study that REA programs have positive impacts in the creation and increase or expansion of the available markets. Second, based on the findings at Table 4 the project should be accompanied by technical and possibly financial assistance to assess productive use potentials as it has been found that having stable and high capital increases chances for the SMEs to adopt Rural Electrification Programs as well as experiencing high revenues. In this regard, business development services can raise awareness about cost structures and existent and non-existent market opportunities. Third, improved access to credits can serve in helping manufacturers to finance the costs of switching to electrified production. Such assistance has to be open towards the result. Finally, to ensure that there are sufficient funds for electrification projects, there is need to have sufficient, timely and fairly distributed government disbursements of funds in the project of rural electrification to the projects. Through this it helps the implementation of grid extension into areas that are not connected to the grids.
Reference


Tanzania Electrical Supply Company (TANESCO) 2016, 2017 and 2018 Report


APPENDICES

Appendix A

Determinants of Electrical Adoption among SMEs

```
.probit AdoptEl Dgender Age Educ DMarital FarmSize Distance DAfford Experinc Capital SMEReven

Iteration 0:  log likelihood =  -173.4389
Iteration 1:  log likelihood =  -130.21551
Iteration 2:  log likelihood =  -129.33981
Iteration 3:  log likelihood =  -129.33919
Iteration 4:  log likelihood =  -129.33919

Probit regression                     Number of obs  =      257
LR chi2(10)   =      88.20
Prob > chi2   =     0.0000
Log likelihood =  -129.33919          Pseudo R2     =      0.2543

        | Coef.     Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------|---------|------------------|------|-------|------------------
    AdoptEl  |         |                  |      |       |                  |
             |    Dgender |     .0853705     | .2388851 |  0.36 |  0.721  | -.3828356        | .5535767 |
             |     Age    |     .0337133     | .0116483 |  2.89 |  0.004  |  .0108831         | .0565435 |
             |     Educ   |     .0829076     | .0453649 |  1.83 |  0.068  |  -.006006         | .1718211 |
            |   DMarital |     .6549307     | .2284346 |  2.87 |  0.004  |  .2072072         | 1.102654 |
             |   FarmSize |     .0522817     | .0380566 |  1.37 |  0.170  |  -.0223079        | 1.268713 |
             |   Distance |     .3834045     | .1364013 |  2.81 |  0.005  |  .1160629         | .6507461 |
            |    DAfford |    -.0450976     | .2378399 | -0.19 |  0.850  |  -.5112535        | .4210583 |
             |   Experinc |    -.0189352     | .0305586 | -0.62 |  0.535  |  -.788291         | .0409586 |
             |     Capital|     3.54e-07     |  3.64e-07 |  0.97 |  0.331  |  -3.59e-07        |  1.07e-06 |
            |  SMEReven  |     .593852      | .1136861 |  5.22 |  0.000  |  .3710314         | .8166726 |
            |     _cons  |   -4.383992     | .7837607 | -5.59 |  0.000  |  -5.920134        | -2.847849 |
```
Appendix B

Effects of Rural Electrification Programs on SMEs Performances (SMEs revenues)

<table>
<thead>
<tr>
<th>Iteration</th>
<th>log likelihood</th>
</tr>
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<tr>
<td>0</td>
<td>-352.92766</td>
</tr>
<tr>
<td>1</td>
<td>-233.11917</td>
</tr>
<tr>
<td>2</td>
<td>-225.47777</td>
</tr>
<tr>
<td>3</td>
<td>-225.32672</td>
</tr>
<tr>
<td>4</td>
<td>-225.32666</td>
</tr>
<tr>
<td>5</td>
<td>-225.32666</td>
</tr>
</tbody>
</table>

Ordered logistic regression

| Coef.  | Std. Err. | z     | P>|z|  | 95% Conf. Interval |
|--------|-----------|-------|------|----------------------|
| Dgender 1.249467 0.4205253 2.97 0.003 0.4252524 2.073681 |
| Age -0.0948171 0.0874236 -1.08 0.278 -0.2661643 0.0765301 |
| Age_Sq 0.0013997 0.0011596 1.21 0.227 -0.0008731 0.0036726 |
| Educ 0.2727012 0.0660406 4.13 0.000 0.1432641 0.4021384 |
| DMarital -0.4546439 0.3357022 -1.35 0.176 -1.112608 0.2033203 |
| DCredit 1.367808 0.4129186 3.31 0.001 0.558502 2.177113 |
| FarmSize -0.0646493 0.0587497 -1.10 0.271 -0.1797965 0.0504979 |
| DWTP 0.7650367 0.3413827 2.24 0.025 0.0953839 1.434135 |
| Distance -0.3634139 0.2088998 -1.81 0.070 -0.7571702 0.0303425 |
| DAfford 2.136546 0.3857013 5.54 0.000 1.380586 2.892507 |
| DREA 0.3556335 0.3747453 0.95 0.343 -0.3788537 1.090121 |
| DIC -1.320476 0.3640058 -3.63 0.000 -2.033914 -2.6070379 |
| DDC -1.711018 0.4541463 -3.77 0.000 -2.601129 -0.8209078 |
| Experinc 0.2085332 0.0510564 4.08 0.000 0.1084645 0.308602 |
| Capital 1.14e-06 5.67e-07 2.01 0.045 2.62e-08 2.25e-06 |
| OperCost 1.19937 0.19596 6.12 0.000 8.152955 1.583444 |

/cut1 4.423825 1.777539 .9399126 7.907738
/cut2 6.307169 1.811375 2.756939 9.857399
/cut3 9.11114 1.856692 5.472091 12.75019
Appendix C

Marginal Effects to measure Effects of Rural Electrification Programs on SMEs Performances (SMEs revenues)

. mfx

Marginal effects after ologit
\[ y = \Pr(\text{SMEReven}=1) \] (predict)
\[ = .06031044 \]

| variable     | dy/dx    | Std. Err. | z  | P>|z| | 95% C.I. | X        |
|--------------|----------|-----------|----|-----|---------|----------|
| Dgender*     | -.0587919| .01972    | -2.98 | 0.003 | -.097435 | .020149  | .291829 |
| Age          | .0053736 | .00504    | 1.07 | 0.287 | -.004508 | .015255  | .342374 |
| Age_Sq       | -.0000793| .00007    | -1.18 | 0.237 | -.000211 | .000052  | 1.26838 |
| Educ         | -.0154548| .00455    | -3.39 | 0.001 | -.024378 | -.006532| .946591 |
| DMarital*    | .0253351 | .019      | 1.33 | 0.182 | -.011906 | .062576  | .55642  |
| DCredit*     | -.1078945| .04562    | -2.36 | 0.018 | -.197314 | -.018475| .747082 |
| FarmSize     | .0036639 | .00336    | 1.09 | 0.275 | -.002916 | .010244  | 4.70039 |
| DWTP*        | -.0469299| .02388    | -1.97 | 0.049 | -.093735 | -.000125| .595331 |
| Distance     | .0205958 | .01195    | 1.72 | 0.085 | -.002834 | .044026  | 1.46642 |
| DAfford*     | -.1830599| .05122    | -3.57 | 0.000 | -.283458 | -.082661| .677043 |
| DREA*        | -.0183508| .01768    | -1.04 | 0.299 | -.052998 | .016297  | .190661 |
| DIC*         | .0958262 | .03401    | 2.82 | 0.005 | .029175  | .162478  | .319066 |
| DDC*         | .1621815 | .06422    | 2.53 | 0.012 | .036322  | .288041  | .178988 |
| Experinc     | -.0118182| .00353    | -3.35 | 0.001 | -.018728 | -.004908| 5.51556 |
| Capital      | -6.44e-08| .00000    | -1.94 | 0.052 | -1.3e-07 | 5.5e-10 | 400782  |
| OperCost     | -.067972 | .01532    | -4.44 | 0.000 | -.098005 | -.037939| 2.38911 |

(*) dy/dx is for discrete change of dummy variable from 0 to 1
Appendix D

Tests of Parallel Regression Assumption

Tests of the parallel regression assumption

<table>
<thead>
<tr>
<th></th>
<th>Chi2</th>
<th>df</th>
<th>P&gt;Chi2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wolfe Gould</td>
<td>124.9</td>
<td>32</td>
<td>0.000</td>
</tr>
<tr>
<td>Brant</td>
<td>72.97</td>
<td>32</td>
<td>0.000</td>
</tr>
<tr>
<td>score</td>
<td>134.5</td>
<td>32</td>
<td>0.000</td>
</tr>
<tr>
<td>likelihood ratio</td>
<td>149.9</td>
<td>32</td>
<td>0.000</td>
</tr>
<tr>
<td>Wald</td>
<td>74.27</td>
<td>32</td>
<td>0.000</td>
</tr>
</tbody>
</table>

. oparallel, brant asl mcci nodots

Test of the parallel regression assumption

<table>
<thead>
<tr>
<th></th>
<th>Chi2</th>
<th>df</th>
<th>P&gt;Chi2</th>
<th>ASL</th>
<th>[95% MC CI]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brant</td>
<td>258</td>
<td>30</td>
<td>0.000</td>
<td>0.002</td>
<td>0.000 0.006</td>
</tr>
</tbody>
</table>
The Influence of Compliance With Bank’s Credit Guidelines on Profitability of Commercial Banks in Uganda

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Abstract
The study investigated the influence of compliance with the bank's credit guidelines on the profitability of the commercial bank in Uganda. Using Stanbic Bank as the case study, the study utilized a correlational cross-sectional survey design. Semi-structured questionnaires and interviews were used to collect data from a sample of employees and clients. Data were analyzed using the narrative, descriptive, Pearson correlation, and linear regression analyses. Findings revealed that compliance with the bank's credit guidelines significantly influences the profitability of the Stanbic bank. A bank which insists on payment under agreed credit guidelines and which is prepared to take action to recover the debts is most likely to be paid in full and on time and this promotes profitability and a need to have well-set bank credit guidelines. It is the flexibility of the credit guidelines agreeable to both the client and the bank that results into increased customer base and a timely payment which improves the bank’s profitability.

Keywords: Compliance with bank’s credit guidelines, profitability, commercial banks, and Uganda.
1. INTRODUCTION

Due to the importance of economic resource allocation, the performance of commercial banks has been one of the issues that have recently captured the attention of many researchers. Throughout the world, the banking industry plays a major role in economic growth and development through the provision of credit to execute economic activities (Kibor, Ngahu & Kwasira, 2015). Lending is the principal business activity for most commercial banks, and as such all of them must have well-defined credit guidelines and comply with them for their safety and soundness. The bank’s credit management practices involve all activities carried out by a bank to ensure that customers pay for the products or services rendered to them based on the trust that payment will be made in the future (Warsame, 2016). These practices focus on a bank implementing all the methods and strategies that ensure that it maintains an optimal level of credit and its effectiveness. These practices include all methods carried out in credit analysis, credit rating, credit classification, and credit reporting. This study however analyzed just those related to enforcing compliance with credit guidelines.

Beyond the intermediation function, the financial performance of banks has critical implications for the economic growth of countries. Good financial performance rewards the shareholders for their investments. This in turn encourages additional investment and brings about economic growth. On the other hand, poor banking performance can lead to banking failure and crisis which have negative implications on economic growth (Okoth-Ongare, Gremechu, 2013). This shows how important financial performance especially the profitability of commercial banks is, and studying factors that affect the profitability of commercial banks and how they become profitable becomes imperative if their objectives are to be achieved.

In the early 1990s, Uganda embarked on banking sector reforms, focusing on improving bank performances, through liberalization and strengthening prudential regulations (Bategeka & Okumu, 2010). Despite the extensive reforms of the financial sector in Uganda during the 1990s, the financial depth in the country has remained very low and hasn’t improved over the years. Commercial performance has been poor, characterized by low levels of private credit, high-interest rate spreads, high level of non-performing loans, poor asset quality, operational inefficiencies, and banks have suffered a massive decline in their profitability (Mpuga, 2002).

There is a declining trend in average profits (Bank of Uganda, 2016). Particularly Stanbic bank the largest bank in the country, being reported on in this study has failed to meet its profitability targets for the last four years (Bank of Uganda, 2016). Stanbic Bank has over 80 branches and over 170 ATMs spread in strategic locations both in urban and rural areas. The Bank’s loan portfolio stood at 4.46 trillion as of 31 December 2016, and its total accounts were 665,417 (265,000 deposit accounts and 400,417 loan accounts) (Stanbic Bank Uganda, 2016). The bank has been operating an increasing loan portfolio, but its portfolio at risk has also been rising and the realized profitability has been steadily declining over the years. Thus, to take precautionary and mitigating measures, there is a dire need to understand the performance of commercial banks in Uganda and their determinants. One way to expedite the profitability of these banks is to identify factors affecting them, which factors can be manipulated to positively influence profitability in question.

A bank whose profitability is declining calls for an investigation into the underlying factors. This study, therefore, sought to investigate whether enforcing compliance with credit guidelines is among these factors. Accordingly, its objective was to examine the influence of compliance with the Bank’s credit guidelines on the profitability of Stanbic bank. The null hypothesis tested in this study was that “there is no statistically significant influence of
compliance with the bank’s credit guidelines on the profitability of commercial banks in Uganda."

2. THEORETICAL FRAMEWORK

In commercial banks, there is the board as the main organ of the bank to minimize conflict between shareholders and managers and sub-committee like an audit committee and credit committee. The audit committee plays the role not only as a bridge between board and management but also as a safeguard to all stakeholders and ensures that there is compliance with all policies and guidelines approved. The credit committee handles the loan process in line with approved policies and credit guidelines. An effective credit committee improves the bank’s loan portfolio quality and enhances its profitability since the loan activities constitute the biggest business of these banks (Buwule, 2016).

The issue of effectiveness and practices of these organs (Board of directors, audit committee, and credit committee) and their impact on the organization’s value is covered in some accounting, finance, and corporate governance theories, for example, agency theory. In the discussion of the agency relationship and cost, Jensen & Meckling (1976), describes agency relationship as a contract under which one or more person(s) principal(s) engage another person (agent) to perform some services on their behalf, which involves delegating some decision making authority to the agent. In order to better align agent-principal interests, earlier agency theorists (Jensen & Meckling, 1976), suggested having an effective governance system which among other things involves the appointment of the board and other sub-committees. The agency theory suggests that managers be monitored by those organs to ensure that they discharge their duties in the best interests of all stakeholders. An agency relationship is a delegation of power by owners to management (Muth & Donaldson, 1998). It is a contractual process whereby owners delegate some of their authority and responsibilities to a team consisting of expert members and expect them to exercise their expertise in the best interest of the firm’s operational success.

The extent of agency conflicts varies across the firms depending on the level of discretionary power applied by management (Mohiuddin & Yusuf Karbhari, 2010). For accountability purposes, management decisions, and other organizational activities, there is a need to have close monitoring in banks. The board assumes an oversight role of monitoring the Chief Executive Officer (CEO) and other staff approving the institution's strategies, policies, and operating guidelines and evaluating control systems. The board delegates some of its loan management responsibilities to the credit committee. The audit committee is another organ under the corporate governance framework in banks and supervises all the financial activities of the bank and ensures compliance with all approved policies and guidelines of the bank. These bank’s organs (board of directors, audit committee, and credit committee) as documented by previous studies, if effective, can resolve the agency problems (Chen, Duh & Shiue 2008, Dey, 2008). These organs can act as a bridge where distance in terms of trust might exist due to the communication gap between managers and stakeholders (Mohiuddin & Yusuf Karbhari, 2010). Using the agency theory, the board of directors, audit committee and credit committee practices are expected to reduce on the agency problems and costs by enforcing compliance and therefore can be used to describe, explain, understand and predict profitability in banks, since they improve quality of accounting information and accountability and increase on these institutions returns and profitability.
3. LITERATURE REVIEW

Profitability

Profitability is the ultimate end that every bank strives to attain from all the practices it carries out (Noman, Pervin, Chowdhury, and Banna, 2017). It refers to the degree at which any firm such as a bank realizes a financial gain after deducting its expenses and taxes (Noman et al., 2017). Profitability is the business’s ability to generate earnings as compared to its expenses/costs incurred. Profitability refers to the number of profits received relative to the amount invested often measured by the rate of profit or rate of investment. It answers the question of whether one is making enough money for the efforts invested in the business (Nabaasa, 2009). Profitability is the primary goal of all business ventures. Without profitability; the business will not survive in the long run (Buwule, 2017). Profits are the most important measure of the firm’s performance. It is also the major issue, which is important to shareholders because most of them are interested in seeing how their resources are used, which is possible by looking at the profits made at the end of the business accounting period (Pandey, 2000). Whether you are recording profitability for the past period or projecting profitability for the coming period, measuring it is the most important measure of success of the business. A business that is not profitable cannot survive. On the other hand, a highly profitable business can reward its owners with a large return on investment (Buwule, 2017).

A sound profitable banking sector can withstand negative shocks and contribute to the stability of the financial system (Athanasonglou, Sophocles & Matthaios, 2005). Poor banking performance has a negative repercussion on the economic growth and development. Poor performance can lead to runs, failures, and crises. Thus, to avoid the failures, due attention in this study was given to banking profitability.

In this study, profitability is measured in terms of Return on Assets (RoA) and Return on Equity (RoE). Return on assets falls within the domain of performance measures and tracks financial institution’s ability to generate income based on its assets. Return on assets provides a broader perspective compared to other measures as it transcends the core activity of financial institutions namely, providing loans, and tracks income from operating activities including investment, and also assess profitability regardless of the bank’s income structure. Return on assets is expected to be positive as a reflection of the profit margin of the bank. Return on equity measures the returns produced for the owners. Therefore, in banks and other commercial institutions, the most common measures of profitability are the return on assets, which reflect the organization’s ability to use its assets productively and return on equity which measures the returns produced for the owners.

Compliance with bank’s Credit Guidelines and Profitability

Credit guidelines are stipulations under which a firm grants credit to its clients and include areas such as credit period, credit limits of special terms, etc. The more liberal the credit guidelines, the higher are likely to be the level of credit sales and receivables because more customers will be willing to take credit sales. Credit guidelines neither need to be relaxed nor strict but should be moderate to minimize risks in receivables and to optimize cash flows (Aketch, 2017, Buwule, 2004). Ralton (2004), also aver that sound lending procedures in retail financial institutions involve identifying high-risk applicants and modifying loan to achieve a balance between the institution’s social objectives of improving loan accessibility so that members can attain lifestyle goals and the possibility of reducing the institution’s viability through loan default. Banks enforce clients’ compliance with credit guidelines to minimize default risks while maximizing the benefits from credit (Stinglitz & Weiss, 1981). The objective
of this enforcement is to ensure optical credit recovery and subsequently, realize planned profitability.

Compliance with the bank’s credit guidelines is a set of policy actions designed to minimize costs associated with credit while maximizing the benefits from it. The objective of these terms is to have optimal recovery from debtors as a firm may follow a lenient or stringent credit management practices. It is in the interest of banks that for surplus funds to be invested credit-issuing procedures must be adhered to, to achieve efficiency in the institution’s management hence, the need for compliance to bank’s credit guidelines.

Stiglitz and Weiss (1981), aver that credit guidelines are part of a general exercise to help determine the risk for each borrower (that is, the screening problem). It is partly designed to ensure that borrowers take action and facilitate payments. Relating to credit guidelines, the study by Kakuru (2003), substantiated that a bank that insists on payment under agreed credit guidelines and which is prepared to take action to recover due debts is most likely to be paid in full and on time and this promotes growth and sustainability. He however notes that there is a challenge of losing slow-paying customers to competitors.

There is a need to have well-set bank credit guidelines within the credit management practices that are agreeable to both the client and the firm. According to Van Horne (2002), there is a proportional relationship between credit guidelines and financial performance in that if credit guidelines are agreeable to both parties, the better the management of credit and as such financial performance. Similarly, Ndagire (2012) found out that there exists a moderate positive relationship between credit guidelines and financial performance. Further, but still, on credit guidelines and financial performance, Mwangi (2012) found that different categories of customers need different credit guidelines depending on credit history, the volume of business transactions and that it is the flexibility of credit guidelines that results into increased customer base and timely payment which improves the firm’s financial performance. Literature indicates that enforcing compliance with credit guidelines enhances the profitability of commercial banks. However, literature does not indicate how compliance with guidelines is conducted at Stanbic Bank in Uganda and how they affect this bank’s profitability. This is the gap that this study covered.

4. METHODOLOGY

The study used a correlational, cross-sectional descriptive survey design. The correlation design was used because the problem in this study was mainly identifying the relationship between the two variables (compliance with bank’s credit guidelines and financial performance especially profitability). The study used a cross-sectional design which is the most commonly used design in social research, because of the need to collect data at a single point in time. The cross-sectional design did not necessitate the researchers to make a follow-up on respondents (Amin, 2005). It was thus, used on account of its rapid turnaround in data collection as Creswell (2003), advises. Descriptive design was used to obtain information concerning the current status of the phenomena to describe "What exists" concerning variables. The survey design enabled the collection of data from a large number of respondents. Surveys are also amenable to rapid statistical analysis and comparatively easy to administer and manage (Ahuja, 2005 & Shajahan, 2005).

Study area and population

The study was carried out at the head office of Stanbic bank located in the center of Entebbe town, Uganda. This area was chosen because of its convenience to the researchers in terms of costs and time while collecting the data. The study population comprised of Managers, Banking
officers, loan officers, clients, credit administrators, accountants, auditors, and account clerk. Managers were involved because of their information about loans through periodical reports from loan officers. Loan officers and credit administrators were consulted because they are the ones involved in the loan process (including client appraisal). Accountants, auditors, and account clerks were involved because they access bank loan records including write-offs made by the bank. They are part of line managers who implement a variety of bank activities. Lastly, clients were involved because they are the ones who receive the credit services.

**Sampling procedures, Design and Sample size**

The researchers used the following sampling procedures, design, and sample size as explained below.

**Sampling Procedures and Design**

To attain the respective sample size from the population, the researchers followed the following procedures and sampling techniques. The target respondents were divided into categories using stratified sampling techniques to ease the collection of relevant data from each category most efficiently and effectively (American statistical Association, 1999). A stratified sampling technique takes into consideration the heterogeneous nature of the population to be sampled. The population is divided into sub-population such that the elements within each sub-population are homogeneous (Amin, 2005).

After the stratified sampling method, several sampling methods were used as follows to select the sample from each category: Census sampling method was used to select managers and credit administrators as well as loan officers on the account of their knowledge concerning the operation, supervision, and management of credit functions especially the loan process. Clients were selected using convenience and random sampling method. The banking officers, accountants, auditors, and account clerks using the sampling frames which were available at the bank, were selected using a random sampling technique. Random sampling is used in a situation where each respondent has an equal chance of being selected in order to participate in the study (Amin, 2005).

**Sample size**

A sample size of 50 was selected based on the criteria set according to Roscoe's rule of thumb, in conformity with Sekaran, (2003), who aver that a sample size larger than 30 and less than 500 is appropriate for most studies.

**Data collection sources, methods and instruments**

The study used the following data collection sources, methods, and instruments.

**Data collection sources**

Data was collected from both primary and secondary sources. Primary data was collected mainly using self-administered questionnaires on account of their quick turn-around in collecting data from a large number of respondents because they (respondents) needed some time to give their considered opinions given their busy schedules. Questionnaires were also preferred because there was a need for consistency given the large number of respondents and they are also easier to analyze especially when they are made of closed-ended items. Qualitative data were obtained through open-ended questions in the questionnaire and by interviewing key informants using an interview guide.

Internally, secondary data was collected from existing sources such as financial and other reports, minutes, financial and other operating policies, management reports, etc. For external
sources, the researchers used documents such as published journals, financial databases, magazines, textbooks, the internet, former students’ dissertations, etc.

Data Collection Methods

Administering of questionnaires was used as the main method for data collection simply because it was convenient in administering for both the researchers and the intended respondents. Additionally, questionnaires give the respondents time to read the questions, critically analyze them freely, and answer them willingly without fear or any bias. Furthermore, the researchers used formal interviews, for clarity and classification of the information provided by the respondents in the questionnaires as was necessary.

Data collection instruments

Self-administered questionnaires and interview guides were employed as the main data collection instruments. These instruments were utilized on account of the reasons explained above. A self-administered questionnaire was developed to address the objective of the study.

Data quality control

The validity and reliability of the research instruments were established as illustrated below.

The validity of the instrument

The validity of the instruments was established using both construct and content validity tests. Construct validity was established through the help of research experts who looked at the relevance of questions/ items because of the objective of the study and literature reviewed and advised accordingly. They rated questions/ items as very relevant, relevant, irrelevant, and very irrelevant. Content validity was established using the content validity index. That is, taking the questions which were rated as very relevant and relevant and dividing them by the total number of questions/ items. The content validity index for the whole questionnaire was 0.87 which was greater than 0.7 as recommended by (Amin, 2005). Hence, the instruments were considered valid for data collection.

Reliability of the instruments

Amin (2005) defines reliability as the extent to which the applied data collection instruments provide consistent findings. Reliability is an important test for assessing the accuracy and objectivity of the study. The reliability of instruments was established using Cronbach's Alpha method as provided by SPSS. The Cronbach's Alpha value for compliance with the bank’s credit guidelines was 0.90 and financial performance (profitability) was 0.93, which were all above 0.70 recommended for Social research (Amin, 2005).

Data Processing and Analysis

The researchers used the computer for data entry, cleaning, editing, coding, and summarization to ascertain the accuracy, consistency, uniformity, proper arrangement, and completeness of the data, after which analyses and interpretations were made. During the editing, obvious errors were detected and eliminated (e.g. self-administered questionnaires not at least three quarter filled were dropped). After capturing the information, it was analyzed using SPSS to summarize data into frequency tables. Descriptive statistics, Pearson correlation, and regression analyses were utilized to describe the variables, get an associative relationship between the variables, and determine whether the relationship was predictive or not, respectively.
Ethical Considerations

An introduction letter was obtained from graduate school, Ndejje University, to commence on a collection of data, and permission to conduct the survey was sought from Stanbic Bank. Respondents were then requested to fill the questionnaires and prior consultations were made in case of interviews. Anonymity and confidentiality of the respondents were observed by not asking them to put their names on the questionnaire. The researchers were much more careful about how the study was conducted especially when interviewing the subjects and as such personal biases were maximally avoided. As objects are human beings, extreme care must be taken to avoid doing any harm to them (Fontana & Frey, 1994)

5. FINDINGS

The objective of the study was to investigate the influence of compliance with the bank’s credit guidelines on the profitability of commercial banks in Uganda. The findings are organized and presented according to the hypothesis stated in the introduction section. The presentation starts with a descriptive analysis regarding the study variables (compliance with the bank’s credit guidelines and profitability). Compliance with credit guidelines in the study is operationalized by variables such as credit committee granting loans consistent with bank’s approved credit guidelines, loan officers ensuring that each problem loan is different and no routine is universally applicable, complying with all loan terms, and resolving problem loans according to acceptable bank’s guidelines. Profitability in this study is operationalized by return on assets and return on equity and measured by variables such as the market value of shares always increasing, shareholders getting adequate returns, profits increasing every year, bank covering all operating costs from generated income, assets of the bank being productive and capital base of the bank increasing. Descriptive statistics for compliance with credit guidelines and profitability on all aspects included in the model is given in Table 1

<table>
<thead>
<tr>
<th>Profitability</th>
<th>mean</th>
<th>standard deviation</th>
<th>t values</th>
</tr>
</thead>
<tbody>
<tr>
<td>The market value of shares is always increasing</td>
<td>3.97</td>
<td>1.12</td>
<td>3.545</td>
</tr>
<tr>
<td>Shareholders get adequate returns</td>
<td>3.93</td>
<td>1.32</td>
<td>2.978</td>
</tr>
<tr>
<td>Bank compares budget with actual performance and takes corrective action as necessary</td>
<td>4.30</td>
<td>0.98</td>
<td>4.388</td>
</tr>
<tr>
<td>Bank’s profits increase every year</td>
<td>3.53</td>
<td>1.41</td>
<td>2.504</td>
</tr>
<tr>
<td>The bank covers all the costs from generated income</td>
<td>4.00</td>
<td>1.04</td>
<td>3.846</td>
</tr>
<tr>
<td>The bank has a large capital base</td>
<td>3.99</td>
<td>0.97</td>
<td>4.113</td>
</tr>
<tr>
<td>Return on equity increases every year</td>
<td>4.17</td>
<td>0.97</td>
<td>4.299</td>
</tr>
<tr>
<td>Average on profitability</td>
<td>3.98</td>
<td>0.52</td>
<td>7.654</td>
</tr>
<tr>
<td>Compliance with the bank’s credit guidelines</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loan committees grant loans consistent with the authority given</td>
<td>3.77</td>
<td>1.24</td>
<td>3.040</td>
</tr>
<tr>
<td>Requirements for the credit reference bureau are considered</td>
<td>4.13</td>
<td>1.15</td>
<td>3.591</td>
</tr>
<tr>
<td>Lending procedures are properly followed</td>
<td>3.67</td>
<td>1.38</td>
<td>2.659</td>
</tr>
<tr>
<td>Loan officers ensure that each problem</td>
<td>4.00</td>
<td>0.93</td>
<td>4.301</td>
</tr>
</tbody>
</table>
loan is different and that no routine is universally applicable

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>All loan terms are complied with</td>
<td>4.10</td>
<td>1.02</td>
</tr>
<tr>
<td>Terms of payment are always observed and obligation complied with</td>
<td>4.27</td>
<td>1.00</td>
</tr>
<tr>
<td>Problem loans are always resolved according to acceptable bank guidelines</td>
<td>4.06</td>
<td>1.24</td>
</tr>
<tr>
<td><strong>Average on compliance with bankers credit guidelines</strong></td>
<td><strong>4.00</strong></td>
<td><strong>0.54</strong></td>
</tr>
</tbody>
</table>

Descriptive results in Table 1, indicate that respondents rated themselves high on average on all aspects of compliance to bank’s credit guidelines (mean = 4.00, SD = 1.14 and t = 3.509) at 0.01 significance level, suggesting that there was compliance to bank’s credit guidelines.

Further, results indicate that again respondents rated themselves high on average on all aspects of profitability (mean = 3.98, SD = 1.12 and t= 3.554) at 0.01 significance level. Other aspects or dimensions of profitability and compliance with banker’s credit guidelines were also rated high and were significant as reflected in Table 1. The corresponding standard deviations for compliance with the bank’s credit guidelines (0.54) and profitability (0.52) respectively were numerically small, suggesting low dispersion in the sample. In other words, responses given by the majority of the selected participants as individuals did not deviate much from their average as a whole sample. To establish whether there was an associative relationship between compliance to banker’s credit guidelines and profitability of Stanbic bank, a bivariate analysis was conducted using the Pearson correction method. Compliance with the bank’s credit guidelines was considered as the independent variable and profitability as the dependent variable. The findings are presented in Table 2.

**Correlation results**

Table 2, shows the associative relationship between compliance with the bank's credit guidelines and profitability of Stanbic bank.

**Table 2: Correlation between compliance with bank’s credit guidelines and profitability**

<table>
<thead>
<tr>
<th></th>
<th>compliance with bank’s credit guidelines</th>
<th>Profitability</th>
</tr>
</thead>
<tbody>
<tr>
<td>compliance with bank’s credit guidelines</td>
<td>Pearson correlation</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig (2-tailed)</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>140</td>
</tr>
<tr>
<td>Profitability</td>
<td>Pearson correlation</td>
<td>0.776**</td>
</tr>
<tr>
<td></td>
<td>Sig (2-tailed)</td>
<td>0.000</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>140</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed)**

Correlation results in Table 2, show that there is a relatively strong positive significant associative relationship between compliance with the bank’s credit guidelines and profitability (r= 0.776, Sig = 0.000). The positive relationship if predictive means that if bank officers increase complying with the bank’s approved credit guidelines, the profitability of the bank will also increase. There was however a need to run a simple regression model to determine whether the relationship was predictive or not. Regression results are presented in Table 3.
Table 3: Regression results of compliance with the bank’s credit guidelines and profitability.

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of squares</th>
<th>df</th>
<th>Mean square</th>
<th>F</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>39.000</td>
<td>1</td>
<td>39</td>
<td>118.654</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>19.000</td>
<td>139</td>
<td>0.198</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>58.000</td>
<td>140</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R = 0.776, Adjusted R square =0.582 Predictors (constant) Compliance with bank’s Credit guidelines Predicted: profitability

Regression results Table 3, indicate that compliance with bank’s credit guidelines is collectively explanatory variables of profitability of Stanbic bank (F= 118.654, Sig = 0.000).

R square which shows the explanatory power of the model was 0.586. According to Amin (2005), R square above 0.5 is acceptable. The probability of getting the same results, if the researchers went back to the field was high. Compliance with the bank’s credit guidelines explains 58.2 percent to variations in the profitability of the bank (adjusted R square = 0.582). This was also supported by the regression value of 39,000, compared to the residual value of 19,000. The hypothesis tested in this study was therefore rejected. There is thus a statistically significant influence of compliance with the bank’s credit guidelines on the profitability of Stanbic bank. Findings consist of prior studies. For example, Ndagire (2012), who found out that there exists a moderate positive relationship between credit guidelines and financial performance. In the same vein, findings concur with Mwangi (2012), who opined that different categories of customers need different credit guidelines depending on credit history, the volume of business transactions and that it is the flexibility of credit guidelines that results into increased customer base and timely payment which improves the bank’s financial performance. Further, findings have proven true the view of Van Horne (2002) who aver that there is a proportional relationship between credit guidelines and financial performance because if credit guidelines are agreeable to both parties, the better the management of credit and as such financial performance. Findings are also at par with Stiglitz & Weiss (2007) who stipulate that credit guidelines are part of a general exercise to help determine the risk for each borrower and are designed to ensure that borrowers take actions and facilitate payment and Kakuru (2002) who observe that a bank which insists on payment under agreed credit guidelines and which is prepared to take action to recover due debts is mostly likely to be paid in full and on time which promotes growth and sustainability. Although he notes that there is a challenge of losing slow-paying clients to competitors.

6. CONCLUSIONS AND RECOMMENDATIONS

The study focused on investigating the influence of compliance with the bank’s credit guidelines on the profitability of the Stanbic bank. The hypothesis tested in line with the study objective was that, there is no statistically significant influence of compliance with the bank’s credit guidelines on the profitability of the Stanbic bank. From the study findings, it can be concluded that, compliance with the bank’s credit guidelines is a statistically significant influential factor in the profitability of the Stanbic bank. A bank that insists on payment following agreed credit guidelines and which is prepared to take action to recover due debts is most likely to be paid in full and on time and this promotes profitability, growth, and sustainability. There is a need to have well-set bank credit guidelines within the credit management practices that are agreeable to both the client and the bank. If credit guidelines are
agreeable to both parties, the better the management of credit and as such profitability of banks increases. Different categories of clients need compliance to different credit guidelines depending on credit history, the volume of business transactions, etc. It is the flexibility of credit guidelines that result in an increased customer base and timely payment which improves the bank's profitability. The study has some limitations, although it has contributed to our understanding of determinants of profitability of commercial banks in Uganda. Findings, therefore, should be used with caution bearing in mind the following limitations:

There were few variables of compliance with the bank’s credit guidelines included in the model and the profitability of commercial banks could also be measured with other variables. The study was carried out at a point in time to examine the influence of compliance with the bank’s credit guidelines on the profitability of commercial banks. It was essentially a cross-sectional study. The nature of sampling units under study cannot be generalized on all banks as only one bank and which is international was considered among over 25 commercial banks in Uganda both domestic and international

Given the above-mentioned limitations, the study opens up areas for further research. One, more variables should be included in the model based on literature and tested empirically to increase our understanding of the influence of compliance with the bank’s credit guidelines on the profitability of commercial banks. Second, future studies should consider other appropriate econometric methods that may improve the understanding of the profitability of commercial banks. Thirdly, a large sample size could be used for more accurate findings and which are more generalized on all banks countrywide.

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The Relationship between Personality Traits and Strategic Thinking Skills

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Abstract
The main purpose of this research is to examine the relationship between personality traits and strategic thinking skills. Quantitative research method was used in the study, and the data were obtained by online survey technique. The sample of the study is university students. In the study, which included 824 participants in total, the data were analyzed with the SPSS program. According to the analysis results, the dimension that represents the strategic thinking skills at the best level is intention/goal orientation and conscientiousness stands out as the most dominant personality traits. Also a positive and moderately significant relationship was found between personality traits and strategic thinking skills. The personality trait that has the highest effect on all strategic thinking skills is conscientiousness. Neurotic personality trait has a significantly negative effect on strategic thinking skills. The personality trait with the weakest effect on strategic thinking skills was determined as agreeableness.

Keywords: Strategic Thinking, Strategic Thinking Skills, Five Factor Personality Theory, Conscientiousness, Neuroticism

1. Introduction
The modern world is forcing everyone to be more strategic than ever. Every area of life now looks more complex than ever before. Everyone has to think more future-oriented, make clearer predictions both analyst and synthesizer, consider themselves, others and environmental conditions more carefully from a different perspective, and deal with many problem areas simultaneously. This situation, which is considered vital in terms of content and scope, constitutes the essence of strategic thinking which is defined as systematic, future-oriented, opportunistic, timely and hypothesis-oriented thinking (Liedtka, 1998: 121). With the level of significance it has in the intellectual and operational sense, strategic thinking cannot be considered as a skill that everyone has at the same rate. In order to be implemented effectively, it
needs to be considered together with many factors in individual and environmental terms. In this sense, personality traits are seen as a determining factor that can be evaluated among these factors. Because personality is associated with important consequences for an individual's life. Personality tendencies are related to happiness, physical and psychological health, spirituality and identity at the individual level; the quality of relationships with peers, family, and others with emotional ties at the interpersonal level. It is associated with the career choice, satisfaction and performance at the social institutional level as well as political ideology issues such as community participation, criminal activity (Ozer and Benet-Martinez, 2006: 401).

Based on these facts, the main purpose of the study was determined as examining the relationship between personality traits and strategic thinking skills. In generally the research try to answer questions such as "Do Personality Traits have an effect on Strategic Thinking? At what level? In what direction? However, the research specifically seeks answers to the following questions: Which personality trait is more related to which skill of strategic thinking? Which personality trait is most associated with the system perspective? Which of the strategic thinking factors do extroverted individuals tend to use more? How does the agreeableness personality trait reflect on strategic thinking skills? What are the strategic thinking tendencies of individuals who are open to experience? In which direction do individuals with high neuroticism tend to think strategically?

There are various studies in the literature that examine the subject from different perspectives on factors affecting strategic thinking. However, there is no specific empirical study on the effect or relationship of personality which we consider as an important factor affecting strategic thinking. Therefore, the research may be important in terms of partially filling the existing gap in the literature.

2. Literature Review

2.1. Strategic Thinking

Strategic thinking is the art of overcoming the opponent and doing this, keeping in mind that he is trying to do the same to you (Dixit and Nalebuff, 1991: 1). In the literature, it is widely used in problem solving, decision making and scenario preparation for predicting the future (Haycock et al., 2012: 3). Strategic thinking contributes to many critical concepts that determine the future direction based on expected environmental conditions (Goldman et al., 2009: 6). Its main purpose is expressed as "to discover innovative strategies that reshape the rules of the competitive game and to foresee potential futures that are significantly different from the present" (Heracleous, 1998). According to Hill (2017) strategic thinking is primarily determining how to use the limited resources at hand in the most efficient way and moving towards goals. It is about recognizing and taking advantage of chance opportunities, as well as identifying lost opportunities and taking precautions (Bianca, 2014). Ohmae (1982) defines strategic thinking as "the ultimate nonlinear thinking tool" in contrast to traditional thinking approaches. Maxwell (2003) defines the concept as planning and managing the most advantageous position before struggle, apart from tactics. Kaufman et al. (2009) see strategic thinking as the "practical dream" that the individual defines outcomes that are valuable to him and that he creates for possible futures. Strategic thinking is about setting priorities, staying flexible and using not only information but also ideas while making decisions, as well as creating a roadmap that can be proactive (Perkins, 2012). According to Zand (2010), strategic thinking is a thinking model that requires asking penetrating questions to produce innovative options by considering the problem, thinking about alternative assumptions and research results, and reorienting the elements in order to become active. Finally, Liedtka (1998: 121) defines strategic thinking as a way of thinking that has its own unique
characteristics that include the components of system perspective, intention-oriented, intelligent opportunism, timely thinking, hypothesis-orientation, and testing. In the light of these definitions, it is said that, in summary, strategic thinking actually means a special form and level of thinking that has some specific characteristics (Özer et al., 2017: 152).

When the literature on the conceptualization and measurement of strategic thinking is examined, it is seen that comprehensive empirical research is not yet sufficient and the conceptual framework is in the development stage. In this context, it is seen that two main studies guide the literature. The first is named "Strategic thinking: Can it be taught?" research identified components by Liedtka (1998), conceptualized the content of strategic thinking as: "systems perspective, intent-focused, timely thinking, hypothesis-driven, intelligently opportunistic. Secondly, the study is a 3-dimensional (system thinking, reframing and reflecting experiences) Strategic Thinking Questionnaire (STQ), was conducted by Pisapia, Reyes-Guerra and Coukos-Semmel (2005) to measure the strategic thinking abilities of leaders, named "Developing the leader's strategic mindset: establishing the measures", and then whose validity and reliability were tested on different sample groups by Pisapia, Ellington, Toussaint, & Morris (2011). In this study, considering the conceptual framework and sample group of the research, in measuring strategic thinking skills, it was taken as basis Liedtka's (1998) strategic thinking study, that put forward a model that defines strategic thinking as a specific way of thinking with very specific and clearly identifiable features.

2.1.1 System Perspective

System perspective is the tendency to think together the whole, the parts that make up the whole, the relationships between parts and parts, and between the whole and parts together (Taşgit et al, 2018: 257). Bonn (2001) defines the system perspective as a perspective that questions how different elements interact with each other and whether the solution of one problem affects another problem (Naktiyok and Çiçek, 2014: 160). This element, which offers an important perspective for strategic thinking, is seen as an effective method in providing different alternatives especially in learning (Senge, 1990) and eliminating the failures in determining the problem and making decisions (Lawrance, 1999: 5). Without an understanding of systems thinking, it is perceived as almost impossible to define the problem in all its aspects and to optimize the results of the decisions made. Therefore, strategic thinkers try to understand the mutual relations between all the pieces considered together. Such a perspective determines the role of each part in the system and clarifies the effects and consequences of their behavior on other parts of the system (Liedtka, 1998: 122).

2.1.2 Intention / Goal Orientation

Intent orientation is about focusing on the goal and being willing. According to Liedtka (1998: 123), intention/goal orientation increases the energy of individuals, concentrates their attention at a certain point and prevents distractions that may occur during the time required to reach the goal. In order to obtain these outputs, the intention in question must have some features. Hamel and Prahalad (1994) define the traits of strategic intention as being emotional, directing, exploring, and relating to fate. The strategic intention should imply a certain point of view about the long-term competitive position, show a direction and provide a distinctive perspective on the future. It should activate the individual's sense of discovering new competition areas and reveal a sense of emotional worthiness. However, intention should be defined in a way to answer the questions of what, why and how to focus on rational perspective (Liedtka, 1998: 123). Therefore, strategic thinkers can be considered as determined individuals who are focused on the goal based on rational and emotionally solid foundations.

2.1.3 Intelligent Opportunity
According to Liedtka (1998), intelligent opportunism means responding effectively to emerging / potential opportunities. For this, dilemmas that may arise should be successfully managed by striking a balance between a well-stated strategy that can channel all efforts effectively and efficiently, and the risk of overlooking alternative strategies that are more appropriate to the changing environment. The essence of intelligent opportunism is based on the idea of openness to innovation and finding and evaluating alternative opportunities that may arise in rapidly changing situations (Taşgit et al., 2018: 258). On the basis of adaptation to changing environmental conditions, there is discovery of interconnected events within a certain period of time, with a constantly evolving agenda orientation (Goldman, 2005). In order to be successful in intelligent opportunism applications, the individual needs to care about innovation as input and to embrace alternative strategy suggestions (Lawrance, 1999). In this context, strategic thinkers can be considered as people who have good observation ability in seizing the opportunities brought by change and a good adaptation ability in evaluating.

2.1.4 Timely Thinking

According to Liedtka (1998) timely thinking means keeping the past, present and future in mind at the same time in order to provide better decision making and fast implementation. Thinking in time consists of three components. The first is to recognize that the future is the predictive value of the past. The second is to recognize things that are of current importance for the future (real driving changes). The third component is continuous comparison, making inferences about the present and the future by examining the critical points regarding the changes that are likely to occur (Neustadt and May, 1986: 251). So the question to be asked to make sure thinking right is simply “what is the future we want to build?” it is not the question of “How will we use the past in creating the future” (Liedtka, 1998: 123). In this direction, strategic thinkers can be considered as people who have a wider perspective that can create an effective link between past, present reality and future orientation, and have the ability to anticipate possible situations and opportunities as well as adaptation to current situations and opportunities.

2.1.5 Hypothesis Orientation

According to Liedtka (1998), hypothesis orientation refers to a critical and questioning intellectual mechanism related to the inclusion of scientific method in thinking. The intellectual process progresses in the form of developing good comprehensive hypotheses and testing them efficiently (Liedtka, 1998: 124). Since analytical and intuitive thinking are used together in hypothesis-oriented, generating and testing hypotheses continues in iterative cycles. Hypothesis generation begins with a critical and well-defined question. The questioning continues as “if ... so ...”. In order to evaluate the developed hypothesis, various data on relevant topics to be included in the analysis are collected, and the analysis is carried out with assumptions open to interpretation. This constantly repeating sequence enables hypotheses to be presented each time without losing the opportunity to discover new ideas (Taşgit et al., 2018). Therefore, strategic thinkers can be considered as people who have a critical and questioning identity and who repeat the intellectual processes in the form of hypothesis-testing at the point of solving the problem.

2.2 Personality

Although the definition of personality is not generally agreed upon, there are important definitions in the literature that will enable understanding of its basic characteristics. According to Corr and Matthews (2009) personality is a series of characteristic behavior, cognition and emotional patterns that are shaped by the influence of hereditary (biological) and environmental factors. While personality is a whole that includes the characteristics of the society in which the individual is located (Durna, 2005: 276), it is the sum of the inborn characteristics of the individuals and the characteristics acquired by the socialization process later (Güleç and Alkış,
Personality is a combination of the past, the present and the future, together with the organization and integration of individual feelings, thoughts and behaviors (Hazar, 2006: 125) and has a resistant structure that does not change easily (Sartaş, 1997: 538). When a person is born, he does not have any personality. However, all of the individual differences of a person who potentially carries the qualities that are thought to belong to his personality (Akto, 2011: 193) are addressed within the subject of personality (Günel, 2010: 44).

In the literature, personality is mainly discussed in two groups of theory. The first are qualification-based personality theories that define personality as characteristics that predict one’s behavior. The second is behavior-based theories that define personality through learning and habits (Corr & Matthews, 2009). Various test and measurement tools have been developed to facilitate the understanding and evaluation of the concept of personality on the infrastructure formed by these basic theories. Along with this, the contextual complexity of personality has caused diversity in the measurement tools developed. Among these measurement tools, especially due to their success in validity and reliability tests such as Eysenck’s Personality Questionnaire (EPQ-R), Big Five Inventory (BFI), Minnesota Multiphasic Personality Inventory (MMPI-2), Rorschach Inkblot test, Neurotic Personality Questionnaire KON-2006 and Cattell’s 16-factor Personality Scale measurement tools come to the fore. However, with the increase of interdisciplinary research on personality, approaches that provide descriptive categorization have started to take place in the literature. For example; Psychoanalytic approach, Distinctive Feature approach, Biological approach, Humanistic approach, Behavioral / Social Learning approach and Cognitive approach (Burger, 2006: 23). In this study, the "Distinctive Feature" approach from these approaches will be taken as basis. The first model of the distinctive trait approach was developed by Tupes and Christal (1961), then continued to be developed by researchers such as Goldberg (1990) and Costa and McCrae (1992), and it has been studied within the framework of five basic dimensions-personality types known as "The Big Five Theory-OCEAN Model" in the literature. Finally, the model revised by Costa and McCrae (1995) defines personality traits as five basic categories; openness to experience, conscientiousness, extraversion, agreeableness, neuroticism and 30 sub-dimensions related to it.

2.2.1 Openness to Experience

Individuals with high openness to experience scores are considered to be adventurous, interested in art, productive individuals who like to produce new ideas (Costa and McCrae, 1995: 130). People open to experience have a wide range of interests and can successfully activate their interests in many different professions. Such individuals find the prospect of being a poet, a journalist, or a surgeon equally attractive (Costa and McCrae, 1995: 130). Individuals with low levels of openness to experience are generally conservative, preferring uniformity, and intellectually unrelated (Horzum et al., 2017: 400). Costa and McCrae (1995) determined six basic adjectives related to the personality structure open to experience as a result of their studies: Fantastic, esthetic, emotional, active, intellectual and valued.

2.2.2 Conscientiousness

These people are probably the best candidates for demanding jobs that require organization. Such individuals prefer being successful in their career to their personal development (Costa and McCrae, 1995: 131). Individuals with high scores of conscientiousness believe that they are reliable, goal-oriented and responsible. They have strong aspirations, task-oriented, and success-oriented (Aslan and Akkaya, 2008: 142). Those with low conscientiousness scores are considered to be unplanned, delayed, relatively lacking in sense of task and undisciplined (Costa and McCrae, 1995: 128). Costa and McCrae (1995) determined six basic adjectives related to the
personality structure of conscientiousness: Self-disciplined, task-conscious, talented, organized, prudent and motivated to fight for success.

2.2.3 Extroversion

While extroversion, which constitutes a central dimension in personality theories, tends to appear in energetic behaviors, introversion manifests itself in more reserved and lonely behaviors (Thompson, 2008). Extroversion is defined as “a type of attitude” characterized by the intensity of interest in the external object. Extraversion and introversion are typically contrasts, so being high in one means low in the other. In addition, everyone has both an extrovert and an introvert aspect, but one is more dominant than the other (Jung, 1995). Traits that are frequently associated with extroverts include being social, ambitious, assertive, talkative, and active (Barrick, and Mount, 1991: 3). In addition, they like to hear about everyone, and their interests are wide (Zel, 2011: 39). Costa and McCrae (1995) identified six basic adjectives related to extroverted personality structure as a result of their studies: Sociable, active, assertive, excitement-oriented, optimistic (nurturing positive emotions) and friendly.

2.2.4 Agreeableness

Individuals with high agreeableness scores are generally respectful of their environment, flexible, reliable, cooperative, understanding, soft-hearted and emotionally satisfying, although they can show an attitude that considers the interests of others rather than themselves. On the other hand, individuals with low agreeableness scores have a profile that is far from cooperation, rude, have hostile feelings towards their surroundings, behave in a selfish manner, indifferent to their environment, lacking empathy and jealousy (Digman, 1990: 422-424). Costa and McCrae (1995) identified six basic adjectives related to congruent personality structure: reliable, honest, thoughtful of others before self, compliant, humble, and mild-mannered.

2.2.5 Neuroticism

Neuroticism refers to being more prone to experiencing negative emotions such as emotional instability, anxiety, depression, and anger (Horzum et al., 2017: 400). People with low neuroticism score are comfortable, confident, calm and patient in stressful situations (Costa and McCrae, 1995: 128). Neurotic individuals are likely to be unhappy with any job because they are prone to distress and dissatisfaction, but individuals with low neuroticism are good candidates for successful careers (Costa and McCrae, 1995: 130). Individuals with high neuroticism are more suitable for jobs that require low stress and less emotionality (Costa and McCrae, 1995: 131). Costa and McCrae (1995) identified six basic adjectives related to neurotic personality structure: Anxious, having hostile feelings, depressive, low self-conscious, weak self-control, fragile.

3. Method

In the research, correlational research technique was preferred among quantitative research methods, because of this study was designed to determine the relationship/effect between variables. The population of the study is the first, second, third and final year students studying at a public university in 2019-2020. Since the analyzes to be used do not require specifying a specific sample group, the formulation of “Sample Sizes for Different Variations in Discontinuous Variables” was used. According to this formulation, the sample size was calculated as 824, within 95% confidence limits and taking into account a 5% margin of error (Büyüköztürk et al., 2016: 101). Online survey method was used as data collection technique in the study. The questionnaire consists of 3 parts. In the first part, there are statements about the strategic thinking skills created by the researchers based on the 5 elements that Liedtka (1998) argues that elements are necessary for the realization of strategic thinking. The second part consists of items related to five factor personality traits based on the scale questions of Costa and McCrae (1995) study. To measure
Strategic Thinking Skills and Five Factor Personality Traits, 5-point Likert type evaluation criteria were used. In the third part, there are questions about students' gender, academic averages and departments to determine demographic characteristics. In order to ensure the structural and content validity of the statements in the questionnaire, the expert opinion technique was used, and it was determined to what extent the statements in the questionnaire were sufficient to cover the required factual or judgmental characteristics (Büyüköztürk, 2005: 148). Accordingly, the necessary arrangements were made in the questionnaire, taking into account the criticisms and suggestions of the experts.

For the survey application, ethics committee approval was obtained from the relevant University Rectorate and research data were collected within 6 weeks. Students of the Faculty of Education, Faculty of Medicine, Faculty of Theology, Faculty of Business Administration, Faculty of Engineering, Faculty of Health Sciences, Faculty of Sports Sciences and Faculty of Arts and Sciences participated in the survey.

To create the strategic thinking scale, the dimensions of systems perspective, intent-focused, thinking in time, hypothesis-driven, intelligently opportunistic that discussed at Liedtka's (1998) Strategic thinking: Can it be taught? named study, taken into consideration and 24 statements reflecting strategic thinking skills were obtained by researchers. The system perspective dimension consists of 5 statements, intention/goal orientation 6, intelligently opportunistic 4, timely thinking 5, and hypothesis orientation dimension 4 statements. For the personality traits scale, the "Five Basic Personality Types" scale, known as "The Big Five Theory-OCEAN Model" in the literature, revised by Costa and McCrae (1995) was used. The scale is composed of five basic categories (openness to experience, conscientiousness, extraversion, agreeableness, neuroticism) and 30 statements (each category is 6 statements) that characterize personality traits.

4. Findings

The research findings were obtained as a result of descriptive statistics, factor analysis, correlation and regression analysis using SPSS data analysis program. First of all, the demographic characteristics of the participants were evaluated in order to determine the interpretation frame and boundaries of the research results.

According to the frequency analysis results, the majority of the 824 participants are female students. The participation rate of female students (53.4) is higher than that of male participants (46.6). The academic average of most of the participants (64.7%) is between 2.5 and 3.5 out of 4. This level shows that the participants have a relatively successful profile in academic terms. On the other hand, the participants are mostly in the field of social sciences in terms of the basic fields they study. When the specific rates are examined, it is seen that the highest participation is from the Faculty of Business (22%), Faculty of Arts and Sciences (15.4%), Faculty of Engineering (14.9%) and Faculty of Education (14.2%).

After the descriptive findings, secondly, in order to examine whether the statements related to the variables in the research model (Figure 1) constitute an acceptable valid structure, the scale items of strategic thinking skills and personality traits were subjected to exploratory factor analysis. Factor analysis results are presented in Table 1 and Table 2.
Table 1. Strategic Thinking Skills Factor Analysis Results

<table>
<thead>
<tr>
<th>Factors</th>
<th>Strategic Thinking Skills</th>
<th>Factor Loadings</th>
<th>Explained Variance</th>
<th>Eigen values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention /Goal Orientation</td>
<td>Being active for longer</td>
<td>.846</td>
<td>24,894</td>
<td>5,730</td>
</tr>
<tr>
<td></td>
<td>Focusing more easily</td>
<td>.835</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Working more efficiently</td>
<td>.833</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Being more motivated</td>
<td>.804</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feeling valuable</td>
<td>.711</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Having a determined perspective</td>
<td>.674</td>
<td></td>
<td></td>
</tr>
<tr>
<td>System Perspective</td>
<td>Evaluating the events with a holistic perspective</td>
<td>.716</td>
<td>17,666</td>
<td>2,231</td>
</tr>
<tr>
<td></td>
<td>Resolving connections between events</td>
<td>.706</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>To be able to analyze environmental conditions well</td>
<td>.663</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thinking about the domino effect of a problem</td>
<td>.615</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Being aware of their own position in their environment</td>
<td>.539</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timely Thinking</td>
<td>Anticipating important future opportunities now</td>
<td>.773</td>
<td>14,675</td>
<td>1,196</td>
</tr>
<tr>
<td></td>
<td>To be able to analyze his/her situation well</td>
<td>.725</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Guiding the people around for own opportunities</td>
<td>.651</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Making connections between the past, present and future while evaluating events</td>
<td>.621</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>To be able to predict the future impact of the decisions made now</td>
<td>.507</td>
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</tbody>
</table>

According to the literature, in order for the data set to be suitable for factor analysis, the KMO value should be at least 0.50 and the Bartlett test result should be significant. Accordingly, when table 1 is examined, it is seen that the KMO value of the data and Bartlett test values are suitable for factor analysis (KMO value of 0.900, Bartlett test result: p <0.001). Principal component analysis and varimax rotation technique were used for factorization. Items showing low communalities (below 0.45) were excluded from the scale. In this direction, 24 items analyzed, 8 expressions showing low communalities, high factor loadings in more than one factor (overlapping), without factor loading and remaining alone were excluded from the scale. 16 items were collected under 3 dimensions. Statements about intelligent opportunism and hypothesis orientation did not create a specific structure. The first dimension is intention / goal orientation, the second dimension is system perspective and the third dimension is timely thinking. The total variance explained by the factors regarding the scale is 57.235%. Therefore, it can be said that the resulting 3 factors together explain a significant part of the variance. The variance explained by the first is 24.894%, the second is 17.666% and the third is 14.675%.

According to the analysis results, the first factor consists of 6 statements, the second factor consists of 5 statements, and the third factor consists of 5 statements. The factor load values of the items in the first factor varied between 0.846 and 0.674, in the second factor varied between 0.716 and 0.539, and in the third factor varied between 0.773 and 0.507. In the light of these findings showing that the factor structures are reliable, it can be said that students perceive strategic thinking skills in 3 different dimensions. Among these dimensions, the dimension that represents the strategic thinking skill at the best level is the dimension of intention/goal orientation.
### Table 2. Personality Traits Factor Analysis Results

<table>
<thead>
<tr>
<th>Factors</th>
<th>Personality Traits</th>
<th>Factor Loadings</th>
<th>Explained Variance</th>
<th>Eigenvalues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conscientiousness</td>
<td>Being well organized, tidy and meticulous work</td>
<td>.783</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cautious, thoughtful, careful act</td>
<td>.742</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Do not like to procrastinate, likes to force</td>
<td>.726</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Honest, attentive and have the moral of duty</td>
<td>.705</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Ambitious, striving to be perfect</td>
<td>.692</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Confident, proud to be talented</td>
<td>.506</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agreeableness</td>
<td>Sympathetic, humane and non-irritating</td>
<td>.777</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Caring for others, generous, forgiving, kind-hearted</td>
<td>.696</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Humble, not self-praising, not despising others</td>
<td>.694</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Likes to act together, gets along easily with people</td>
<td>.668</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sincere, does not manipulate people</td>
<td>.583</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Extraversion</td>
<td>Loves to be with people and social</td>
<td>.830</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Friendly, talkative, willing to interact</td>
<td>.808</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strong and assertive, looking for leadership positions</td>
<td>.552</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Energetic, lively, with high activity level</td>
<td>.547</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Openness to Experience</td>
<td>Closely related to art and aesthetics</td>
<td>.646</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adapts to innovation easily, does not like monotonous things and is bored with routine</td>
<td>.634</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fantastic, imaginative and dreamy</td>
<td>.632</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adventurous and courageous, doing dangerous things for excitement</td>
<td>.594</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Curious to learn new ideas, love to ask questions, want to encourage new ideas</td>
<td>.552</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neuroticism (*)</td>
<td>*I am not confident, able to deal with problems and stress well</td>
<td>.697</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*I am not a person who is not influenced by people, who makes his/her own decisions, thinks well before deciding.</td>
<td>.659</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*I am not confident in the social environment, easily embarrassed and adaptable to different environments.</td>
<td>.583</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>*I am not someone who can easily be satisfied, rarely feel bored</td>
<td>.528</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>I am relaxed, reckless and not sensitive to potential problems</td>
<td>.423</td>
<td></td>
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</tbody>
</table>
When Table 2 is examined, it is seen that KMO value of the data and Bartlett test values are suitable for factor analysis (KMO value 0.865. Bartlett Test result p <0.001). As a result of the rotation of 30 items included in the analysis; expressions showing low communalities, giving high factor loadings in more than one factor (overlapping), without factor loading and standing alone (expressions no. 2, 12, 15, 18 and 19) were removed from the structure. The Item 11 (Adventurous and courageous, doing dangerous things for excitement), belonging to the dimension of extroversion, was included in another factor structure (under the dimension of openness to experience). This expression is left within the openness to experience factor structure because it does not pose a serious problem at the conceptual and content level and the factor structure is broken when it is removed from the existing structure. The remaining 25 statements were collected under 5 dimensions. Dimension names in the original scale were used in naming the factors. The total variance explained by the factors regarding the scale is 52.386%. Therefore, it can be said that the resulting 5 factors together explain a significant part of the variance. The total variance explained by the first of the 5 factors regarding the scale is 13.764%, the second is 10.743%, the third is 10.294%, the fourth is 10.148 and the fifth is 7.438. According to the analysis results, the first factor consists of 6 statements, the second factor 5, the third factor 4, the fourth factor 5 and the fifth factor 5 statements. The factor load values of the items in the first factor were between 0.783 and 0.506, in the second factor were between 0.777 and 0.583, in the third factor were between 0.830 and 0.547, in the fourth factor were between 0.646 and 0.552 and in the fifth factor between 0.697 and 0.423. In the light of these findings showing that the factor structures are reliable, it can be said that students' perceptions of their personality traits are formed in 5 different dimensions. Among these dimensions, it is seen that the dimension that represents personality traits at the best level is conscientiousness.

After the findings of the factor analysis obtained, the research model, based on the literature review, field expert academician views and individual observations, was created as in Figure 1, in accordance with the logic of constructing the exploratory model, in a way that all relations between variables were released.

![Figure 1. Research Model](image)

If some predictions are made without making a hypothesis about the relations between the variables; For example, individuals who are open to experience have a productive nature due to their broad interests. Since their perceptions are open and broad, they can look at events from different windows, establish connections between events that affect each other, and come up with new hypotheses. Therefore, a positive relationship can be expected between the openness to experience feature and the system perspective from strategic thinking factors. Likewise, a positive relationship can be expected between conscientiousness for personality traits dimensions and
intention/goal orientation and timely thinking, which are components of strategic thinking, when the basic features of the dimensions are considered.

On the other hand, individuals with a predominant neuroticism feature have poor anger control problems, have unfriendly feelings towards the environment, make sudden decisions and act without thinking, and tend to be constantly depressed, so their ability to make connections between events is weak. They are unsuccessful in group work. They often have trouble communicating with people. Because of their sudden bursts of emotion, they cannot think prudently. Therefore, a negative relationship is expected between the neurotic feature and all of the strategic thinking components. The general hypothesis of the study was developed in the form: "H1: Personality Traits is a significant predictor of Strategic Thinking Skill". In addition, all interactions between variables will be examined in order to determine which personality traits/personality type combinations are more effective on strategic thinking skills to achieve the sub-objectives of the research.

Descriptive statistics (mean, standard deviation and reliability coefficients) related to the variables obtained after the exploratory factor analyses were examined. Results are presented in Table 3.

**Table 3. Descriptive Statistics about the Variables**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Means</th>
<th>Standard Deviations</th>
<th>Reliability Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention/Goal Orientation</td>
<td>4.4092</td>
<td>,70069</td>
<td>,894</td>
</tr>
<tr>
<td>System Perspective</td>
<td>4.1694</td>
<td>,59233</td>
<td>,718</td>
</tr>
<tr>
<td>Timely Thinking</td>
<td>3.7126</td>
<td>,69467</td>
<td>,752</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>3.9389</td>
<td>,78116</td>
<td>,820</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>3.9867</td>
<td>,72280</td>
<td>,752</td>
</tr>
<tr>
<td>Extraversion</td>
<td>3.9175</td>
<td>,91174</td>
<td>,807</td>
</tr>
<tr>
<td>Openness to Experience</td>
<td>3.8337</td>
<td>,75104</td>
<td>,674</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>1.9036</td>
<td>,45061</td>
<td>,542</td>
</tr>
</tbody>
</table>

When Table 3 is examined, it is seen that the most significant feature of the students participating in the study about strategic thinking skills is intention/goal orientation (X̄=4.4092). While it is observed that students have a good level in terms of system perspective, a relatively low level is observed in terms of timely thinking criteria.

When the participants were evaluated in terms of personality traits, although the most dominant feature was agreeableness (X̄=3.9867), the characteristics of conscientiousness, extraversion and openness to experience were also remarkable. In addition, neurotic personality traits of the participants are very low.

On the other hand, when the reliability coefficients of 7 variables are examined, the coefficient values obtained for the 6 variables are above the threshold value (α: 0.60 or above) considered valid in the literature, while the reliability coefficient for the neurotic dimension (.542) has a low reliability level (Yaşar, 2014: 63). In this context, it can be said that these findings meet the basic assumption for relationship and impact tests.

After evaluating the reliability of the scales, correlation analysis was conducted to determine the degree and direction of the relationships between the participants' personality traits and strategic thinking skills. Findings regarding the analysis are presented in Table 4.
Table 4. Relationship between Strategic Thinking Skills and Personality Traits

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Intention/Goal Orientation</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. System Perspective</td>
<td>.417**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Timely Thinking</td>
<td>.524**</td>
<td>.355**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Conscientiousness</td>
<td>.427**</td>
<td>.438**</td>
<td>.433**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Agreeableness</td>
<td>.087**</td>
<td>.186**</td>
<td>.245**</td>
<td>.251**</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Extraversion</td>
<td>.345**</td>
<td>.356**</td>
<td>.293**</td>
<td>.455**</td>
<td>.239**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Openness to Experience</td>
<td>.366**</td>
<td>.338**</td>
<td>.255**</td>
<td>.383**</td>
<td>.241**</td>
<td>.542**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>8. Neuroticism</td>
<td>-.228**</td>
<td>-.241**</td>
<td>-.121**</td>
<td>-.245**</td>
<td>-.228**</td>
<td>-.110**</td>
<td>-.266**</td>
<td>-.253**</td>
</tr>
</tbody>
</table>

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed). (n=824).

A moderate positive relationship (r = 0.528; p <0.01) was found between students’ strategic thinking skills and personality traits. When the specific relationships between the variables in Table 4 are examined, it is seen that there is a moderately positive relationship between conscientiousness personality trait and all dimensions of strategic thinking skills.

The strategic thinking skill with which the conscientiousness feature is most closely related is the system perspective (r = 0.438; p <0.01). This is followed by intention/goal orientation and timely thinking. Likewise, the agreeableness personality trait was found to be associated with the highest level of system perspective (r = 0.356; p <0.01). However, while the agreeableness personality trait is secondly related to timely thinking, it is related to the intention/goal orientation in the last order. The strategic thinking skill associated with the personality trait of extraversion at the highest level is intention/goal orientation (r = 0.245; p <0.01). Although other features are significant, they are relatively low. Open to experience personality trait has the highest level of relationship with timely thinking skill (r = 0.366; p <0.01). This is followed by system perspective and intention/goal orientation.

On the other hand, a significant negative relationship was found between the neurotic personality trait and all components of strategic thinking. While the neurotic personality trait is relatively more highly associated with system perspective and timely thinking, it has a lower level relationship with intention/goal orientation.

The findings obtained show that personality traits can have a significant effect on strategic thinking skills. In this context, regression analyzes were conducted to determine the effect of personality traits on strategic thinking skills. The general findings indicate that personality traits are a significant predictor of strategic thinking (r, 528 - r2; 279 - F (1-822): 318,376 - t: 17,843 - p<.000).

Analysis results regarding detailed model findings are given in the tables below. Findings regarding the effect of personality traits on intention/goal orientation are shown in Table 5.
When the analysis results in Table 5 are examined, it can be said that there is no multicollinearity problem between the independent variables since the tolerance values are more than 0.20 and there is no value higher than 10 among the VIF values of the variables. It is seen that 21% of the variance regarding intention/goal orientation is explained by personality traits.

Specifically, personality traits that have a significant and positive effect on intention/goal orientation are conscientiousness, agreeableness and extraversion. The personality trait that has the highest impact is conscientiousness. The features of openness to experience and neuroticism have not been found to have any effect on intention/goal orientation.

Another model tested within the scope of the research is to determine the effect of personality traits on the system perspective. Findings regarding the analysis are presented in Table 6.

When the analysis results in Table 6 are examined, it is seen that 24% of the variance regarding the system perspective is explained by personality traits. When an evaluation is made in a specific sense, it is understood that all personality traits other than agreeableness have a significant effect on the system perspective. The personality trait that has the highest significant and positive effect on system thinking is conscientiousness. This is followed by extraversion and openness to experience personality traits. The neurotic personality trait has a significant negative effect on the system perspective.
Finally, the model for the effect of personality traits on timely thinking was examined within the scope of the research. Findings are presented in Table 7.

### Table 7. Personal Traits-Timely Thinking Regression Analysis Results

<table>
<thead>
<tr>
<th>Model Variables</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>t</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>2,277</td>
<td>.205</td>
<td></td>
<td>11,085</td>
</tr>
<tr>
<td>Conscientiousness</td>
<td>.272</td>
<td>.031</td>
<td>.306</td>
<td>8,709</td>
</tr>
<tr>
<td>Agreeableness</td>
<td>-.067</td>
<td>.031</td>
<td>-.069</td>
<td>-2,179</td>
</tr>
<tr>
<td>Extraversion</td>
<td>0,70</td>
<td>.029</td>
<td>.092</td>
<td>2,388</td>
</tr>
<tr>
<td>Openness to Experience</td>
<td>.175</td>
<td>.034</td>
<td>.189</td>
<td>5,093</td>
</tr>
<tr>
<td>Neuroticism</td>
<td>-.164</td>
<td>.049</td>
<td>-.107</td>
<td>-3,343</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model 3. Dependent Variable: Timely Thinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>$r = .501$</td>
</tr>
</tbody>
</table>

When Table 7 is examined, it is seen that 24% of the variance related to timely thinking in general is explained by personality traits. In a specific sense, it is understood that all personality traits have a significant effect on timely thinking. Conscientiousness, extraversion, and openness to experience have a positive effect on simultaneous thinking, while agreeableness and neuroticism have a negative effect.

5. Conclusions

This study, which was carried out to examine the relationship between the personality traits of university students and their strategic thinking skills, reflects the perspective of both groups (male and female), despite the higher number of female students compared to boys, who study mostly in the field of social sciences, have an intermediate level and a little higher academic achievement.

Participants’ perceptions of strategic thinking skills are shaped in 3 dimensions: intention/goal orientation, system perspective and timely thinking. Among these dimensions, the dimension that represents the strategic thinking skill at the best level is intention/goal orientation. This is followed by systems perspective and timely thinking, respectively. On the other hand, the perceptions of the participants about their personality traits were collected under the same dimensions (after some statements were removed) with the original scale revised by Costa and McCrae (1995); openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. Conscientiousness stands out as the most dominant personality traits of the participants. This is followed by agreeableness, extraversion, openness to experience and neuroticism, respectively.

When the relationships between variables were examined, a moderate positive relationship was found between personality traits and strategic thinking skill in general. When the specific relationships were examined, it was determined that the strategic thinking skill that the conscientiousness and agreeableness personality traits were most related to the system perspective. While the extraversion personality trait is associated with the highest level of intention/goal orientation, the openness to experience personality trait has the highest level of association with timely thinking from strategic thinking skills. On the other hand, a significant negative relationship was found between the neurotic personality trait and all of the strategic thinking skills. Especially the relationship between neurotic personality trait and system perspective and simultaneous thinking is remarkable.
The results obtained in the scope of the study regarding the effect show that, in general, personality traits are a significant, if not very strong, predictor of strategic thinking. This finding confirms the research hypothesis. Strategic thinking is significantly influenced by personality traits. When the findings regarding which strategic thinking skills are affected more by personality traits in a specific sense, it is seen that the ability to exhibit intent/goal-oriented behavior is positively affected by both conscientiousness and agreeableness, extroversion personality traits. Therefore, it can be said that people whose conscientiousness, agreeableness and extroversion characteristics are dominant are successful in intention/goal orientation. Especially, it can be thought that people with conscientiousness features can be more successful in intention-oriented. In this context, it can be argued that people who are well-organized, meticulous, cautious, do not like to delay, and like to force themselves can be more successful in focusing easily towards a certain purpose, maintaining their effectiveness for a long time, working efficiently, being motivated and evaluating events from different perspectives.

The ability to have a system perspective from strategic thinking skills is affected by all personality traits other than agreeableness. While conscientiousness, openness to experience, and extraversion have a positive effect, neuroticism has a negative effect. As in the intent/goal orientation skill, the personality trait that affects the system perspective oriented thinking skill at the highest level is conscientiousness. Therefore, it can be said that individuals whose lives are based on order, act carefully, obey the rules and strive to be perfect are more effective than other personality traits in the matters which having a holistic perspective, being able to make connections between events that affect each other, being able to analyze their environment well, considering the possibility that they may cause other problems while solving a problem. On the other hand, the neurotic personality trait has a significant negative effect on the system perspective. This finding shows that individuals who are not self-confident, not able to cope well with problems and stress, influenced by others very quickly, cannot think thoroughly before making a decision, indifferent and not sensitive to potential problems, have serious problems at the point of systematic thinking.

Finally, timely thinking skill is significantly affected by all personality traits. While conscientiousness, extraversion, and openness to experience provide a positive effect, agreeableness and neuroticism have a negative effect. It can be ranked as conscientiousness, openness to experience and neuroticism in terms of effect level. Therefore, it can be argued that individuals with strong responsibility, are interested in aesthetics, do not like monotonous things and are bored with routine, are imaginative, like to ask questions, want to encourage new ideas and adapt easily to innovation will be more effective in the matters like analyzing the current situation and future situations, predicting future opportunities, making connections between the past, present and future while evaluating events. On the other hand, the negative-impact finding about neurotic personality trait shows that neurotic personalities have problems in evaluating opportunities and threats regarding today, the past and the future. In this context, it can be said that neurotic personalities face various problems in timely thinking.

References


Investigating the Sustainability of Jamaican Small Traditional Farmers in Relation to the Impact of Economic Globalization

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Abstract

This paper has summarised and has taken forward the debates around the importance of as well as how to achieve sustainability in the Jamaican Small Traditional Farming Sub-sector. Small traditional farming has played a major role in Jamaica's development and poverty reduction in the past. However, changing global conditions are widely acknowledged as factors negatively impacting its sustainability. This explorative study utilized survey methodology to gather data from twenty directors and twenty researchers employed to institutions such as Scientific Research Council of Jamaica, one hundred and forty-six (146) farmers, extension and assistant extension officers from RADA. The study was explored in terms of six proposed sustainability indicators as demonstrated by the Mandel Model for sustainable rural poultry farming.

The hypotheses were supported by the available data and are accepted at $\alpha=0.05$. The study therefore postulates that, the revitalization and sustainability of the small traditional farming sub-sector is critical. Small traditional farmers of Jamaica like those in Israel and Japan can become efficient and achieve global competitiveness by means of an increase in endogenous innovations, along with improvements in the operational and administrative functions of agrarian institutions. These rural communities are likely to experience increased economic activities and development, hence better standard of living. There is the need for citizens in rural Jamaica to achieve cultural and educational changes. More than 40,000 Jamaican families can improve their standard of living directly and a further 30,000 families can experience indirect benefits.

Keywords: Rural Community Development; endogenous innovation; and sustainability
1. Introduction

This research focused on the traditional small farmers of Jamaica who grow the following agricultural crops: sugar, bananas, coffee, citrus, pimento, cocoa and coconut on two to ten acres of land. World Bank (2010) stated that on average seventy per cent of the world poor live in the rural areas and agriculture is their source of income and employment [1]. Jamaican Farmers have consistently maintained the position of being Jamaica’s economic backbone for many decades (RJR, 2003) [2]. The activities of this group of individuals, which number over one hundred thousand, have been the foundation of this nation’s productive economy. This group of predominantly small farmers has contributed to the welfare of two and a half million Jamaican citizens; as consumers of food (Levitt, 2000) [3].

1.1 The Problem

The mainstream economists, for more than a century have enthusiastically and confidently predicted the demise of the small farm. Small farms have been viewed as an obstacle to be overcome in the process of economic development. They have been labelled as unproductive, inefficient and backward. The American model of large scale, mechanized, corporate agriculture is held out as the best, if not the only way to feed the world’s population. Small or peasant farmers have been expected to go the way of the dinosaurs.

From the plethora of literature reviewed, it is clear that throughout the many decades, Jamaica’s Small Farmers have suffered from a changing international environment, variable public policy and severe objective constraints. These challenges gave rise to reduction in the sub-sector’s contributions to Gross Domestic Product (GDP), which remained constant between 1870 and 1939, but diminished sharply thereafter and by 2004 it had fallen to less than three per cent (3%) of GDP. The on-going process of trade liberalization has now taken a step further in the World Trade Organization (WTO) negotiations for the Agreement on Agriculture (AOA). The Agreement on Agriculture has the potential to severely undercut the remaining viability of small farm production, with potentially devastating consequences for rural economies and environments worldwide [4]. This paper postulates that:

a. the additional challenges resulting from the advent of economic globalization have increasingly cemented in the minds of many of the stakeholders in the agricultural sector, the theory that the periods of small farming (peasant farming) are over. The achievement of increased outputs can only be attained with a change towards larger and more intensive farming practices. Unfortunately, such changes are likely to run counter to rural communities’ development, since many if not all small traditional farmers will be marginalized due to their inability to garner investment funds for expansionary purposes.

b. the problems of the Jamaican Small Farmers were not properly explored, since the solution employed, or lack thereof, only served to make them more of an endangered species. It can be argued that the solutions, including technological changes, were geared more for large scale agricultural practices. Additionally, many of the operations of Jamaican Agrarian Institutions are not in the interest of the small farmers and often times are more of an obstacle to them [4].

1.2 Importance of Study

This research explains the responsibility of the Jamaican Agrarian Institutions and the absence of endogenous innovations in the decline of the sub-sector. Strategic alliance with the Jamaica Tourism Sector and other productive sectors is the development model which enables the diversification of agriculture and target the utilization of endogenous approaches in an effective manner to distribute benefits for the majority of the community [5]. Significant improvement in
infrastructural development within the island, market knowledge and accessibility, training of rural citizens, quality control of the services, availability of low cost financial assistances and the location of agrarian activities in light of the fact that Jamaica has such a diverse weather pattern as well as an abundance of underground water supply are foundation for the sustainability of small traditional farmers in Jamaica.

1.3 Significance of the Study in Academic Literature

The results obtained can be extrapolated to agricultural sectors in other economies around the world. It adds to the volume of literature relating to the utilization of popular hybrid farming practices that retained the quality of high growth with high quality agricultural products. It adds to the literature generated from research done on mixed systems (agriculture-livestock) in the Mediterranean Basin, and mixed rice-fish systems in Asia. [6 & 7] In addition, the study helps stakeholders to understand the effects brought about due to the lack of technological adoption by the small farmers. The study demonstrates that regardless of the size of the farm, there is room for technological improvement.

2. Materials and Method

2.1. Activities of the Small Traditional Farmers

The traditional small farmers of Jamaica grow agricultural crops such as: sugar, bananas, coffee, citrus, pimento, cocoa and coconut. The activities of this group of individuals, which number close to sixty thousand, have been the foundation of this nation’s productive economy. This group has contributed to the welfare of two and a half million Jamaican citizens; as consumers of food. [3] [8] Planning Institute of Jamaica demonstrated that the small farmers are a major participant in:

a. the earnings and savings of foreign exchange. The highest earnings took place in 2004 and 2006 of US fifty-six thousand six hundred and twenty-eight dollars ($US 56,628) and US forty-six thousand four hundred and fifty-nine dollars ($US 46,459) respectively.

b. the creation of employment for citizens mainly in the rural communities. The sub-sector provides direct employment to approximately eight per cent (8.15%) of the labour force which amounts to approximately sixty thousand (60,000) persons. It also supports approximately one hundred and seventy-four thousand (173,956) families and contributes to the island’s food security. These small farmers also assisted in creating thousands of indirect employments in areas such as tourism and manufacturing. [9]

c. the island’s gross domestic product (GDP). It is responsible for less than four (4) per cent of Jamaica’s GDP. [10]

2.2. Economic Globalization

According to Pyle, Economic globalization involves a wide variety of processes, opportunities, and problems related to the spread of economic activities among countries around the world. It started in the latter part of the nineteenth century to the present. Since the 1970s capitalism has spread throughout more of the world and as a result there has been an increased reliance on markets versus government involvement in the economy by most nations (including industrialized countries, developing countries, and formerly socialist countries like China with over one-fifth of the world’s population). [11]

A large number of developing countries have also shifted to the more open export-oriented approach based on production for external trade from an import substitution development strategy. Multinational Corporations (MNCs) in service, manufacturing, and finance sectors
have moved into new tiers of countries and have established burgeoning networks of subcontractors in many areas. Since the advent of the late 1970s, economic globalization has also involved structural adjustment policies (SAPs), mandated by the International Monetary Fund (IMF) as a condition for granting countries loans. SAPs require governments to take many steps that further promote globalization.

Importantly, there have been a significant shift in the power of key internationally institutions. The influence of many national governments has been eroded by the rising importance of institutions like the MNCs, the IMF, and World Bank (WB), and trade organizations such as the World Trade Organization (WTO). On the other hand, there has been an increase in nongovernmental organizations (NGOs) advocating for the rights of groups of citizens. Economic globalization since its advent has resulted in an increase in the international movements of goods and services, capital (portfolio investments or foreign direct investment by MNCs), and labour as people migrate for employment. This stage of economic globalization is driven by changes in technology (telecommunications and information technology) and transportation and is accompanied by trade and investment policies liberalization and for many developing countries the removal of preferential agreement. [12] However, economic globalization has occurred in a very uneven manner. Countries are integrated into the global economy to very different degrees. This has resulted in rising inequality and tension, which are increasingly considered to be the demerit of both the increased reliance on market forces and the changes in the international power structure.

2.3 Support for Small Traditional Farming

Small farms are preferred to large since they are better able to increase equity and reduce poverty. They are normally operated by poor people who used much of the labour, both from their own households and often times their poor neighbours. Small farmers incurred very little debt against their assets, hence, a low debt to equity ratio. Small farm households have favourable expenditure patterns for promoting growth of local non-farming communities including rural towns. They spend a higher per cent of their incremental incomes on rural non-tradable goods when compared to large farm households. The spending incurred by the small farm households stimulated additional demand for the many labour intensive goods and services that are produced in local villages and towns. These demand growth linkages provide greater income earning opportunities for small farms and landless workers among others. [13]

Case Study 1: European Union drive for small organic farming

Since 2000 the demand for organic products has increased substantially. The European Union has taken the lead in sponsoring programs designed to increase the cultivation and marketing of traditional crops. Organic farming is at the heart of a seven-point plan announced by the European Commission to tackle the continent’s BSE (mad cow disease) crisis. The Commission called for a move away from industrial farming and increased support for extensive, organic agriculture.

"The BSE crisis demonstrated the need for a return to farming methods that are more in tune with the environment.” He also made clear in his proposal that “the United Kingdom’s (UK) Soil Association estimates that demand in the UK for organic food is growing by more than forty per cent (40%) a year and much of Europe is following the same trend.” [14]

Case Study 2: Productivity of small farms in Asia and Latin America

In Thailand, farms of two to four acres produce sixty per cent (60%) more rice per acre than bigger farms. In Taiwan net income per acre of farms of less than 1.25 acres is nearly double that of farms over five acres. In Latin America, small farms are three (3) to fourteen (14) times more
productive per acre than the large farms. Across the Third World, small farms are two to ten (2-10) times more productive per acre than larger farms and in the US, farms smaller than twenty-seven (27) acres have more than 10 times the dollar-per-acre output of larger farms. In Britain a recent study of the hidden costs of industrial farming raised the bill to £2.3 billion -- almost as much as the farm industry’s total income.

In the United States of America, small farms have three times as many trees per acre as larger farms. They have more biodiversity and do less environmental damage and since they’re diversified, they’re not tied to the vagaries of a single-product market. “Small family and part-time farms are at least as efficient as larger commercial operations. There is evidence of a positive correlation between diseconomies of scale and farm size.” [15]

Case study 3: Demonstrating the success of Israel and Japan Small Farming Sub-Sectors

Israel’s Agricultural miracle actually started in areas where rivers and streams do exist and as such crops were better irrigated which precipitated the constant increased in outputs as was experienced in the fifties and thereafter. Success was also a result of the flexibility of development strategies employed by the sub-sector. Since the beginning of the 21st Century there has been cause for concern about the state of agriculture in Japan. The maintenance of fertile land has been neglected, and the long-term sustainability of farmland has deteriorated due to excessive dependence on chemical fertilizers and agrochemicals.

Full-scale sustainable agriculture in harmony with the natural environment cannot function under these conditions. In order to improve conditions in the sector, lawmakers in Japan passed three environmental agricultural laws. These laws were designed to strengthen coordination between crop farming and raising livestock, so animal manure is effectively composted, and crop soils are revitalized with organic fertilizer. These changes are required in order to maintain, improve and increase the use of the natural cyclical nature of agriculture, meaning a return to the traditional style of agriculture. [16]

2.4 Methodology

The data gathered by means of the Electronic mailing system and face to face interview (include an elite group of twenty directors and senior directors from agricultural agencies, Ministry of Tourism and Jamaica Trade and Investment, twenty researchers employed to institutions such as Scientific Research Council of Jamaica, Sugar Industry Research Institute (SIRI), Bodles Agricultural Research Station, Caribbean Agricultural and Research and Development Institute (CARDI) and 146 small farmer and Rural Agricultural Development Agency Extension Officers from the five major agricultural parishes. The data was collected with the aid of three semi-structured instruments after which the analysis was done using parameter estimate and regression analysis techniques. Mandal Model for Sustainable Rural Poultry Farming was then used to affirm the following null hypotheses: $H_0: \mu_1 =$ Strategic alliances between the small traditional agricultural sub-sector and local productive sectors result in increased outputs and earning capabilities of small farmers. $H_1: \mu_1 =$ Strategic alliances between the small traditional agricultural sub-sector and local productive sectors result in decreased outputs and earning capabilities of small farmers. $H_0: \mu_1 =$ Endogenous innovation within the Jamaican Agrarian Sector results in increased sustainability of the Jamaican Small Traditional Farming Sub-sector. $H_1: \mu_1 =$ Endogenous innovation within the Jamaican Agrarian Sector results in decreased sustainability of the Jamaican Small Traditional Farming Sub-sector (See graph 1, Appendix 1). [17] The results of this research were presented to the relevant stakeholders by means of presentations at relevant seminars. Although the research has achieved its aims, there are some
unavoidable limitations. First, this research was conducted only in five of the fourteen parishes. However, these are the island’s major agricultural parishes. A longer time period is more appropriate for a research of this nature.

3. Results

Results emanating from this study demonstrate that small traditional farming does have a future in rural Jamaica. This can be done; through increased productivity, more efficiency in the usage of scarce resources, especially land, water and human capital, reduction in waste and environmental damage that often time spill over into other sectors. Ultimately this will result in economic growth and poverty reduction in the farming communities and by extension the other sectors of the economy. Despite the fact that changing global conditions since the 1980s have made development and poverty reduction much more difficult to be achieved. This research with the aid of M.K Mandel Model for Sustainable Rural Poultry Farming has demonstrated that the sub-sector can be achieved economic efficiency, environmental quality and social responsibility, which are the three goals of sustainable agriculture. [17] These three goals can be achieved, if the following important methods and procedures are employed:

a. Favorable contractual agreement between traditional farmers and the productive sectors (agri-business, tourism, retailing and manufacturing) would increase production of traditional crops. This agreement is likely to be cemented, if it is established by parliamentary legislations and managed by officers of the Rural Agricultural Development Agency or Jamaica Agricultural Society or both. The agreement should take the form of backward and forward integrations and undoubtedly must; be able to take advantage of trade liberalization, be cost effective and profitable for the parties involved. The products must be produced without any environmental destruction. The above favorable contractual agreement is affirmed by an average of ninety-one per cent of the respondents, which results in a Z-Value confirmation of 5.351. 5.351 is significantly greater than the 95% or approximately 1.96 confidence level that has been established for this research (See appendix table 1 and figure1).

b. Reduction of both short term costs or input costs and long term or environmental clean-up costs due to the accumulation of nitric acid in the soil and water is central to the success of the sub-sector. The employment of locally produced manure and intercropping with legumes are methods that would reduce input costs such as costs of fertilizers, pesticides and herbicides. The usage of these inputs often resulted in negative externalities, which are often times very costly. Intercropping also makes possible more rapid cash inflows to the small farmers and their families. Another cost cutting measure involves the Jamaica Agricultural Society (JAS) being enlisted on the Jamaica Stock Exchange and the funds obtained is use to provide loans with competitive interest rates combined with a moratorium of at least one year to the small farmers. No less than thirty per cent (30%) of these shares are to be owned by the Jamaican Small Farmers. Ownership of these shares acts as productivity improvement stimulus for the small farmers. The methods by which the above input costs to the small farmers can be reduced is affirmed by an average of eighty-three per cent of the respondents. (see appendix, table 2)

c. The third method is the introduction of clear and precise government policies and programs designed with significant inputs from representatives of the small traditional farming subsector. The results include:

• The establishment of insurance coverage for the small farmers, with the understanding that payments for damages caused by natural disasters will be made within two weeks after such occurrence. However, small farmers have to sign on to the program and ensure that their
premiums are made on a timely basis.

- Increase number of research activities that will result in traditional plants having shorter maturity period and greater resistant to natural disasters and diseases. The provision of short training courses at the island tertiary institutions. These courses must be geared towards the increased utilization of the island’s scarce resources in the most efficient manner. Training should be centred on the areas of; farm management, proper accounting, crop care, post harvesting of crops and how to access market information using technology, such as the cell phones. Family members should also be trained in the art of how to make by-products from traditional products as well as revenue methods by means of agro-tourism and how to consistently produce and use organic manure. Leadership and team building techniques must also be part of the curriculum so that small farmers can develop and implement initiatives to enhance the sub-sector. Team building will also enable the small farmers to be more trustful of each other and hence are more inclined to collaborate on activities. Success is positively correlated to the number of small farmers who participated and utilized the knowledge garnered from the program of studies.

- Increase cultivation of crops in areas where there are water tables and or high levels of condensation. This will reduce the reliance on rain fall. Culture changes in the agrarian institutions are required to be shifted in the direction of the small farmers. They need to feel and rightly so, that they are extremely important in the economic development of the Jamaican Economy.

The elimination of institutional biases towards the small traditional farmers will enable the sub-sector and other related sectors to grow substantially. The Jamaican Government should institute policies that will ensure that grants and or low interest rate loans are easily available to the small farmers and also provide to them the necessary assurance that their property will never be confiscated but that at all times a payment plan will be tailored in order to cushion any form of economic hardship. The above third method is affirmed by an average of eighty-three per cent of the respondents (see appendix, table 3)

The reduction of both short term and long term costs together with clear and precise government policies and programs that are designed with significant inputs from representatives of the small traditional farming subsector are confirmed by a Z-Value of 2.007. This is greater than the 95% ≈ 1.96 confidence level established for this research (See appendix, figure 2, tables 2 & 3).

4. Discussion

In general, central government is the most important authority in establishing and implementing development policies. It is also extremely critical for policy makers in the Ministries of Agriculture and related agencies to incorporate the ideas and requests of representatives of the small farming subsector in decision-making and implementation of the respective policies and programs.[18] Small farmers for many years have consistently requested of their political leaders parliamentary legislations and regulations which no doubt are critical ingredient in the; operations of the small traditional farmers, establishment of contractual agreements among government, productive sectors, and small farmers. The Jamaican Government must be the driving force in the move towards small-scale, environmentally friendly organic farming. Legislations resulting in the availability of grants and low interest rates loans from various credit unions must be designed by the government so as to encourage farming practices that are environmentally friendly. Small farmers are motivated to produce organic manure consistently and ultimately increased agricultural products once leadership is obtained from those who have power and the availability of resources. This is in line with the
activities undertaken by both Israel and Japan, which ultimately enabled these two developed countries to achieve their agricultural miracle. [16]

Manufacturing organic manure locally provides opportunities for increased employment and purchasing power among the rural citizens. Jamaica Agricultural Society (JAS), Rural Agricultural Development Agency (RADA) Officers and hospitality institutions respectively must also be responsible for:

a. providing training to the local citizens in the production of organic manure

b. providing training to the small farmers in the cultivation of organic products. This include the quantity of manure to be used and when the plants are to be fertilized.

c. providing training to the local citizens on how to manage their operations as a small business. This no doubt will help the business to be sustainable. JAS and RADA Officers may require to source the necessary resources from tertiary institutions in the various parishes. Tertiary institutions should be commissioned to provide training to local citizens in their respective parishes. The College of Agriculture Science & Education (CASE) to provide training to citizens in the parishes of Portland and St. Mary. Northern Caribbean University {NCU} and University College of the Caribbean provide training to citizens in the parishes of Manchester and St. Elizabeth. However, the success of this procedure depends to a large extent on the willingnes of members of the small farming subsector to access and utilized the facilities offered.

d. coordinating the sales of traditional products to other sectors in the alliance. The Centre for International Agricultural Development Cooperation (CINADCO), (Israel’s professional Agricultural Body) was instrumental in the country’s fifty seven years of agricultural progress. European Union since 2000 has been the catalyst behind the growth of small organic farming in the European Continent.[14] The above findings demonstrate that small farming activities provided a variety of benefits. This is confirmed in the report title Multiple function and benefits of small farm agriculture [19]

The entity should issue common stocks to the public and the proceeds from the sale of its shares is used to provide low interest rate loans to the small farming sub-sector for the purpose of achieving sustainability in its activities. Success in this venture requires small farmers to own no less than thirty per cent (30%) of the issued shares.

Small traditional farmers’ reliance on rainfall for irrigation purposes can be reduced as long as agrarian activities are concentrated in areas where the night time temperature is low, hence more condensation for irrigation the following day as well as areas where there are water tables. These two characteristics make it possible for the plants to be properly irrigated without relying on heavy rainfall.

Ritchie and Crouch reported that the following government policies are important for the sub-sector. Infrastructure policy (can make destination safer and attractive for the visitors), Local zoning policy/by-laws can restrict or encourage tourism facility development, Land use and land assignation, Water resource management, Heritage conservation, Credit facility (granting reduced-interest loans to business and enterprises affects costs and therefore profitability), Tax and subsidies (Tax concessions for investments, can affect the growth of the industry negatively and positively and finally for the profitability of the destination), Minimum wage policy (can affect labour markets), Agricultural policy (Organic farming, Soil conservation), Welfare policy (can influence the nature and behaviour of the work force), Education, extension and Training policy (can affect the quality of the workforce), Marketing policy, Environmental policy (Limits growth and access to attractive but sensitive areas). [20]
5. Conclusion and Suggestions

Are the mainstream economists correct in their prediction that, small traditional farmers or peasant farming is an endangered species and therefore, will go the way of the dinosaur? Are small farms unproductive, inefficient, and backward and therefore, an obstacle to be overcome in the process of economic development? Is the American Model of large scale, mechanized, corporate agriculture the best way to feed the Jamaica’s Population? Does the Jamaica small farming Sub-Sector have a sustainable future with the advent of economic globalization?

This dissertation has investigated the importance of small farms and specifically small traditional farming and how it can be revived and become sustainable in this new dispensation. It has demonstrated that, despite the many challenges faced by the sub-sector, especially over the last twenty-five years, its revitalization and sustainability is not only attainable but is also critical. This sub-sector experienced mix blessing throughout its existence. For several decades it was the main economic contributor to the island’s rural economy. Increased employments and farm incomes, a reduction in food prices as well as the establishment of strong growth linkages with the non-farming economy such as agro-business, tourism, retailing and the manufacturing sectors, should be the results of economic activities of the island’s small traditional farmers. However, small traditional farmers are equally responsible for the success of this subsector. They are required to play their roles such as participating and utilizing knowledge garnered from the training provided. It is the view of the researcher that further experimental investigations are to be done so that traditional plants having greater resistance to diseases and shorter maturity periods can be engineered.

Appendix

Graph 1: Mandal Model for Sustainable Rural Farming

Figure adopted from Mandal Framework

Source: (Mandal M K, N. Khandekar, D.P. Singh and P. Khandekar, 2005)
**Table 1:** Strategic alliances between the small traditional agricultural sub-sector and local productive sectors result in increased outputs and earning capabilities of small farmers.

<table>
<thead>
<tr>
<th>Category</th>
<th>% positive response</th>
<th>% negative response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Researchers &amp; lecturers</td>
<td>96.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Farmers &amp; RADA Officers</td>
<td>87.5</td>
<td>12.5</td>
</tr>
<tr>
<td>Elite &amp; focus groups</td>
<td>90.6</td>
<td>9.4</td>
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<td>Average</td>
<td>91.37</td>
<td>8.63</td>
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**Figure 1:** Strategic alliances between the small traditional agricultural sub-sector and local productive sectors result in increased outputs and earning capabilities of small farmers.

**Table 2:** Reduction of both short term costs or input costs and long term or Environmental clean-up cost

<table>
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</thead>
<tbody>
<tr>
<td>Researchers &amp; lecturers</td>
<td>81.63</td>
<td>18.37</td>
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<td>Farmers &amp; RADA Officers</td>
<td>83.74</td>
<td>16.26</td>
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<tr>
<td>Elite &amp; focus groups</td>
<td>82.8</td>
<td>17.2</td>
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<td>Average</td>
<td>83.33</td>
<td>16.67</td>
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Table 3: government policies and programs designed with significant inputs from representatives of the small traditional farming subsector

<table>
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<th>% negative response</th>
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<tbody>
<tr>
<td>Researchers &amp; lecturers</td>
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<td>28</td>
</tr>
<tr>
<td>Farmers &amp; RADA Officers</td>
<td>83.33</td>
<td>16.67</td>
</tr>
<tr>
<td>Elite &amp; focus groups</td>
<td>81.7</td>
<td>18.3</td>
</tr>
<tr>
<td>Average</td>
<td>79.01</td>
<td>20.99</td>
</tr>
</tbody>
</table>

Figure 2: Increased sustainability of the Jamaican Small Traditional Farming Sub-sector due to endogenous innovation within the Jamaican Agrarian Sector.

| Category | Number of Respondents | Percentages  
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Success</td>
<td>155</td>
<td>(83.33 + 79.01)/2 = 81.17%</td>
</tr>
<tr>
<td>Failure</td>
<td>38</td>
<td>18.83%</td>
</tr>
<tr>
<td>Total</td>
<td>191</td>
<td>100%</td>
</tr>
</tbody>
</table>

H₀: p > 0.7  α = 0.05  C.R = z α/2 = z 0.025 = z > 1.96

Using  \( z = \frac{x - np}{\sqrt{np}} = \frac{155 - (191)(0.75)}{(191)(0.75)(0.25)} = \frac{155 - 143}{35.76} = \frac{12}{5.98} = 2.007 \)

\( Z = 2.007 \) which exceed 1.96

Reference


