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The Effectiveness of Pension Payment Management in Tanzania: A Case of NSSF in Iringa Municipality

Cosmas Ngala
Ruaha Catholic University, Tanzania.

Hadija Matimbwa
Ruaha Catholic University, Tanzania. hadija.matimbwa@gmail.com

Abstract

This study assessed the effectiveness of pension payment management in Tanzania particularly in Iringa Municipality. Specifically, the influence of ICT use, quality of staff and management style on the effectiveness of pension payment management examined. The study attempted to respond to the following research questions: - how do ICT use, quality of staff, and management style adopted contribute to the effectiveness of pension payment management? Study findings derived are imperative to the government of Tanzania, Social Security Regulatory Authority as policy makers, NSSF management, other scholars and academicians intending to venture into similar studies.

The study was conducted at NSSF in Iringa Municipality and was informed by 32 staff who responded to closed-ended questionnaires. The research was a census study implying that it was unnecessary to obtain a specific sample size owing to the fact that the NSSF, which was the focus of the study currently, accommodates only 32 staffs. A descriptive survey design was employed where frequencies and percentages were used to present participant characteristics on tables, figures and charts. The relationships between study variables were determined through the inferential analysis tool that analyzes point to the approach of SPSS version 20. Multiple Linear Regression was used to test hypotheses: the relationship between independent variables and dependent variables. Finally, the researcher tested the validity and reliability of the study using the KMO index which was 0.798 and p <0.0005 and Coefficient Alpha (Cronbach’s Alpha) which was 0.884 respectively.

Findings revealed a statistically significant weakly relationship between use of ICT and management style on the effectiveness of pension payment management also the findings revealed a moderate relationship between quality of staff and effectiveness of pension payment management.

Keywords: Pension, Payment Management, Tanzania.
1. **Introduction**

The pre-social security era was characterized by traditional forms of economic security that left most people vulnerable to the uncertainties of unemployment, illness, disability, death and old age. In the realm of economics, these inevitable facets of life are said to pose threats to one's economic security (Dagauda et al, 2013). Families and their relatives have always felt some degree of responsibility to one another to the extent that the family had resources to draw upon; this was often a source of economic security, especially for the aged or infirm. Land itself was an essential form of economic security for those who owned it or lived on farms while other traditional sources of economic security included: assets, labor, family, and charity (Ako, 2006).

The formal social security system in Africa and other developing countries is a product of colonialism. In Tanzania during the colonial era, social security coverage was extended to just a few people in the colonial employment with most excluded from the scheme. The majority of Tanzanians depended on the traditional social security system for their protection, which is still the case to date, though effects of urbanization and difficult economic environment have weakened the same. The post independence era in Tanzania saw to the introduction of a series of policies and measures to reverse the situation that had previously prevailed in the colonial era. The measures included access to free education and healthcare, provision of social welfare services to marginalized groups such as the elderly, people with disabilities and children in difficult circumstances, as well as establishment of statutory social security schemes. However, tax financed social services have proved to be unsustainable as evidenced by introduction of cost sharing in sectors such as education and health (report of Ministry of Labor, Youth Development and Sport, 2003).

According to Kazimoto et al, (2012), the pension sector plays a tremendous role in Tanzania's economy by providing retirees with income security. Furthermore, the pension system in the country is a powerful force in developing capital markets and supports the provision of long-term finance. Also the challenges facing public pension systems in Tanzania are related to inherited institutional designs and resultant governance problems. Service delivery is an area which has generated substantial dissatisfaction among members and other beneficiaries of public pension schemes, lack of updated information about the schemes, the amount of individual contributions made, estimated benefits and the number of benefits offered by most existing schemes fall below the ILO Minimum Standards in terms of number, quality and indexation to the current levels of earnings.

Tanzania’s social security pension scheme is also faced with problems and key of these is ineffective pension payment management. Another dimension of the problem is the recent controversial practice of pension funds being directly released to underwriters (Kazimoto et al, 2012). In most cases, management is unaware of some transactions that result in the amount so released. This scenario has further complicated the problem, resulting in accumulated arrears of pensioners. Some retirees fail to comply with requirements, possibly due to the cumbersome nature of the clearance procedures, leading to delay in the processing and payment of their entitlements (Kazimoto et al, 2012).

The ICT system in most social security pension offices in the country is inadequate as files are mishandled, sometimes misplaced, left in the open in ragged leading to loss of documents. Incompetent and inexperienced pension staff with irrelevant training is another difficulty facing the pension payment management scheme in Tanzania further compounded by their poor human relations skills. The continuous petitions and appeals for recalculations and computation of gratuity and pension from pensioners is another predicament. Majority of pensioners are grossly dissatisfied with calculations of their entitlements that they claim are wrongly computed. The fact that majority of pension records are not computerized does not...
help matters as the manual system is not only cumbersome but loaded with all sorts of fraud and errors such as ghost pensioners, double payments and omission of names (Tungaraza et al, 2008). Frequent reviews of pension schemes by the central government without consulting state governments and other stakeholders constitute a major challenge. Frequent reviews have resulted to implementation challenges such as inability to secure sufficient funds to meet current rates. Downsizing and rationalization of personnel in an effort to reduce operational and labor costs and promote efficiency is equally a predicament. The paradox here is that the costs attached to paying retirement and pension benefits are higher than the costs of retaining them and a collection of these many challenges constitutes the research problem.

2. Literature Review
2.1 Relationship between Use of ICT and Pension Payment Management
Okoli et al, (2012) examined “the influence of ICT on secretaries’ performance in government ministries in Nasarawa State” and found that ICT enhanced the proficiency of secretaries by enabling them to process accurate and relevant information within the shortest possible time. The advent of ICT has dramatically changed the roles and effectiveness of secretaries in government offices; hence there is need for availability of ICT resources/equipment in government offices as well as acquisition of secretarial requisite skills and competencies. The study revealed that ICT influenced the performance of secretaries in various ways to include; speedy delivery of information, accuracy and effectiveness at work. The researchers recommended among others that government ministries should procure the latest model of ICT facilities to enhance secretarial functions and create opportunities for training and re-training of secretaries as to cope with new changes and advancement. In the current study issues like speedy delivery of information, accuracy and effectiveness at work were taken for further study.

Sabina (2016) studied the influence of employee motivation strategies on project performance: a case of Information Communication Technology (ICT) transformational project Nairobi county government, Kenya. The Nairobi City Country envisioned that operational improvement through ICT transformation would strengthen the County’s ability to improve service quality delivery. This motivated The Nairobi City County Government to embark on an ICT Transformational Project that seeks to deploy suitable ICT solutions at the county headquarters and its satellite offices with the aim of improving citizen service delivery, increasing efficiency and enhancing revenue collection. However ICT use and uptake is yet to meet the intended objective as attributed to employee motivational levels which potentially influences ICT Transformation project performances. It was concluded as per findings that organizational culture change significantly influenced ICT transformational project performance, project motivation strategies influenced the technical satisfaction of customers, budget and resources, provision of quality services, and increased rates of client to a very great extent, team building influence success of ICT transformation project performance and that lack of teamwork in project management affects project performance and that there exists a significant and positive relationship between stakeholder communication and ICT transformational project performance. Therefore in view of the aforementioned strategies and cohesive factors, perspective methods should be adopted to combat wastage of resources and improve project performance in the County government of Nairobi. However; based on this review for current study, the issue of change in organizational culture and improvement of quality of services through use of ICT to enhance the Project Performance in Nairobi City County Government, Kenya also, were taken for further investigation if can be enhancing effectiveness of pension payment management in Tanzania.
Irungu, (2015) studied the influence of information and communication technology on the performance of the aviation industry in Kenya with the case of Kenya Airways –Kenya offices. Study findings showed that information and communication technology which includes communication networks, mobile phone technology, and handheld devices such as iPads and Internet and computer applications influence the performance of the aviation to a large extent by assisting to improve on speed of passenger handling and increased revenue generated from improved access to information. It was recommended that the company should align itself to using ICT at a strategic level. However; this review was vital on improving the way of handling passenger through using ICT as the current study was further investigating likely issues such as ways of communication and feedback, database management, fraud detection and cost reduction with increase revenue through using ICT on the effectiveness of pension payment management.

2.2 Relationship between Quality of Staff and Pension Payment Management

There is a large and growing body of evidence that demonstrates a positive linkage between the quality of employees in terms of skills, knowledge and experience with organizational performance. The emphasis on human capital in organizations reflects the view that the market value depends less on tangible resources, but rather on intangible ones, particularly human resources. Recruiting and retaining the best employees, however is only part of the equation (Cassel, 2001). The organization including pensions fund also has to leverage the skills and capabilities of its employees by encouraging individual and organizational learning and creating a supportive environment where knowledge and skills can be created, shared and applied.

It is believed that the linkage between quality of employees and organizational performance is convincing. Quality of employees was found to improve productivity in terms processing of benefits; investments of pension funds since it encourages innovation to problem solving, achieving competitiveness and mitigating associated costs related to litigation (Lorbiecki, 2000). It was revealed that Quality employees play an important role in strategic planning on how to create competitive advantages. It has two dimensions which are value and uniqueness. Firms indicate that resources are valuable when they allow improving effectiveness, capitalizing on opportunities and neutralizing threats. In the context of effective management, value focuses on increasing profit in comparison to associated costs. In this sense, firm’s employees can potentially add value if it contributes to lower costs, provide increased performance and quality services to clients. However; the current study was further re-investigate the following sentences for effectiveness of pension payment management “leverage the skills and capabilities of its employees by encouraging individual and organizational learning and creating a supportive environment where knowledge and skills can be created, shared and applied” (Cassel, 2001) and where Lorbiecki, (2000), “Quality of employees was found to improve productivity in terms processing of benefits; investments of pension funds since it encourages innovation to problem solving, achieving competitiveness and mitigating associated costs related to litigation; also, Quality employees play an important role in strategic planning on how to create competitive advantages of an organization”.

2.3 Relationship between Management Style and Pension Payment Management

Wairumi (2014) investigated the relationship between employees and employers and found it significantly influence management style that an institution usually employs. It is important to understand the different styles of management that institutions employ and understand the manner in which such styles influence worker motivation. The purpose of this study was to explore the relationship between management styles and worker motivation in Kenya. The researcher reviewed literature from all over the world in order to understand the theoretical perspectives of management and motivational needs at the workplace.
The research employed a desk study whereby various literature materials from Kenya were researched and compared in order to meet the objectives of the study (Iqbal, 2007). From the results, it was established that most studies done in Kenya on management styles and motivational needs at the workplace were done in teaching institutions and most were conducted students. Only one study was commissioned by an institution to study its employees’ motivation. The research concluded that democratic and transformational management styles were the most worker motivational management styles as preferred by most employees. Institutions that employed authoritative and laissez faire styles of management were found to be less motivating and experienced low productivity (Dwivedula & Bredillet, 2010). It was recommended that future field studies should be commissioned by more institutions in the country in order to ensure that employers understand workers’ motivational needs. It is only through such understanding that employers will be able to improve organizational productivity (Greenberg, 2011). However, the current study was interested with the reviews since the reviews advocated that “institutions involved in the study employed authoritative and laissez faire styles of management which found to be less motives to the workers and experienced low productivity” (Dwivedula & Bredillet, 2010). This scenario provide new room for the current study to investigate further other way(s) of management style such as involvement management style, delegation of power (mutual trust) between top management up to the first line subordinates, two ways communication style and the Administrators provide the direction (setting clear goals) in which the subordinates follow-up to achieve the organizational mission as well as vision.

Namusonge et al (2012) investigated the major effects of leadership styles on organizational performance in state owned corporations in Kenya; specifically the study sought to determine the impact of laissez-faire, transactional and transformational leadership styles on organizational performance at state-owned corporations in Kenya. A descriptive survey research based on the perceptions of middle and senior managers in thirty (30) state-owned corporations based in Mombasa, Kenya was undertaken. A structured self-completed research questionnaire was thereafter distributed and collected after one week. The completed questionnaires were checked for plausibility, integrity and completeness resulting in 72 usable cases. To identify leadership styles that influence organizational performance, a correlation analysis was employed. Correlations between the transformational-leadership factors and organizational performance ratings were high (0.518 to 0.696, P < .05), whereas correlations between the transactional-leadership behaviors and organizational performance were relatively low (0.219 to 0.375, P <.05). As expected, the laissez-faire leadership style was not significantly correlated to organizational performance thus the following recommendations were provided: managers should discard the laissez-faire leadership style by actively guiding their subordinates; public managers should formulate and implement effective reward & recognition systems. It was further recommended that managers should: strive to become role models for their subordinates; inspire subordinates by providing meaningful and challenging work; stimulate subordinate efforts to become more innovative & creative; and lastly, pay greater attention to each individual’s need for achievement and growth.

2.4 Research Gap

As revealed in literature reviewed, several scholars have studied organizational productivity and performance in consideration of determinants such as use of ICT, quality of staff, management style, working environment, organizational culture and design as well as power control. The following are specific issues from empirical reviews presented above which impressed for further investigation of the study. Firstly; Ajala, (2012) for instance analyzed the influence of the workplace environment on workers welfare and productivity in government parastatals of Ondo State, Nigeria and findings showed that workplace features and good
communication network at workplaces affected worker’s welfare, health, morale, efficiency, and productivity, where the study didn’t say about the role or influence of management style in organization(s) on the performance of task(s), where the current study was taken this issue for further investigation; Secondly; some literature reviews on ICT had spoken on the influence on the performance. For example; Okoli et al, (2012) examined the influence of ICT on secretaries’ performance in government ministries in Nasarawa State and found that ICT influenced secretaries’ performance. The study didn’t investigate about others factors such as the effect of use of ICT on the effectiveness at work where also the current study also was investigated.

Thirdly; some of literature reviews communicated about the qualities of employees on working places for example, Lorbiecki, (2000); believed that the linkage between quality of employees and organizational performance is convincing. Quality of employees was found to improve productivity in terms processing of benefits; investments of pension funds since it encourages innovation to problem solving, achieving competitiveness advantages and mitigating associated costs related to litigation. The current study was impressed to redo and move further investigate the issues such as commitment and tolerance of workers, customers services excellence, career growth and competence of workers. However, this study systematically assessed the effectiveness of pension payment management in Tanzania and it should noted that most of the studies have been conducted in other African countries and regions and very few in East African countries like Tanzania, Kenya, Uganda, Rwanda, Burundi and South Sudan thus, the current study attempted to bridge this knowledge gap.

3. Results and Discussion

3.1 Contribution of ICT on the effectiveness of pension payment management

Upon measuring the contribution of ICT on pension payment management, several indicators were taken into consideration such as data base management, easily processing pension’s payment, quickly services delivery, new ways of communication, prompt feedback, cost reduction and fraud detection as indicated on table 1 below.

Table 1 The influence of use of (ICT) on the Effectiveness of Pension Payment Management

<table>
<thead>
<tr>
<th>Use of ICT Indicators’</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Cumulative Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Cumulative Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Database management</td>
<td>0.0(0)</td>
<td>3.1(1)</td>
<td>3.1(1)</td>
<td>0.0(0)</td>
<td>43.8(14)</td>
<td>53.1(17)</td>
<td>96.9(31)</td>
</tr>
<tr>
<td>Easily pension processing</td>
<td>0.0(0)</td>
<td>3.1(1)</td>
<td>3.1(1)</td>
<td>3.1(0)</td>
<td>37.5(12)</td>
<td>56.3(18)</td>
<td>93.8(30)</td>
</tr>
<tr>
<td>Quickly service delivery</td>
<td>0.0(0)</td>
<td>0(0)</td>
<td>0.0(0)</td>
<td>3.1(1)</td>
<td>34.4(11)</td>
<td>62.5(20)</td>
<td>96.9(31)</td>
</tr>
<tr>
<td>New ways of communication</td>
<td>0.0(0)</td>
<td>0(0)</td>
<td>0.0(0)</td>
<td>6.3(2)</td>
<td>37.5(12)</td>
<td>56.3(18)</td>
<td>93.8(30)</td>
</tr>
<tr>
<td>Prompt feedback</td>
<td>0.0(0)</td>
<td>12.5(4)</td>
<td>12.5(4)</td>
<td>3.1(1)</td>
<td>37.5(12)</td>
<td>46.9(15)</td>
<td>84.4(29)</td>
</tr>
<tr>
<td>Cost reduction</td>
<td>0.0(0)</td>
<td>3.1(1)</td>
<td>3.1(1)</td>
<td>0.0(0)</td>
<td>40.6(13)</td>
<td>56.3(18)</td>
<td>96.9(31)</td>
</tr>
<tr>
<td>Fraud detection</td>
<td>0.0(0)</td>
<td>0(0)</td>
<td>0.0(0)</td>
<td>3.1(1)</td>
<td>34.4(11)</td>
<td>62.5(20)</td>
<td>96.9(31)</td>
</tr>
</tbody>
</table>

Source: Field data (2018)

Table 1 indicates that 96.9% of respondents declared that the ICT system is effective for database management. Furthermore, 96.9% of respondents affirmed that the ICT system facilitates quick service delivery and reduces costs during pension payment. Moreover 96.9 % of respondents agreed that ICT systems enable the detection of fraud during pension payment.
while 93.8% stated that the ICT system facilitates easy processing of pension payment. 93.7 % also suggested that the ICT system creates new ways of communication while 84.4% agreed that system provides real time. Therefore, these findings above imply that ICT systems help NSSF in managing their data accordingly as well as provide quick services to customers, cost efficient also create new ways of communication. Hence enhance the effectiveness of pension payment management.

The findings are in line with those established by Macintosh et al., (2003) who found that well implemented ICT systems can improve current government services, increase accountability, and results in more accurate and efficient delivery of service, reduce administrative costs and time spend on repetitive tasks for government employees. The above findings are also supported by Adekunle, Oluwole, Binuyo and Tersia Brevis-Landsberg (2014) who assessed the relationship between ICT investments in relation to organizational performance in Nigeria with a specific focus on knowledge-imbibed organizations – universities. The study focused on drawing possible relationships between ICT investment and ICT cost efficiency and, various indicators of organization performance such as return on capital employed, net profit margin and return on assets. The study was informed by data generated from annual reports of 37 universities in South West Nigeria over the period between 2001 and 2010 in dynamic panel environment. Controlling for structural differences and time-varying dynamics among these universities, the analyses show varying effects of ICT investment on performance. The findings also indicate that ICT investment and ICT cost efficiency have a positive and significant relationship with performance indicators. It was recommended that ICT investment should be guided in order to stimulate organizational performance.

3.2 The Influence of Staff Quality on the Effectiveness of Pension Payment Management

In an effort to examine the influence of staff quality on pension payment management, several dimensions explored include; creativity, service diversification, hardworking, career development, competitive advantage and customer service excellence and findings are as indicated on 2 below:

<table>
<thead>
<tr>
<th>Staff Quality Indicators'</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Cumulative Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Cumulative Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creativity and innovativeness</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>3.1(1)</td>
<td>37.5(12)</td>
<td>59.4(19)</td>
<td>96.9(31)</td>
</tr>
<tr>
<td>Service diversification</td>
<td>0.0(0)</td>
<td>6.3(2)</td>
<td>6.3(2)</td>
<td>0.0(0)</td>
<td>43.8(14)</td>
<td>50.0(16)</td>
<td>93.8(30)</td>
</tr>
<tr>
<td>Ability to work independently</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>31.3(10)</td>
<td>68.8(22)</td>
<td>100(32)</td>
</tr>
<tr>
<td>Commitment</td>
<td>0.0(0)</td>
<td>3.1(1)</td>
<td>3.1(1)</td>
<td>0.0(0)</td>
<td>28.1(9)</td>
<td>68.8(22)</td>
<td>96.9(31)</td>
</tr>
<tr>
<td>Career growth</td>
<td>0.0(0)</td>
<td>12.5(4)</td>
<td>12.5(4)</td>
<td>0.0(0)</td>
<td>28.1(9)</td>
<td>59.4(19)</td>
<td>87.5(28)</td>
</tr>
<tr>
<td>Courage/Tolerance</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>28.1(9)</td>
<td>71.9(23)</td>
<td>100(32)</td>
</tr>
<tr>
<td>Competitive advantage</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>31.3(10)</td>
<td>68.8(22)</td>
<td>100(32)</td>
</tr>
<tr>
<td>Customer service excellence</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>3.1(0)</td>
<td>31.3(0)</td>
<td>65.6(21)</td>
<td>96.9(31)</td>
</tr>
<tr>
<td>Mastering work</td>
<td>0.0(0)</td>
<td>3.1(1)</td>
<td>3.1(1)</td>
<td>0.0(0)</td>
<td>43.8(14)</td>
<td>53.1(17)</td>
<td>96.9(31)</td>
</tr>
</tbody>
</table>

Source: Field Data (2018)
Table 2 above shows that 100% of respondents declared that NSSF Staff have the ability to work independently. It further shows that respondents revealed that stuff are resilient to difficulties, challenges and conflicts from customers or top management and could ensure competitive advantage. 96.9% of respondents revealed that NSSF Staff were creative, innovative and willing to work hard to ensure effective pension payment management. Furthermore the same percentage of respondents agreed that NSSF staff provide excellent customer service while 93.7% declared that service diversification depended on staff quality. Finally, 87.5% of respondents stated that NSSF staffs were willing to develop their career in pension payment management.

Findings therefore imply that staff quality is determined by their creativity, service diversification as well as excellent customer service provision. These findings with similar findings by Dutta et al. (2011) who analyzed whether and how specialized and diversified education influences innovative ideas into entrepreneurship and future wealth. Their findings revealed that quality staff led to higher productivity and creation of sustainable competitive advantage. Moreover Bontis, Keow and Richardson (2000) found a positive significant relationship between employees’ level of education and firm performance for both service and non service industries. Carmeli and Tishler (2004) and Belkaoui (2003) proved a positive association between quality of employees and firm future performance and suggested that the relationship might be industry and country specific.

3.3 The Influence of Management Style on the Effectiveness of Pension Payment Management

The responses on the influence of management style on the effectiveness of pension payment management are as presented on Table 3 below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Cumulative Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Cumulative Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability of employee goals</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>46.9(15)</td>
<td>53.1(17)</td>
<td>100(32)</td>
</tr>
<tr>
<td>Two way communication style</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>3.1(1)</td>
<td>46.9(15)</td>
<td>50.0(16)</td>
<td>96.9(31)</td>
</tr>
<tr>
<td>Mutual Trust</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>3.1(1)</td>
<td>31.3(10)</td>
<td>65.6(21)</td>
<td>96.6(31)</td>
</tr>
<tr>
<td>Employees involvement</td>
<td>0.0(0)</td>
<td>6.3(2)</td>
<td>6.3(2)</td>
<td>3.1(1)</td>
<td>53.1(17)</td>
<td>37.5(12)</td>
<td>90.6(29)</td>
</tr>
<tr>
<td>Provision of rewards or motivation</td>
<td>3.1(1)</td>
<td>0.0(0)</td>
<td>3.1(1)</td>
<td>3.1(1)</td>
<td>53.1(17)</td>
<td>40.6(13)</td>
<td>93.7(30)</td>
</tr>
<tr>
<td>Encourages poor performers</td>
<td>6.3(2)</td>
<td>34.4(11)</td>
<td>40.7(13)</td>
<td>3.1(1)</td>
<td>28.1(9)</td>
<td>28.1(9)</td>
<td>56.2(18)</td>
</tr>
</tbody>
</table>

Source: Field Data (2018)

As presented on table 3 above, 100% of respondents declared that NSSF management set clear employee goals for pension payment. Furthermore 96.9% of respondents admitted that NSSF embraces a two way communication style while 96.9 % agreed that NSSF management delegates responsibilities to subordinates. 93.8% of respondents agreed that management
provides rewards or motivations to performing employees while 90.6% agreed that NSSF employees’ are involved in decision making. 56.2% of respondents agreed that management encouraged poor performing employees through incentives and mentorship while 40.7% disagreed to the statement.

It is factual that the two way communication style has a positive impact on performance and when employed by managers, it improves relationships and the flow of information between subordinates and managers. Employees can openly discuss their problems and also provide suggestions to their management for better performance of employees. The top management can easily get feedback from employees for non – financial and financial activities in the organization. Such motivation is possible only through two way communication which leads to higher job satisfaction among employees.

### 3.4 Effectiveness of Pension Payment Management

It was imperative to obtain respondents’ opinion on the effective of NSSF pension payment management and findings are as presented on Table 4 below;

<table>
<thead>
<tr>
<th>Effectiveness of Pension Payment Management</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Cumulative Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
<th>Cumulative Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Item</td>
<td>Per(Frq)</td>
<td>Per(Frq)</td>
<td>Per(Frq)</td>
<td>Per(Frq)</td>
<td>Per(Frq)</td>
<td>Per(Frq)</td>
<td>Per(Frq)</td>
</tr>
<tr>
<td>Customers served per day increase</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>6.3(2)</td>
<td>25.0(8)</td>
<td>68.8(22)</td>
<td>0.0(0)</td>
</tr>
<tr>
<td>Minimize errors</td>
<td>0.0(0)</td>
<td>3.1(1)</td>
<td>3.1(1)</td>
<td>6.3(2)</td>
<td>25.0(8)</td>
<td>65.6(21)</td>
<td>90.6(28)</td>
</tr>
<tr>
<td>Effectiveness of Pension Payment Management</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>6.3(2)</td>
<td>28.1(9)</td>
<td>65.6(21)</td>
<td>90.7(30)</td>
</tr>
<tr>
<td>Customers’ satisfaction</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>6.3(2)</td>
<td>18.8(6)</td>
<td>71.9(23)</td>
<td>90.7(29)</td>
</tr>
<tr>
<td>Reduction of complaints</td>
<td>0.0(0)</td>
<td>6.3(2)</td>
<td>6.3(2)</td>
<td>3.1(1)</td>
<td>31.3(10)</td>
<td>68.8(22)</td>
<td>100(32)</td>
</tr>
<tr>
<td>Fraud is detected</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>37.5(12)</td>
<td>62.5(20)</td>
<td>100(32)</td>
</tr>
<tr>
<td>Accurate computation of payment</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>31.3(10)</td>
<td>68.8(22)</td>
<td>100(32)</td>
</tr>
<tr>
<td>Easy payment computation</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>31.3(10)</td>
<td>68.8(22)</td>
<td>100(32)</td>
</tr>
<tr>
<td>Timely issuing Payment</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>0.0(0)</td>
<td>6.3(2)</td>
<td>25.0(8)</td>
<td>68.8(22)</td>
<td>93.8(30)</td>
</tr>
</tbody>
</table>

Source: Field Data (2018)

As presented on table 4, 100% of respondents declared that frauds are effectively detected and agreed to accuracy in payment computation. Furthermore 100% of respondents agreed that pension payment computations at NSSF were easy while 93.7% agreed that the number of customers served daily at NSSF was on the increase, customers were satisfied and pension payments were promptly issued. Moreover 90.6% also agreed with the statement that the low error in services provided consequently decreased the number of complaints.
3.5 Multiple Linear Regression Analysis Technique

Multiple Linear Regression Analysis technique employed as a Test of hypotheses by using Effectiveness of Pension Payment Management as the outcome variable and the variables Use of ICT, Quality of Staff, and Management Style as predictors. Expected that better performance of the Effectiveness of Pension Payment Management be associated with highly Use of ICT, higher Quality of Staff and fair and friendly Management Style.

That means: if the significance level (p-value) is very small (less than 0.005) then the variables were significant and the two variables were linearly related. The coefficients of explanatory variables show the magnitude in which each influence the dependent variable. Here below is the model representing the Multiple Linearity Regression equation and results from SPSS:

\[ Y = \alpha + \beta_1 \text{Use of ICT} + \beta_2 \text{Quality of Staff} + \beta_3 \text{Management Style} + \epsilon \]

Table 5 below showing regression analysis results from SPSS

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
<th>T</th>
<th>Sig.</th>
<th>95.0% Confidence Interval for B</th>
<th>Correlations</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
<td>Beta</td>
<td></td>
<td>Lower Bound</td>
<td>Upper Bound</td>
</tr>
<tr>
<td>(Constant)</td>
<td>3.036</td>
<td>7.691</td>
<td>.395</td>
<td>.018</td>
<td>-12.719</td>
<td>18.792</td>
</tr>
<tr>
<td>ICT</td>
<td>.271</td>
<td>.177</td>
<td>.239</td>
<td>1.527</td>
<td>.003</td>
<td>-.092</td>
</tr>
<tr>
<td>QS</td>
<td>.631</td>
<td>.176</td>
<td>.560</td>
<td>3.580</td>
<td>.001</td>
<td>.270</td>
</tr>
<tr>
<td>MS</td>
<td>-.019</td>
<td>.244</td>
<td>-.013</td>
<td>-.080</td>
<td>.126</td>
<td>-.518</td>
</tr>
</tbody>
</table>

a. Dependent Variable: EPPM

Source: Field data, (2017)

As per cross tabulation the multiple linear regression equation is defined as \[ Y=3.036+0.271X_{\text{ICT}}+0.631X_2-0.019X_3+\epsilon \]. The MLR coefficients were interpreted as follows:

**Decision and Conclusion:** Focus on the three predictors, whether they are statistically significant or insignificant and, the direction of the relationship. The Use of ICT, \( \beta=0.271 \) is statistically significant since calculated p-value is less (p=0.003) than the critical p-value (p=0.005), and the coefficient is positive (0.271) which would indicate that a one unit change in Use of ICT, is related to the increase of the effectiveness of pension payment management by 0.271 level. As we would expect that the increases Use of ICT result to the increase of effectiveness of pension payment management or performance in any organization. Next, Quality of Staff (\( \beta=0.631, \ p=0.001 \)) is significant and its coefficient is positive indicating that the greater the Quality of Staff hired, related to the greater the effectiveness of pension payment management. Thus, higher levels of Staff Quality are associated with higher the effectiveness of pension payment management. This result also makes sense. Finally, the Management Style (\( \beta=-0.019, \ p=0.126 \)) seems to be unrelated to the effectiveness of pension payment management. The findings would seem to indicate that the Management Style is not an important factor in predicting the effectiveness of pension payment management; since calculated p-value is greater (p=0.126) than the critical p-value (p=0.005). This result was somewhat unexpected.

Both Pearson Correlation Coefficient and Multiple Linear Regression Analysis Techniques as were employed to test hypotheses of the study all the converged at the same answer, that there is statistic significant between Use of ICT, and Quality of Staff on Effectiveness of Pension Payment Management and statistic insignificant between Management Style and Effectiveness of Pension Payment Management.
4. Conclusion

The study concludes that use of ICT less required for the effectiveness of pension payment management but according to response of the respondents as presented in findings, it is implying that use of ICT it is very virtue on influence the effectiveness of pension payment management because respondents had positive altitude (agreed) on the function of ICT such as database management, Fraud detection, Cost reduction, and quickly service delivery about 96.9% of respondents agreed, Easily pension processing and new ways of communication about 93.8% of respondents agreed and finally about 84.4% of respondents agreed that the prompt feedback through using ICT. However; the Administers should keep on emphasizing the use of ICT and proper use of it through provision of training to employees whose are unfamiliar with the ICT system and keeping improving system to move with new version. Also study concludes that to large contribution made by staff quality on the effectiveness of pension payment management more than half of total effectiveness about 0.631.

Multiple Linear Regression resulted as B=-0.019, 0.126 greater than 0.05 is insignificance related to the effectiveness on pension payment management. These results are contrary to the respondents’ response, i.e. management style which is defined in this study as presented above 100% of respondents declared that NSSF management set clear employee goals for pension payment. Furthermore 96.9% of respondents admitted that NSSF embraces a two way communication style and delegates responsibilities to subordinates (mutual trust). 93.8% of respondents agreed that management provides rewards or motivations to performing employees while 90.6% agreed that NSSF employees’ are involved in decision making; 56.2% of respondents agreed that management encouraged poor performing employees through incentives and mentorship while 40.7% disagreed to the statement. By using these results administrators should practice fairly and involvement management style because had positive response to the respondents on the effectiveness of pension payment management an expected to have positive influence on the performance in any other organization.

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The Effects of Government Incentives on the Performance of Small and Medium Sized Enterprises in Cameroon: Evidence from Mezam Division

Regina Nchotu Akwanui  
Pan African Institute of Development, Cameroon.

Fabien Sundjo  
St. Monica University, Cameroon. sundjofabien@rocketmail.com

Abstract

Small and medium sized enterprises (SMEs) are viewed as a catalyst to economic breakthrough and innovation, job creators, and as the nursery bed for large businesses. Despite the important role SMEs play in the economy of a nation and the support the government provides to enhance the performance of this sector, SMEs still find it hard to make the expected contribution to drive forward economic growth and development. This study therefore investigated the effects of government incentives on SMEs performance in the North West Region of Cameroon. Specifically, the study aimed at investigating the effects of: (a) government incentives, (b) the level of education of the managers of SMEs and (c) the age of the enterprise on the performance of SMEs. To achieve these objectives, data was collected using questionnaires with a sample size of 100 owners and managers of SMEs as respondents. These enterprises were chosen through a purposive sampling technique. Data were analysed using both descriptive and inferential statistics. The probit regression model was used to test the specific objectives of the study. The findings from the study showed that incentives positively influence the performance of SMEs. It was also clear from the findings that entrepreneurs with a higher level of education and/or vocational training and experience will decrease the odds for the SME, not to grow by its marginal effect, compared to entrepreneurs with low level of education, no vocational training and no experience. The government should therefore avail information about incentives and involve private sector operators in policy conception. Implementing institution and officers should distribute or allocate incentives fairly and judiciously. SME owners and managers should build their capacity and be dynamic to seek information and seize opportunities that can enhance the performance of their SMEs.

Keywords: SME performance, government incentive and probit regression model

1. Introduction

SMEs create jobs, generate revenue through taxes and contribute immensely to economic growth (OECD, 2010). SMEs spur up economic breakthrough and innovation and are also the nursery bed for large businesses and the engine of growth of national economies (OECD, 2012). SMEs play a key role in the economic development and poverty reduction in Africa (United
Nations Economic Commission Policy Brief, 2000). Consequently, African governments have become committed to SME promotion. For example, the government of Angola established Angola’s Sovereign Wealth Fund (FSDEA) called Kijinga, which support start-ups and the expansion of new products and services in the outskirts of its cities (FSDEA Annual Report, 2014). Likewise, the Government of Kenya (2007) has also conceived and is running a major strategic plan, known as Vision 2030, in which Information and Communication Technologies (ICTs) and SMEs have been identified as major driving forces for its realization. The government of The Gambia (2011) came up with the Programme for Accelerated Growth and Employment (PAGE) 2012-2015 which principally targets SMEs as the necessary tool for realizing its goals.

SMEs represent 99 % of all firms in developing countries, as well as play a significant role in creating employment opportunities and ensuring social stability (Fjose et al. 2010). The following African countries present the share of SMEs in employment thus: 39 % in Malawi, 38 % in Kenya, 37 % in Zambia, 33 % in Côte d’Ivoire, 32% in Tanzania, 21% in South Africa, 20 % in Burundi, and 19 % in Cameroon. It is worth noting that of all the above mentioned African countries, Cameroon presents the lowest percentage share of SMEs in employment. These facts and declarations show that SMEs are very important in the economic growth of all nations.

The Government of Cameroon has embraced a long-term development vision which aspires to make Cameroon an economic and democratic emerging country by 2035. The major tool of this vision is the prioritization of SMEs. Law No 2010/001 of 13 April 2010 lays down the general framework for the promotion of SMEs. Similarly, Decree No 2013 / 092 of 3 April 2013 spells out the organization and functioning of the Small and Medium-Sized Promotion Agency as amended and supplemented by decree No 2013/297 of 9 September 2013. This decree provides a package of liberal incentives offering foreign investors opportunities to come in and boost the economy. The government has eased the creation of enterprises through the one-stop shop and facilitated access to finance through the creation of a special bank for SMEs. With these steps, the government of Cameroon shows its understanding that the major driving force towards achieving economic growth and employment is through the creation and growth of the SME sub-sector.

Cameroon is endowed with diverse rich natural resources and is strategically located such that it is considered the regional economic hub and an investment choice for foreign companies given its unlimited access to the sea, large potential market, improvements in regional transport links and the creation and growth of new sectors in the economy (U.S. Department of State, 2014). In addition, Cameroon serves as a transit point for the imports and exports of two landlocked countries in the region namely Chad and The Central African Republic.

Following the above background, Cameroon would have been a very strong economic power in the Central African sub-region but this is not the case because weak governance is hindering its development and ability to attract investments. Cameroon is ranked 153rd out of 180 countries in the 2017 Transparency International corruption perceptions index and 163rd out of 190 economies (Doing Business 2018 Report). Cameroon’s poor business environment according to the position the country occupies on the corruption perception index of Transparency International and the World Bank’s Doing Business Report 2018 suggests the difficulty SMEs encounter in their performance and growth. SMEs generally still either fail in the first years of activity, or remain very small (OECD, 2016b). They face significant constraints to growth ranging from excessive red tape, ineffectiveness of the different types of support provided and implementation challenges. Gaps exist between policy and implementation. Government policy, regulatory and institutional framework reforms have also not always facilitated and liberated SMEs to perform better and grow but rather, through burdensome regulations and
taxes, suppress their growth potential (Edmore, 2017). SMEs are often constrained by opaque policies and overbearing regulations (OECD, 2010). Only 36% of the expected contribution to the country’s gross domestic product from SMEs has been attained on a national basis in Cameroon (Ngoa, 2015). This triggers the need for an in-depth investigation into how government incentives and other growth factors affect the performance of SMEs in the context of Mezam Division of the North West Region of Cameroon.

Following the above background and problem statement, the major objective of this research is to investigate the reasons why government’s efforts have not attained their objective to encourage the performance of SMEs so that they can realize their full potential and contribute to the economic growth and the country’s GDP.

In order to achieve this major objective, the following specific objectives are outlined:

- To investigate the effect of incentives on SME performance
- To appraise the effect of the level of education of the manager of SME on the performance of the SME
- To assess the effect of the age of the SME on its performance

From the background and the main objective of the study, the major research question that arises is: Why has government’s efforts not been able to attain the objective of encouraging SMEs performance so that they can realize their full potential and contribute to the economic growth? Following this research question the following specific questions were formulated:

- What is the extent of the effect of incentives on SME performance?
- What is the effect of the level of education of the manager of SME on the performance of the SME?
- What is the effect of the age of SME on its performance?

The gap to be filled by this study, will permit it to act as, a reference point for further research in this domain in Cameroon and other developing countries. Secondly, the positive effect of government incentives on SMEs might not be effective and consistent. Hence, investigating the effects of incentives and other factors that affect SME performance is vital in the context of Cameroon. Policy wise, this study is important because better policy could still be formulated and its implementation controlled and rendered more effective.

The rest of the study is structured as follows: The next Section is aimed at reviewing the literature, while Section three describes the methodology and section four present the findings. Section five focus on the policy implication while section six concludes the paper.

2. Literature Review

A lot of research work presenting and analyzing indicators that influence SMEs’ performance exist. The findings of such studies are, however, mixed and varied. Doh & Kim (2014) explored the effects of governmental policies on the innovation of SMEs in the regional strategic industries in South Korea using the technological development assistance funds as understudy. The results indicated that a positive relationship exists between the technological support and performance. Hence, governmental financial aids are important for SME. The objective of another study by Barajas et al. (2016) was based on analyzing the impact of public support on Spanish SMEs performance considering technological and economic variables. The result showed that, there exists a direct and positive impact of government incentives on technological assets of SMEs. In addition, some researches focused on the impact produced by the government support while comparing firms that received the support with those that did not.
This is the case of studies like those of Maggioni et al. (1999) and Morris & Stevens (2010). These studies compared firms that received funding or other forms of assistance, with firms that did not. Morris & Stevens (2010) found that the program had a significant positive impact on sales, although the effect on value-added and productivity was not conclusive. Maggioni et al., (1999) found out that the public program produced mixed effects: government aid allowed firms to have a higher level of technology, but government funding gave rise to entrepreneurial start-ups, which are not always fully efficient.

Another study aimed at assessing the effectiveness of public support to Small and Medium-Sized Enterprises (SMEs) in the Brussels-Capital Region in Belgium over the period 2004-2009, focused on research and development subsidies, loans, and equity capital (Fombasso & Cincera 2015). They measured performance in terms of employment creation in the short-term over a one-year interval. The study employed dummy variables in a comparative or quasi-experimental research design involving a control group selected beforehand through a propensity-score matching procedure. The results obtained revealed that research and development subsidies generally led to better performance, followed respectively by loans and equity capital. This result showed in particular that the type of government incentive to support the enterprise determines the results of their intervention in the SME sector.

Zindiye et al. (2012) investigated the influence of government and other institutions’ support on the performance of SMEs in the manufacturing sector in Harare, Zimbabwe. The target population for this study was SME owners or managers. Data analysis was done using the Chi-square to establish the correlation. Ordinal Multinomial Logit Models were used to test for the effects of explanatory variables on those responses that had more than two categories. For the binary responses Ordinary Logit Models were used. To assess or evaluate the association among the response factors, Loglinear Modeling was used. The results indicated that government and other institutions’ support are playing a positive role on the performance of SMEs. The statistical programmes ANOVA (Analysis of variance), as well as a regression analysis were employed to statistically test the significance of this assertion. The results indicated that the Zimbabwean government support initiatives play a significant role in determining the performance of SMEs in the manufacturing sector in Harare. The results indicated that there is a positive relationship.

While on one hand effective government assistance may help individual firms overcome institutional and other barriers in an uneven playing field, on the other hand, misguided government support may affect incentives and distort the effective working of market forces. Hansen et al. (2009) analysed whether direct government assistance during start-up and other forms of interaction with the state or public sector have influence on the long-run performance of manufacturing SMEs in Vietnam. They used three partly overlapping surveys during the period 1990–2000 and found that there are strong effects on firm dynamics from interaction with state institutions. Through survey data, they analysed and compared the performance of receivers of initial government assistance with firms receiving no assistance. They used standard parametric regression methods for estimating the average effect of the assistance and tried to find the general average effect by simply estimating the average effect of any kind of direct government support. They further looked more closely at the average effects of specific support programmes to certain sub-groups of the SME’s, such as rural versus urban enterprises and household versus non-household enterprises. They found that government support during start-up had no significant impact on enterprise survival, while there was a positive impact on the long-run revenue growth rate. They also looked at the different kinds of government support in more detail and found significant differences between receivers and non-receivers of direct credit assistance among rural enterprises and that non-household enterprises receiving
temporary tax exemptions have, on average, grown faster compared to their non-receiving counterparts, conditional on other growth determinants. From the results it can therefore be concluded that government assistance helps SMEs improve their performance and survival perspectives.

Trong et al (2017) conducted a study using a panel dataset of private manufacturing SMEs surveys in the period 2007-2015. The study aimed at investigating the effects of government support on firms’ financial performance in Vietnam. The dynamic model approach was used. Like the results of previous studies, the findings of this study showed that government assistance affect firms’ financial performance. This result is in support of the institutional theory. In addition, the result showed that technical supports from government such as export promotion, human resource training and technology programmes have insignificant influence on the business financial performance. The results also showed that financial support plays an important role, suggesting that supporting measures as tax exemptions, soft loans and investment incentives promote efficiency and are vital for the development of Vietnamese private SMEs.

Other empirical studies have demonstrated how the educational level of the SME owner or manager, his experience, skills and other personal attributes equally influence the performance of SMEs. A study conducted in South Africa by Chiliya & Roberts-Lombard (2012), investigated the impact of level of experience and education and the age of the business on the financial performance of the small grocery shops in the Mdatsane area in East London Metropole area. Quantitative data was collected and analysis of variance (ANOVA) was carried out. The findings indicated that previous work experiences, education levels and the length of time the business has been in operation have a significant impact on the performance of the business. Another study by Nabintu (2013), sought to establish the factors affecting the performance of small and micro enterprises (SMEs) traders at city park hawkers market in Nairobi County, Kenya. Among other objectives, the study examined how the availability of managerial experience affect the performance of SMEs traders at city park hawkers market in Nairobi County. The study applied survey research design through the use of questionnaires on a sample of 47 SMEs traders. Descriptive statistics was used to summarize the data. Among other findings, the study concluded that government policy and regulations affect the performance of the business to a very great extent. In addition, managerial experience and other attributes also affected the performance of SMEs to a great extent. A study carried out by Isaga (2012) in Tanzania established that there are a number of factors, related to the entrepreneur, the firm and the business environment, which influence the growth of the firm (one measure of firm performance). The research design was quantitative in nature, testing various hypotheses regarding associations between entrepreneurs personal characteristics and firm performance. Specifically, the study hypothesised that certain demographic characteristics, personality traits and cognitive characteristics do have an influence on the performance of SMEs in Tanzania. Data was collected from 300 entrepreneurs (representing SMEs) within the furniture industry in four different regions in Tanzania. Various techniques such as descriptive statistics, Analysis of Variances (ANOVA), factor analysis, regression analysis and Structural Equation Modelling (SEM) were used to analyse the data. The findings revealed that the performance of SMEs is influenced by certain characteristics of the entrepreneurs; entrepreneurs with experience and drive for growth were more likely to have their business perform better than entrepreneurs who lacked the aforementioned attributes. Furthermore, the findings suggest that specific personality traits also exert an influence on the performance of SMEs in Tanzania. We have also found that cognitive characteristics of the entrepreneurs such as entrepreneurial alertness, attitude towards entrepreneurship, different cognitive styles and entrepreneurial motivation
are positively related to the performance of SMEs. In a study inspired by the high rate of failure of small and medium sized enterprises (SMEs) in Ghana despite many government policies and incentive schemes directed at SMEs, Yeboah (2015), attempts to find out the consequences of the entrepreneur and firm characteristics on SME performance. Data was collected by administering questionnaires to 121 SMEs in the Cape Coast Metropolis. Descriptive statistics and the Cramer’s V statistical test were used to analyse the data. The findings showed that the educational qualification of the entrepreneur and size of the enterprise had the most significant influence on SME performance. This study concluded that owner/managers of SMEs must be educated, even if not by formal schooling; they must periodically build their capacity and experience through seminars and workshops to obtain the requisite knowledge and skills to advance their business performance.

On the contrary, Ogubazghi & Muturi (2014) undertook a study with the objective to find out the influence of owner/manager characteristics on SMEs’ access to bank loan. A sample of 87 small and medium manufacturing enterprises was drawn from Asmara city using proportionate systematic sampling. A reliable primary data was collected through semi structured and structured questionnaire. The descriptive and econometric statistical analysis techniques were used to analyze the data. Using the logistic regression, the study found out that the educational level of the owner/manager does not have significant effect on access to bank loan.

Other empirical literature on the effects of the age of the enterprise on the performance of SMEs also presented mixed findings. Olusola et al (2011) studied the effect of age and size of enterprise and the sources of funds available to 480 micro-entrepreneurs randomly selected from the South Western States of Nigeria. The purpose of the research was to highlight the strategic importance of age and size of enterprise as well as the sources of funds available to them to their performances. A comprehensive questionnaire was developed to collect data from the enterprises. Data was analysed using simple descriptive statistics such as pie and bar charts and multiple regression analysis. The equation specified performance as dependent variables and age, size and sources of funds as independent variables. Among other findings in relation to the other factors, it was found that the age of the enterprise has effect on their performance as the relationship was both positive and significant. This revealed that the older the enterprise, the better its performance.

Another study by Rosli (2011) examined factors that determine the performance of SMEs in the Malaysian auto-parts industry. The SMEs were surveyed through a structured questionnaire. Using the multiple regression analysis, it was evident that the age of the enterprise alongside other factors is significantly related to the performance of the SMEs. This consolidates earlier expectations and studies that age and other factors do matter to SMEs performance.

However, a study by Radipere & Dhliwayo (2014) examined the effect that age and business size have on business performance. A structured research instrument was used to collect data from 500 SMEs in retail industry through interviewer administrated and self-administrated survey. The results showed that there is no significant difference between the age categories; under one year and 20 years and more and business performance. The conclusion is that age does not have any significant influence on the performance of the enterprise.

3. Methodology

Model Specification

Dynamic model approaches are becoming increasingly important in recent years to solve the dynamic nature of economic processes (Flannery & Hankins, 2013). This dynamic nature makes
traditional estimation techniques including the Ordinary least squares (OLS) and the fixed-effects (FE) problematic (Flannery & Hankins, 2013; Wintoki et al., 2012). As shown by many previous studies empirical models using firm performance as a dependent variable must be examined in a dynamic framework in which lagged dependent variable(s) are considered as explanatory variable(s) (Wintoki et al., 2012).

Technically, the inclusion of lagged dependent variable(s) as independent variables of the empirical models allows researchers to control for unobserved historical factors which have potential influences on current enterprise performance, hence reducing omitted variable bias (Wooldridge, 2009).

The relation between dependent and independent variable is specified using a discrete model of probability to quantify the chances that an event will occur. We then think in terms of numbers ranging from 0 to 1 with zero meaning that the event certainly will not occur given by:

\[
\text{Prob(Perf}=1)=f(X\beta)
\]

\[
\text{Prob(Perf}=0)=1-f(X\beta)
\]

Where \( f \) is the function of repartition through the interval \([0, 1]\) and \( \beta \) is the vector of unknown parameters associated with \( X \). In the logit model,

\[
\text{Prob(Perf}=1/X)\frac{1}{1+e^{-a}}
\]

\[
\text{Prob(Perf}=0/X)=1-\text{prob(Perf}=1/X)
\]

For all \( \omega \in R \) \( F(\omega) = \frac{e^a}{1+e^a} = \frac{1}{1+e^{-a}} \)

The logistic model can be explained in terms of the odds of an event occurring or in terms of marginal effects. The odds of an event occurring are defined as the ration of the probability that an event will occur to the probability that it will not. The logistic regression model used in this study is specified as follows.

\[
\ln \left( \frac{\text{Prob(Perf}=1/X)}{1-\text{Prob(Perf}=1/X)} \right) = \beta_0 + \beta_1 \text{Incentives} + \beta_2 \text{Age} + \beta_3 \text{Gen} + \beta_4 \text{Edu} + \beta_5 \text{Exp} + \beta_6 \text{TrainVoc} + \beta_7 \text{Reg} + \beta_8 \text{Employees} + \beta_9 \text{Scap} + \mu_1 + \epsilon
\]

Where;

Perf=Performance
Incentives=government support,
Gen=gender of respondent,
Edu=Educational qualification of respondent,
Exp=Experience,
Age=Years of existence of enterprise
TrainVoc=Vocational training,
Reg=Registered entrepreneurs,
Employees=Number of employees and
Scap=Start-up capital
4. Presentation and Discussion of Findings

Table 1: Summary of Descriptive Statistics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>growth</td>
<td>80</td>
<td>.775</td>
<td>.4202169</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>incentives</td>
<td>80</td>
<td>.1625</td>
<td>.3712364</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>gen</td>
<td>80</td>
<td>.5375</td>
<td>.5017375</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>edu1</td>
<td>80</td>
<td>4.35</td>
<td>1.351043</td>
<td>1</td>
<td>6</td>
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<tr>
<td>exp</td>
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<td>.675</td>
<td>.4713299</td>
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<td>1</td>
</tr>
<tr>
<td>trainVoc</td>
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<td>.4125</td>
<td>.4953901</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>reg</td>
<td>80</td>
<td>.5375</td>
<td>.5017375</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>employees</td>
<td>80</td>
<td>1.475</td>
<td>.7111232</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>scap</td>
<td>80</td>
<td>1.575</td>
<td>1.076504</td>
<td>1</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: Generated by Authors Using STATA 12 SE
The results presented on the table above shows the summary of the descriptive statistics for the variables included in the model of the study. We observe from the table that all the variables included in the models of the study have low standard deviations compared to the mean of the variables. None of the variables have a standard deviation higher than its mean value. All variables in the models are showing low deviations from their mean values. The distribution of the variables included in the model are too spread from the center of their distributions, the variability of the distribution is therefore low and therefore not far away from the center of the distribution. The variables included in the models of the study are therefore showing good distribution as their measures of variability values are lower than their average values.

<table>
<thead>
<tr>
<th>Table 2: Pair-wise Correlation Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>growth</td>
</tr>
<tr>
<td>--------</td>
</tr>
<tr>
<td>growth</td>
</tr>
<tr>
<td>incentives</td>
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<tr>
<td>gen</td>
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<tr>
<td>edu</td>
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<tr>
<td>exp</td>
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<tr>
<td>trainVoc</td>
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<tr>
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</tr>
<tr>
<td>employees</td>
</tr>
<tr>
<td>scap</td>
</tr>
<tr>
<td>employees</td>
</tr>
<tr>
<td>scap</td>
</tr>
</tbody>
</table>

Source: Generated by Author Using STATA 12 SE

The result on the table above represents the pair-wise correlation matrix which shows the correlation which exists among the variables included in the models of the study. The correlation coefficients of the leading diagonals stand at 1.0000 which indicates that each explanatory variable is perfectly collinear to itself. Furthermore, the results show a weak negative correlation between some of the variables in the study while there exist a weak positive correlation between other explanatory variables of the models. We observe weak positive and negative correlations amongst all other explanatory variables indicating the possible absence of the problem of multicollinearity in the models of the study.
Table 3: Logistic Regression Results

| Iteration 0 | log likelihood = -42.653107 |
| Iteration 1 | log likelihood = -39.029427 |
| Iteration 2 | log likelihood = -30.792273 |
| Iteration 3 | log likelihood = -30.792273 |
| Iteration 4 | log likelihood = -30.792273 |

Logistic regression

| Variable    | Coef.  | Std. Err. | z     | P>|z| | [ 95% Conf. Interval] |
|-------------|--------|-----------|-------|------|-----------------------|
| incentives  | -0.73   | 0.81      | -0.90 | 0.370 | -2.33                   | 0.867451 |
| gen         | 0.36    | 0.04      | 0.43  | 0.684 | -1.37                   | 0.013427 |
| edui        | 0.44    | 0.23      | 1.93  | 0.054 | -0.073208               | 0.900125 |
| exp         | -0.38   | 0.08      | -6.68 | 0.495 | 1.861561               | 0.897424 |
| trainVoc    | 0.56    | 0.63      | 0.81  | 0.418 | -0.79                   | 1.921144 |
| reg         | 0.25    | 0.12      | 1.14  | 0.256 | -0.72                   | 2.690483 |
| employees   | 0.25    | 0.46      | 0.55  | 0.593 | -0.66                   | 1.187444 |
| scap        | -0.32   | 0.18      | -0.59 | 0.534 | 0.96552              | 5.173707 |
| _cons       | 0.74    | 0.19      | 0.62  | 0.533 | -0.98                   | 2.505561 |

- mfx

Marginal effects after logit

| Variable    | dy/dx  | Std. Err. | z     | P>|z| | [ 95% C.I. ] | X   |
|-------------|--------|-----------|-------|------|-------------|-----|
| incentives  | -0.132 | 0.143     | 0.91  | 0.368 | -0.451643   | 0.18756 |
| gen         | 0.036  | 0.089     | -0.41 | 0.682 | -0.21321    | 1.139564 |
| edui        | 0.070  | 0.034     | 2.00  | 0.045 | 0.00156     | 1.136828 |
| exp         | -0.071 | 0.059     | -0.72 | 0.470 | -0.266094   | 1.122639 |
| trainVoc    | 0.085  | 0.101     | 0.85  | 0.397 | -0.112585   | 0.238774 |
| reg         | 0.158  | 0.133     | 1.14  | 0.255 | -0.114688   | 0.431774 |
| employees   | 0.040  | 0.073     | 0.55  | 0.580 | -0.102983   | 0.183912 |
| scap        | -0.035 | 0.058     | -0.60 | 0.549 | -0.150203   | 0.079833 |

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

- logit growth incentives gen edui exp trainVoc reg employees scap, or

| Iteration 0 | log likelihood = -42.653107 |
| Iteration 1 | log likelihood = -39.029427 |
| Iteration 2 | log likelihood = -30.792273 |
| Iteration 3 | log likelihood = -30.792273 |
| Iteration 4 | log likelihood = -30.792273 |

Logistic regression

| Variable    | Odds Ratio | Std. Err. | z     | P>|z| | [ 95% Conf. Interval] |
|-------------|------------|-----------|-------|------|-----------------------|
| incentives  | 0.48      | 0.39      | 0.90  | 0.370 | 0.0971076             | 2.381749 |
| gen         | 0.79      | 0.45      | 0.41  | 0.684 | 0.2533844             | 2.452883 |
| edui        | 1.56      | 0.36      | 0.93  | 0.054 | 0.92704               | 2.459912 |
| exp         | 0.618     | 0.435     | 0.69  | 0.495 | 0.155429              | 2.458049 |
| trainVoc    | 1.75      | 1.21      | 0.68  | 0.418 | 0.4502461            | 6.829038 |
| reg         | 2.46      | 2.33      | 1.14  | 0.256 | 0.4935364            | 14.73870 |
| employees   | 1.29      | 0.60      | 0.55  | 0.583 | 0.5154389            | 3.248338 |
| scap        | 0.79      | 0.30      | 0.59  | 0.554 | 0.3807422            | 1.677411 |
| _cons       | 0.475     | 0.56      | 0.62  | 0.533 | 0.0459338            | 4.921193 |

Source: Generated by Authors Using STATA 12 SE
Note: No, for no growth is the based outcome. Yes, for growth is the alternative outcome.
The findings on the table above show that an enterprise that receives incentives will decrease the likelihood for the SMEs not to grow by its marginal effect of .1320411 compared to another enterprise that does not receive incentives. The findings also show that an increase in the incentives will decrease the odds for the SMEs not to grow by its odd ratio of .480922 compared to another enterprise that does not receive incentives.

The findings further show that a one year increase in the level of education will increase the likelihood for the SMEs not to grow by its marginal effect of .070094. The findings also show that a one year increase in the level of education will increase the odds for the SMEs not to grow by its odd ratio of 1.56268. The findings therefore show how education instead decreases growth and performance of SMEs.

The findings again showed that entrepreneurs with experience will decrease the likelihood for the SMEs not to grow by its marginal effect of .0717276 compared to entrepreneurs with no experience. The findings also show that entrepreneurs with experience will decrease the odds for the SMEs not to grow by its odd ratio of .6182211 entrepreneurs with no experience.

The findings showed that entrepreneurs with vocational training will increase the likelihood for the SMEs not to grow by its marginal effect of .0856449 compared to entrepreneurs with no vocational training. The findings also show that entrepreneurs with vocational training will increase the odds for the SMEs not to grow by its odd ratio of 1.753535 entrepreneurs with no vocational training.

5. Policy Implications of the Findings

There are contributions on the impact of government support to the SMEs’ performance in developing countries, and these reach different conclusions. On the one hand, effective government assistance may help individual firms overcome institutional and other barriers in an uneven playing field. On the other hand, misguided government support may affect incentives and distort the effective working of market forces. This study found out that incentives increase the growth of SMEs in Cameroon. This finding is in line with the results of Zindiye et al., (2012) who investigated the influence of government and other institutions’ support on the performance of SMEs in the manufacturing sector. They observed that there is a positive relationship. Similar results to those obtained in this study is that of Hansen et al. (2009) who analysed whether direct government assistance during start-up and other forms of interaction with the state or public sector have influence on the long-run performance of manufacturing SMEs in Vietnam. From the results they obtained it could be concluded that government assistance helps SMEs improve their performance and survival perspectives. The implication of the findings is that government support programs have the capability to improve the performance of SMEs in Cameroon.

The findings in this study are also in agreement with those of Nabintu (2013) whose study on the factors affecting the performance of small and micro enterprises (SMEs) traders at city park hawkers market in Nairobi County, Kenya showed that that government policy and regulations affect the performance of the business to a very great extent.

Findings from the study also showed that the level of education of the manager or SME owner does not significantly affect the performance of the SME. This outcome ties with the findings of Ogbuzghi & Muturi (2014) who also found out that the educational level of the owner/manager does not have significant effect on access to bank loan.
Further findings also showed that the age of the enterprise affects its performance. This agrees with the findings of Olusola et al (2011). This revealed that the older the enterprise, the better its performance.

However, like in the findings in this study, Nabintu (2013); Chiliya & Roberts-Lombard (2012) further found out that managerial experience and other attributes also affected the performance of SMEs to a great extent. The findings indicated that previous work experiences, education levels and the length of time the business has been in operation have a significant impact on the performance of the enterprise.

6. Conclusion

In general, the notion of government incentives to SMEs in Bamenda needs to be addressed as the attitude of business operators towards government incentives is that of distrust and doubt. Government incentives are important and can improve the performance and growth of SMEs. However, most SMEs have not benefitted because their knowledge on available government incentives and eligibility requirements is very low. Others are discouraged by the administrative bottlenecks and the perception of biased and unfair conditions surrounding the application and incentive allocation procedures.

Implementing institutions should ensure that entrepreneurs are always motivated and encouraged to make use of the incentives and opportunities to perform better and grow their enterprises. This is by changing the SMEs perception through involvement because already they feel that incentives distribution and allocation are not fair and that some politicians or influential people capture or hijack the initiatives for political ends. They should also make incentives policies and other regulatory laws and requirements easy to understand, while at the same time penalizing those implementing officers who are corrupt or biased.

References


Determinant Factors of Remittances in Albania

Elfrida Taraku
Finance – Accounting department, Business Faculty University “Aleksandër Moisiu” of Durrës, Durrës, Albania. itaraku@yahoo.com

Ejona Duçi
Finance – Accounting department, Business Faculty University “Aleksandër Moisiu” of Durrës, Durrës, Albania. jonaduci@yahoo.com

Abstract

Over the years, remittances have attracted the attention of researchers, policy-makers, civil society representatives and the international community due to the variation of their flows each year and more. The main purpose of this paper is to reflect some of the main macroeconomic and macroeconomic remittances in developing countries. In the case of Albania, the paper aims to present the impacts of income from remittances with well-being and the decisions of Albanians regarding the use of these revenues. In this paper we will elaborate in detail the factors that determine the remittances of Albanian emigrants. The model that results best in showing the link between remittances and their determining factors is the linear dummy independent model. The source of information is the World Economic Outlook. Data on remittances are obtained from the Balance of Payments of the Bank of Albania and include the monetary transfers of emigrants who are employed in the host country and are considered resident in this country's economy.

The data are in time series and I have seen the impact of these factors on the performance of the years, respectively for the last 30 years. And we have come to the conclusion that the GDP factor is the factor that has the greatest impact on the remittances of Albanian emigrants. Unlike other economic issues, on the issue of remittances in Albania the studies undertaken are scarce, and the study of this field is a innovation for our country. The results of the work indicate that remittances are an important item of the Balance of Payments that affects the macroeconomic stability of the beneficiary country and also contributes to increasing household consumption, reducing poverty and improving the level of living.

Key words: unemployment, GDP, emigration, developing countries, remittances, consumption, income, balance of payments.

Introduction

Almost 12 years after the start of the transition, about 1/5 of Albanians or over 600,000 people, mostly young people, have migrated abroad, especially in Greece and Italy. While internal migration has included hundreds of thousands more. One of the most important aspects of this
phenomenon, which has a great economic and social impact, is remittances. Remittances are an important source of income for households, especially for developing-country families. Ever since the labor market was internationalized and became part of the globalization process as many other markets, and people could move freely from one place to another to work, the importance and attention paid to remittances has been growing ever. What is to be noted is that the growth rate of remittances has been stable even during the crisis years compared to foreign direct investment.

Referring to the most recent official data, it was estimated that about 1.2 million Albanians lived in emigration in 2008, accounting for a significant part of the Albanian population (about 25%). Out of them, 85% live and work in Greece and Italy, while the rest in Western Europe and the United States. According to official data of the Bank of Albania, remittances to Albania have increased at an average annual rate of 5.6% over the last 15 years. The last five years show a decline in remittances from 952 million euros in 2007 to half in the years 2012-2013.

**Method**

The goal of this paper is to identify the determinants of remittances of Albanian emigrants. The data used in the search are secondary and taken from the Bank of Albania, World Bank and World Economy Outlook (WEO). This data is a series of times, for 30 years. Specifically, data on GDP and Albanian population levels as well as GDP, unemployment rate, interest rate and Greek population level were obtained.

I used econometric modeling to measure the statistical relevance of the link and factor influence. The model that results best in showing the link between remittances and their determinants is the linear model with independent variables. Official data on remittances include transfers sent via formal channels (commercial banks or money transfer agencies) and informal channels (cash at border points). Therefore, in this study it is considered that the methodology of measuring remittances together with their dynamic performance and the chaotic state of Albanian emigration may present limitations that need to be considered, as it may affect its empirical findings.

**Main problem**

Through this research I want to throw the first steps in clarifying this little problem beating in the case of Albania. It is known that this issue is less addressed with regard to remittance determinants. One of the reasons why I chose to study this phenomenon is that remittances constitute one of the sources of income in our country. Relying on statistics that have resulted in larger shipments have from our neighboring country Greece. Also, given that Greece is affected by the global economic crisis, will analyze how this phenomenon has affected shipments of emigrants.

- **The impact of the Greek crisis on remittances**

Greek crisis brought less revenue coming from Albanian emigrants, the deterioration of the status of migrant workers, while a number of enterprises, confection type, that have activity in southeast and southern Albania lost market in Greece.

Consequently, the production volume decreased by reducing the number of employees. During 2010, the Greek financial and economic crisis led to Albanian immigrants live and work in Greece to lose confidence in the Greek banking system.

Under this panic and insecurity, most immigrants have seen Albania as safer. The fear and the collapse of Greek banks made in our country come to EUR 514 million as remittances. The measures taken by the Greek government did not affect imports alone. They had a direct impact
on Albanian emigrants working and living in Greece. The resultant is that Albanian immigrants remain less savings to send families here, and to develop a business or buy property in Albania. Below is a graph of the main countries from which we have the largest incomes. Albanian economist Adrian Civici, says it is difficult to estimate the number of returnees, because many are not fully back, they come and go. In many cases migrants return to their villages that they may have left 15 years ago to see if it is possible to find a job, or even work in agriculture. Seeing both as impossible, they return to Greece. Based on the chart and seeing that the largest income is from the Greek state I have done exactly these research subject for remittances coming from Albanian emigrants.

- **Variables**

The research question is: determination of key macroeconomic variables to consider as potential factors remittances.

Following the literature on macroeconomic remittance determinants, we have classified the variables that could potentially affect the behavior of remittances in three categories:

- the variables that represent the macroeconomic situation of the country of origin;
- the variables that represent the macroeconomic situation of the host country;
- The variables that capture the links between the host country and the country of origin.

### I. Economic variables of the country of origin

The economic activity of the country of origin used in many studies as a proxy to reflect the employment opportunities and generating income of immigrant families (Sayan and Tekin-Koru, 2007; El-Sakka, 2005; and Eric Lüeth and Marta Ruiz Arranz, 2007). However, the effect of GDP on remittances depends on the remittance remittances prevailing in Albanian emigrants. If altruism is the main push, negative shocks to GDP in the country of origin will encourage immigrants to send more remittances. But if remittances are sent for investment purposes, negative shocks in the country’s origin production will reflect worsening investment opportunities and consequently lead to a reduction in remittances. In this model, we choose as variables of representatives of the origin country: GDP, population and level of interest rates.

### II. The host country's economic variables

To represent the host country we use Greece’s unemployment rate. To build the index, the weights that give the unemployment rate is based on the remittances that come from this country. Previous studies show that the GDP of the host country is also an important determinant of remittances because it translates to greater labor demand, higher wages, higher incomes and consequently higher shipments. (Higgins et al., 2004). In this topic, the host country’s representative variables are: the unemployment rate, the gross domestic product, the interest rate as well as the host country. Data for Greece are taken from World Economic Outlook.

### III. Economic variables of the host country and place of origin

To represent the connection between the host country and country of origin, use nominal exchange rate ALL / EUR, by the Bank of Albania.

- **Model**
The central hypothesis of this research, which I will try to evaluate is: Remittances of Albanian emigrants are determined by the factors of the host country (Greece) and the factors of the country of origin (Albania).

Concepts and their measurement:

- Remittances are incoming transfers from outside, which constitute one of the main economic engines. It is the variable we have taken in the study in the form of a dependent variables.
- Gross domestic product is the market value of all final goods and services produced in one country over a given period of time. This information I provided for 30 years by the World Economic Outlook and the data are in millions. This factors’ve seen in the form of the independent variable and in the context of the two countries, namely Greece and Albania.
- The unemployment rate represents the percentage of unemployed from the entire capacity of the workforce in a certain area within a country or across the country. So, this economic indicator shows the level of untapped labor force in economic processes in a geographic area. This concept will bring as the independent variable, measuring it with Greece’s unemployment rate.
- The level of population is another factor that plays an important role in the determinants of remittances. I have taken into account the total number of population for both countries.
- The interest rate is the regular cost that the lender decides on the borrowed funds. This is usually expressed as a percentage of the loan amount, and is calculated on an annual basis. Interest rate inevitably affects the amount of the monthly installments to borrowers. In the model it is introduced in the form of an independent variable as provided for Greece.
- Dummy has been introduced to the model as an independent variable to show how the crises and the general messes of 1997 had affected. To see this effect we made a breakdown of the years, before 2000 we marked 0 and after 2000 I marked it with 1. The model is in the form of an independent variable.

**Model with all factors**

The model used to determine the Remittances factors is linear model with independent dummy. This model best expresses this connection. I inserted the variable model with independent dummy to show structural differences between the two periods, before 2000 and after 2000. I have chosen this period because of two major events, the Albanian transition in 1997-1998 and change monetary crisis that occurred in the EU countries, including Greece (the introduction of the Euro). The following model contains all the determinants of remittances.

The model is:

\[ Y = 0.0025 \times X + 0.016 \times Z + 2.62 \times P - 24584456 \times L + 261.31 \times M - 700.86 \times K - 20637465 \times I + e \]

P - Dummy, L - Greek unemployment rate, M - Greek population, K - Albanian population, I - Interest rate, e - Remaining terms.

Based on the above probabilities, the model turns out to be important as well as the majority of coefficients, indicating that there is multicolinearity, to eliminate it we seek a better model.
### Table 4 - Model with all variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greek Gdp</td>
<td>0.002664</td>
<td>0.000698</td>
<td>3.814317</td>
<td>0.0009</td>
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<tr>
<td>Albanian Gdp</td>
<td>0.016471</td>
<td>0.006906</td>
<td>2.384921</td>
<td>0.0261</td>
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<tr>
<td>Dummy</td>
<td>2.62E+08</td>
<td>1.30E+08</td>
<td>2.018886</td>
<td>0.0559</td>
</tr>
<tr>
<td>Unemployment rate rrrrate</td>
<td>-24584456</td>
<td>9164176.</td>
<td>-2.682670</td>
<td>0.0136</td>
</tr>
<tr>
<td>Greek population popopulation</td>
<td>261.3114</td>
<td>130.4865</td>
<td>2.002594</td>
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<tr>
<td>Alb. population</td>
<td>-700.8577</td>
<td>366.9467</td>
<td>-1.909971</td>
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<tr>
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<td>-20637465</td>
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<tr>
<td>R-squared</td>
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<td>Mean dependent var</td>
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<td>Adjusted R-squared</td>
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<td>Sum squared resid</td>
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<tr>
<td>Log likelihood</td>
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<td>F-statistic</td>
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<tr>
<td>Durbin-Watson stat</td>
<td>2.213211</td>
<td>Prob(F-statistic)</td>
<td>0.000000</td>
<td></td>
</tr>
</tbody>
</table>

### Results

Testing the importance of the model is made by the Fisher test, which we mark with F. The hypotheses to be tested are:

- **Basic hypothesis (Ho):** The model is not important.
- **The alternative hypothesis (H1):** The model is important.

We claim that the model is important because by comparing the value of Prob (F-statistic) with the 5% level, we will notice that 0.00% <5% this indicates that our model is important at very good level, as it is very less than 5%. Of particular importance when discussing the quality of the model gets the determination coefficient, which expresses the extent of the variation of remittances explained by the variation of factors taken into consideration in the composite in the form of the model being considered. In our case it is 0.893461. So, 89% of the variance of remittances is determined by the Greek GDP, Albanian GDP, Greek unemployment rate, Greek and Albanian population. While R = 89.3% is very close to 1, then we can say that there is a strong link between the addictive and the independent variables.

#### The Test of heteros

The E-view program performs White’s test in two options, with and without cross-section. The test for the presence of heteros in free cross-section follows this procedure steps:

1) The hypothesis is formulated:

- The hypothesis (Ho): Heteros is not present.
- The alternative hypothesis (H1): Heteros is present.

2) To find the actual value used formula (R2 * n), where n means the number of data. In our case it is 30.

3) Appreciate the critical value of this criterion, which has X2 distribution with probability α and with degree of freedom as the number of parameters.

4) Compared the actual Watt test value with its critical value. If n * R2> X2, then we say that the alternative hypothesis is accepted and rejected it based on the opposite say that the model does not suffer from heteros.
White Heteroskedasticity Test:

<table>
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<tr>
<th>F-statistic</th>
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<tbody>
<tr>
<td>2.354202</td>
<td>17.50715</td>
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</table>

Probability
0.054777
0.093744

In our model we will see that the probability 0.093744 > 0.05, then the basic hypothesis on the absence of heteros are not discarded, so our model does not show heteroskedasticity. We can say that this is due to a large enough number of data.

**Figure 8 Distribution of waste**

In order to verify the normal distribution of the term error, we first formulate the hypotheses:

**Basic Hypothesis (Ho):** The term of error is normally distributed.

**Alternative hypothesis (H1):** The term of error is not distributed normally.

An econometric model would be better if the error term will have normal or nearly normal distribution. To show this comes in aid criteria Jarque Bera (JB). In our model we will see that probability 0.547965 > 0.05, then the basic hypothesis about the normal distribution of the error term is not discarded, so the term of error of our model shows normal distribution.

**The addition of variables**

Examining excess variables is assessed by the student test (test t), which we have discussed above. There are several methods to control from the statistical viewpoint the absence in the model of important variables. The test that we will use is Reset testing. The hypotheses that are tested are:

**The hypothesis (H0):** The model is well specified or there is no need to add other variables.

**The alternative hypothesis (H1):** The model is not well specified or needs to add other variables.

Ramsey RESET Test:

<table>
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<tr>
<td>0.592582</td>
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Probability
0.561882
0.451099

From the table we arrive at the result that the probability 0.451099 < 0.05, then the basic hypothesis is accepted. The model is well chosen or does not need to add other variables.
Discussions

- Greek GDP: If Greek GDP will increase by one unit, while keeping all other factors constant, the Albanian remittances will increase by 0.002547 units.
- Albanian GDP: If the Albanian GDP will increase by one unit, while keeping all other factors constant, then Albanian remittances will increase by 0.016516 units.
- Dummy: Since the coefficient before the dummy variable has been significant, this means that there are structural changes between the two periods before 2000 and after 2000.
- Unemployment rate: If the unemployment rate will increase by one unit, while keeping all other factors constant, then Albanian remittances will be reduced to 24,033,061 units.
- Greek population: If the Greek population will increase by one unit, while keeping all other factors constant, then Albanian remittances will grow 207,1191 units.
- Albanian population: If the Albanian population will increase by one unit, while keeping all other factors constant, then Albanian remittances will be reduced by 569.0991 units.

Conclusions

The main purpose of this paper was to point out the effects of remittances in developing countries by focusing specifically on the case of Albania. Following the analysis of the micro and macroeconomic effects, the following conclusions are reached:

First, it can be said that the main difficulty of studying the effects of remittances lies primarily in defining this concept because different researchers give different versions.

- Concerning the microeconomic effects of remittances, it has been concluded that remittances have adverse effects on participation in employment, but in relation to private enterprises and human capital formation studies show that they positively influence. In terms of inequality, most studies support the fact that remittance income increases inequality even though there are studies that show the opposite. What other researchers agree is that remittance income mitigates poverty.
- Concerning macroeconomic effects, it is concluded that remittances are an important item of balance of payments that positively affects economic stability, but whether the issue affects them in economic growth or not, the researchers are divided and can not provide a final answer. But what is to be said is that remittances affect the appreciation of the real exchange rate and the rise in inflation.

In the case of Albania:

- At a macroeconomic level, remittances are an important source of funding to finance the current account. They are the main source of income from abroad and affect a high percentage in mitigating the current account deficit.
- At the micro level, remittances also play an important role in improving the lives of families receiving them. Analyzed on the basis of rural and urban areas, remittances account for a significant percentage of monthly income especially in rural areas. For families with lower levels of income, they are a source of vital income. But they are still used in the mass for consumption and at very low levels for private entrepreneurship and for the creation of human capital.

Secondly, it became the recognition and identification of a link between remittances coming from our neighboring Greece state, which I have taken in the study, and their determining factors. The hypothesis was raised, I found the data and after some attempts I specified that the
The best model is the dummy independent linear model. It is worth pointing out that the most important and most influential factor of the built model is GDP, because of the country it occupies in the country's economic growth. Relying on probabilities, it results in lower propensity, too close to zero. It remains a matter of further research to identify any other factor that directly or indirectly affects remittances, which come not only from Greece but also from other countries that have a certain share in the remittances of Albanian emigrants, such as Italy, as well as seeing how the crisis has affected those countries in Albanian remittances.

Suggestions
Migration has a strong positive impact on the development of human resources, the reduction of unemployment and vocational and intellectual training, through the occupations and experience they gain in destination countries.
- Migration brings benefits to a cost-benefit balance only if properly managed for the benefit of the individual, the family, but also the companies of the country of origin and the host country.
- In general, remittances can contribute to the development of the country (in addition to rising consumption) or directly to productive investment, or by increasing the bank's liquidity level, thus making it possible to obtain loans from entrepreneurs with competitive interests.
- Albanian emigrants in most cases work in sectors that are not preferred by locals, and the vast majority of them have undetermined pay, they serve as a regulatory mechanism in the labor market and contribute to the domestic production of the host country.
- In general, remittances have played an essential role in the Albanian economy and in particular by preventing and alleviating poverty.
- Remittances are an essential component of the current balance of payments account.
- The structure of the use of remittances has changed over the years. If in the first few years the remittances were mainly oriented towards food, clothing, or purchase of household appliances, in the following years the destination was expanded with the improvement of housing conditions (such as residential areas, reconstruction or new constructions) easily visible in areas with high level of migration outside Albania.
- In recent years the inflow of remittances has declined, due to the difficulties created by the negative effects of the economic crisis that have undergone countries of the Eurozone as a whole.
- Migration issues are treated simply as a consequence, but not by finding and recovering in the cause of it. So, first and foremost, state policies have to carry out in-depth studies, what are the causes of migration, which should bring the focus of state policies to discourage escape from the periphery of the country.
- The economic crisis has forced many immigrants to return to Albania, remaining unemployed. Returned migrants may not actively seek information and services from institutions such as Regional Employment Offices. Consequently, awareness campaigns and activities can be used to reach this population that sometimes tends to be invisible.
- Migration of voluntary and involuntary return is still seen as a personal failure and intervention strategies should focus on reducing negativity and promoting a positive climate that encourages acceptance.
- The figures given above, however, are only a part of the total remittances. It is hard to get accurate statistics of real data concerning inflows, as ways of sending remittances, in most cases,
are not officially registered. What turns out so far is that the transfer of money through banking or postal institutions is a minimally used procedure by emigrants outside of Albania.

Measures that can be taken are:

Measure 1: Expand and improve the collection of data, practices, research, analysis, policies and procedures related to remittance remittances.

Measure 2: Expansion of banking services in Albania, related to remittance remittances.

Measure 3: Promote the Albanian banks and correspondent banks in migrant host countries (particularly in Greece and Italy) to improve services related to remittances from migrants.

Measure 4: Strengthening the capacities of the Albanian Institutions Micro Finance (IMF) to provide remittance transfer services from immigrants.

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Books


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Magazines


Journals


Newspapers

Gazeta Shqip. 10 gusht 2014. Artikulli : me pak para nga emigrantet, rritet deficit

Gazetadita.al/remitancat-ne-nivelin-me-te-ulet-gjate-3-viteve-te-fundit/

### Appendices

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### % of remittance to Gdp

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Microfinance Banks’ Lending Rate and Repayment Capability of Borrowers in Some Selected Microfinance Banks’ in Kaduna State, Nigeria

Tunde Kehinde
Department of Banking & Finance, Kaduna Polytechnic, PMB 2113 Kaduna, Kaduna State, Nigeria.

Ebikila Suoyai
Department of Banking & Finance, Federal Polytechnic, Ekowe, PMB 110 Yenagoa, Bayelsa State, Nigeria.

Ikpaikpai Helen Idisebara
Department of Banking & Finance, Niger Delta University, Wilberforce Island, PMB 71, Bayelsa State, Nigeria.

Abstract
The research investigated the lending rate and repayment capability of microfinance banks’ (MFBs) borrowers in Kaduna State, Nigeria with case study of some selected MFBs having a population of fifty three from where twenty MFBs were selected for this research. The study is purposive (or judgemental) research design. The cox regression was used for the analysis of data obtained from primary source through the use of questionnaire. It was found out that there is positive significant relationship between lending rate and repayment capability of borrowers with hazard ratio of 1.0000 and 1.00019 at 0.01%. It was suggested that there should be consideration for re-negotiation of loan term and condition to improve repayment capability of the borrowers to avoid outright loss of loan and interest.

Keywords: lending rate, repayment capability, repayment pattern, repayment instalment, repayment period.

INTRODUCTION
In early 1900s, the informal financial institutions like esusu (Yoruba), adashi (Hausa) were paramount as the rotating savings and credit association in Nigeria. In 1936, the cooperative society decree was propagated by the Nigerian Government. Among other things, the main goal of cooperative societies is savings mobilization, while thrift and credit societies combine savings mobilization with credit administration. A large number of cooperative societies were established in the Eastern part of the nation based on prevailing isusu (Igbo) in 1940s which had advanced from rotating to non-rotating association with permanent loan funds while majority of the informal financial institutions had transmuted into listed cooperatives by 1950s. There are several rural financing scheme arrangements such as, people’s bank, money lenders, and so on.
before the advent of community banks in 1990 mainly meant for non-sophisticated loan to the communities (CBN, 2005)

The existing community banks were authorised by the apex bank to convert to microfinance banks (MFBs) in 2005 with a new capital base of N20 million and a target for compliance by December, 2007. The initiation of microfinance banks’ policy is to make financial services accessible to the over eighty million Nigerians underserved by official financial institutions, especially those who are economic active low-income earners and little income families/households who could not have contact to services provided by the commercial banks/deposit money banks (formal financial institutions) (Lemo, 2006).

The main aim of setting up microfinance banks in Nigeria according to the Microfinance Policy, Regulatory and Supervisory Framework of 2005 revised in 2011 by the Central Bank of Nigeria was to reach the majority of the economically active poor, generate jobs, alleviate poverty and ensure that the percentage of the total credits in form of microcredits increase in the economy from 0.9 per cent in 2005 to 20 per cent by 2020 while microcredit to GDP increased from 0.2 per cent in 2005 to at least 15 per cent in 2020 to promote government participation in micro-financing through state and local government micro-credit financing by 2015, improve women’s access to financial services by 5 per cent annually (CBN-MPRS, 2005).

Loan repayment has been a serious difficulty of formal financial institutions in Nigeria most particularly the microfinance banks (Babajide, Taiwo & Isibor, 2015). The survival of microfinance banks hinges largely on their skill to collect loans given out as proficiently and successfully as possible. To be financially worthwhile or maintainable, microfinance banks must safeguard high portfolio excellence based on 100% repayment, or at worst low default, cost of recovery and resourceful lending. When a loan is not performing, it contradicts the profitability of microfinance banks which unfavourably affects their financial performance which may make potential borrowers not to have access to credit facilities since part of the funds that could have been extended as loan by microfinance banks have been tied to default. Coker & Audu (2015) described 54% repayment rate from total loan granted to the farmers, likewise Onoja & Emodi (2012) recounted a repayment rate of 59%. Obamuyi in (2011) reported 34.06% repayment rate by micro-credit institutions in Ondo State. Njoku & Odii (1991) documented 27% repayment rate among farmers in Imo State while in another study by Njoku & Obasi (1991) had 33.72% as repayment rate in their study in Imo State which showed that the microfinance banks repayment patterns have challenges which warrant critical solution so that the industry does not flop.

Poor repayment rate of credit lessens lenders’ net return thus decreasing the capability of the institution to make resources internally for institutional growth. Okpugie (2009) identified great lending rate on credits by microfinance banks as a cause of outrageous loan default equally unregulated interest rate which is 30% on a moderately short term and reducing balance rate while 60% on flat rate contribute profoundly to defaults by clients of microfinance banks in Nigeria.

Despite all the arrangements put in place to ensure sustainability of microfinance banks in Nigeria, high failure rate among microfinance banks call for concern. Several studies like (Nwanyanwu, 2011 and Acha, 2012) have traced failure of microfinance banks to poor practice and inefficient delivery of microcredit while some traced failure among microfinance banks to low technical capacity and unskilled personnel but not many studies have looked into issues around credit administration and management. This study therefore filled the gap in literature on the impact of lending rate on repayment capability of microfinance banks’ borrowers. The main research question set for this study is; how does lending rate affect
repayment capability of micro borrowers in Nigeria? The rest of the paper is divided into four sections—literature review, methodology, findings and discussion of results, and concluding remarks and recommendations.

**Research Question**

How does lending rate affect repayment capability of customers in microfinance banks?

**LITERATURE REVIEW**

There are many theories on firm survival and financing, for example pecking order theory is one of them that postulates that the cost of financing increases with asymmetric information, it is a theory that relates to the capital structure of a firm initially suggested by Donaldson, modified and popularised by Myers and Majluf. According to this theory, a hierarchy is followed by managers to choose sources of finance which gives first preference to internal financing while others are debt and equity.

There had not been any official record on when the implementation of microfinance in Nigeria started but has been naturally dated back to some spans over 100 year in the informal sector of the economy, while formal delivery of microfinance in its present nomenclature is dated back to 2005, with the delivery of access to credits for the rural and urban, low-income earners (Onoyere, 2014).

Non-performing loans in microfinance banks had considerably added to the financial grief in the sector as witnessed in the past five years where non-performing loans led to the liquidation of one hundred and sixty-two microfinance banks in Nigeria in 2013 (CBN, 2013). Also, the weak capital base of prevailing microfinance banks could not sufficiently provide cushion for the risk of lending to microfinance banks’ clients. The dread of depositing monies in microfinance banks becomes a challenge; microfinance banks’ clients became nervous of banks becoming insolvent due to the low paid-up capital, lending activities became precautionary and discriminatory with a provision for collateral (Adu, 2013). Also in some cases when credit facilities are approved for clients, the repayment period for both the loan size and interests becomes a court case. The causes presumed for this is that the interest rate ranges from 30 to 60 per cent and above on a flat rate while loan repayment period is usually short; three (3) six (6) months posturing repayment encounters to existing and prospective borrowers, likewise increasing bad debts which become massive and institutes an intimidation to the sub-sector (Arizona, 2008).

The repayment platform called Nigeria Deposit Insurance Corporation for depositors of microfinance banks, and other banks that have been declared bankrupt or liquidated or shut as a result of maladministration or had their licenses withdrawn is supplemented by the action of Central Bank of Nigeria to sanitise the sector which has brought some relief, steadiness, and have improved investors’ assurance on the sector.

The Central Bank of Nigeria’s microfinance policy was introduced for every operator in the sub-sector to be strictly sound, suitably capitalized, and focused on the lending principles based on the regular cash flow and character of clients.

The apex bank (Central Bank of Nigeria) as part of her regulatory strategy has grouped microfinance banks into three (Babajide, Taiwo & Isibor, 2015) which are “unit microfinance banks” approved to run in one location in a local government area but banned from having branches and cash centres in other locations of the state, local government and villages starting with a capital base of N200 million (two hundred million naira); the “state microfinance bank” as the second group is mandated to operate in a state or the Federal Capital Territory (FCT) having official permission to open branches within the same state or Abuja (the FCT) based on
preceding written approval by the apex bank for each new branch having a minimum capital base of N1 billion (one billion naira) while the “national microfinance bank” is the last group accredited to function in more than one state including Abuja, equally allowed to open branches in all states of the Federation and the Federal Capital Territory Abuja subject to the preceding consent by the Central Bank of Nigeria, and a mandatory capital base of N5 billion (five billion naira) (MSRP, 2005/2011)

Repayment Frequency as a Device

Microcredit or microloan repayments are scheduled on daily, weekly, or monthly whose repayments start as soon as the loan pay-out is made likewise the instalment size or instalment amount for each repayment is stable and cannot be renegotiated throughout the period of loan repayment. It had been advocated that inflexible or stiff repayment schedule or pattern by many microfinance professionals has helped borrowers to be financially disciplined (Adu, 2013).

Some empirical evidences revealed that borrowers do encounter complications in their savings which are unpredictable because of the poor or low income (Ashraf et al. 2006; Gugerty 2007; Collins et al. 2009) which may have to do with the lines of behavioural flaw and present preferences. The severe loan repayment pattern having frequent repayments gives borrowers the prospects to improve savings habit while an intending borrower that wishes not to default will need rigid repayment pattern to support his loan (Laibson, 1997).

It was revealed in a study conducted by Bauer et al. (2012) in India on relationship between behavioural weakness and microfinance involvement that a stiff repayment pattern with frequent repayments should be used to buttress borrower’s commitment. The regular repayment in practice has virtually the same meaning as frequent saving and can also expand the welfare of biased borrowers by enabling optimal consumption allocation is a commitment scheme used as a rule by microfinance banks (Fischer & Ghatak, 2010).

There was no significant variance in the repayment rates between equating the weekly repayment group borrowers and monthly repayment group borrowers by Field & Pande (2008) but in the future, the weekly repayment pattern may not be crucial in providing a functioning commitment device and it was specified in the results that it may be promising to decrease the expenses connected to weekly gatherings, for both the microfinance banks and the borrowers by approving a more infrequent repayment pattern without worsening repayment performance.

A severe problem for a rigid repayment pattern is often perceived as periodic variations in income of the rural areas that also cause seasonal variations in consumption (Khandker, 2012) by which a borrower typically faces income uncertainty at times; income fluctuation is a prevalent occurrence that makes smooth consumption hard over time whether it happens certainly or randomly. The hitches connected to the incompatibility between the loan repayment pattern and borrowers’ cash flows have been lessened lately by the introduction of some repayment rules by microfinance banks.

During the period of natural catastrophe in Bangladesh, borrowers were given permission to reorganize their loan repayments which meaningfully decreased their dependence on the informal money-lenders and empowered consumption (Shoji, 2010) likewise borrowers who faced repayment challenges as a result of drought, flooding in Thailand by the Bank for Agriculture and Agricultural Cooperation were allowed loan renegotiation(CGAP/IFAD 2006). A flexible repayment schedule will invite more clients who are facing income doubt but are afraid of a likely default when they come across negative surprises loan repayments can be safely rescheduled if the shocks are readily witnessed by the lenders.
Clients generate high income which is assumed to be an account of assurance to savings after harvest period while deduction should be permissible only during period of natural disaster, such as in emergency seasons which will help the underprivileged with biased preferences to alleviate seasonal disparities in income to some magnitude. Confianza in Peru and Banco Los Andes Pro Credit in Bolivia experimented the low-income season allowable for deferment of repayment which depicted that loan products repayments should be set according to revenue flows (CGAP/IFAD 2006).

Deferment of repayment heightens the duration of business development over a long term by allowing a larger investment during the preliminary periods and a grace period of two months before repayments start should be allowed before the investment selection of business enterprises, and grace periods cause a change in investment returns, and high default rates (Field et al., 2011)

METHODS AND DATA
Survey research method was adopted for this study. The success of loan repayment is tied to three objectives: loan size, repayment pattern and lending rate. In total, two hundred copies of questionnaire were administered to microfinance banks’ clients in Kaduna State of Nigeria as respondents while one hundred and eighty two were returned. Data were collected within the duration of one month due to distance.

A well-structured multi-item questionnaire was designed to obtain information from the respondents. In the questionnaire, clients who were on loan repayment period were the ones given questionnaire to fill. The section A of the questionnaire comprised of the bio-data of each respondent while section B comprised of three constructs on repayment capability, loan size and lending rate. A five-point Likert scale measurement was used which were Agreed, Strongly Agreed, Indifferent, Disagreed and Strongly Disagreed.

Method of Data Presentation and Analysis
In this study, both descriptive and inferential statistics were used. One hypothesis was formulated and analysed using cox regression. This is done to test the effect of lending rate on the repayment capability of microfinance banks’ customers in Kaduna State of Nigeria.

MODEL SPECIFICATION
The model below was adapted from the work of Onyeagoacha, Chidebelu, & Okorji in 2012 and slightly modified to suit this study to capture all the measurable variables as indicated below

Model 1
\[ RPC = f (LOS, LR, RPP) \] ................................................ (1)

Equation could be explicitly expressed as
\[ RPC = \beta_0 + \beta_1LOS + \beta_2LR + \beta_3RPP + \varepsilon \] ....................... (2)

Where;
RPC is Repayment Capability
LOS is Loan Size
LR is Lending Rate of microfinance banks
RPP is Repayment Pattern
\( \beta_0 \) is the intercept
\( \beta_1, \beta_3 \)are the slope coefficients

MEASUREMENT OF VARIABLES
As mentioned earlier, data for the study were collected using survey research design. Variables were drawn from the literature and data were collected to represent each variable. For each of
the variables, set of questions were formulated, transcribed, weighted and averaged to form composite indices for each construct.

RESULT PRESENTATION AND DISCUSSION

This chapter presents the detailed description of the results of the data analyses from the primary. The results obtained from frequency distribution and percentages. The descriptive statistics are presented in tables and graphs while empirical results were estimated based on models in 3.0

Table 4.1: Descriptive Analysis (Primary data)

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<td>41-50 years</td>
<td>23</td>
<td>12.6</td>
</tr>
<tr>
<td>51 years and above</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Total</td>
<td>182</td>
<td>100.0</td>
</tr>
<tr>
<td><strong>Educational Qualification</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary School Certificate</td>
<td>53</td>
<td>29.1</td>
</tr>
<tr>
<td>WACE/GCE/NECO</td>
<td>76</td>
<td>43.0</td>
</tr>
<tr>
<td>HSC/NCE/OND</td>
<td>23</td>
<td>12.6</td>
</tr>
<tr>
<td>HND/B.Sc.</td>
<td>26</td>
<td>14.3</td>
</tr>
<tr>
<td>M.Sc./PhD.</td>
<td>4</td>
<td>1.0</td>
</tr>
<tr>
<td>Total</td>
<td>182</td>
<td>100.0</td>
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<tr>
<td><strong>Occupation</strong></td>
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<tr>
<td>Trader</td>
<td>41</td>
<td>22.5</td>
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<tr>
<td>Farmer</td>
<td>37</td>
<td>20.3</td>
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<tr>
<td>Artisan</td>
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<td>SME owner</td>
<td>23</td>
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<tr>
<td>Teacher</td>
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<td>7.6</td>
</tr>
<tr>
<td>Civil servant</td>
<td>11</td>
<td>6.0</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>182</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: Researcher’s Survey, 2018
The demographic information of the respondents in the table above indicates the sample size of the survey study consists of 58(31.9%) male and 124(68.1%) females suggesting that the female clients constitute greater proportion of the study.

This additionally buttressed the fact that microfinance banks target female clients, the confirmation of more female beneficiaries of microfinance bank’s loan is a confirmation in Onoja & Emodi (2012), Grameen Bank quoted in (Julius and Azeez, 2011) which held that advancing micro-credit to women would enrich better loan repayment than when advanced to men which substantiated the affirmation of Armendariz & Morduch (2005) that most of the studies which advanced hypothetical opinions about female steering in loan were not supported by practical substantiation except in this study where it is empirically established that more female microfinance banks’ customers enjoyed loan facilities than the male customers.

The age distribution of the participants shows 48(26.4%) of the sample within the age bracket of 20-30 years, 109(60.0%) which constitutes the largest portion of the respondents were within the age limit of 31-40 years, 23(12.6%) fall within the age bracket of 41-50 years while 2(1.0), the last category of the respondents were 51 years and above. This implies that the more economically active population are prone to borrowing from microfinance banks in a bid to acquire more economic power and financial independence. Eze & Ibekwe (2007) deep-rooted the above indication in their study on determinants of loan repayment in Imo State where loan size, age of beneficiaries, household size, number of years of formal education and occupation were identified as the key forecasters of loan repayment which is in line with this research that the economically active age of the customers is one of the criteria considered for loan by some microfinance banks in Kaduna State of Nigeria.

From the descriptive table above, 53(29.1%) had their primary school certificate, most of the participants 76 (43.0%) were WAEC/GCE/NECO holders, followed by those 23 (12.6%) who were HSC/NCE/OND holders, 26 (14.3%) were either HND or B.Sc. graduates while 4(1.0%) fall within the M.Sc. and PhD categories. This indicates that majority of the borrowers consists of entrepreneurs with low level education.

Onyeagocha, Chidebelu & Okorji (2012) originated that there was reduction in default rate with loan size, educational level, occupational length of experience, the supported ability of the business in making profits plus diversity of portfolio, and multiple enterprises ownership which have shown that ceaseless failure of small businesses is as a result of the people’s educational level in managing the business while many of the businesses do not grow because of the manager’s low educational level. The occupational demographic distribution of the respondents show these beneficiaries of the microfinance banks’ loan which were traders 41(22.5%), teachers 14(7.6%), civil servants 11(6.0%), artisans 55(30.2%), farmers 37(20.3%), small and medium enterprise (SME) owners 23(12.6%) and others 1(0.5%). This could be explained by the reason that generally in most cases, loans obtainable from microfinance banks run between 6 months and 1 year which are usually working capital. Highest loan in a microfinance bank is 24 months except in some extraordinary cases like housing loan. Though in some cases farmers that plant cash crops and perennial crops with long gestation periods of 2 to 3 years may be given longer periods pending the period of harvest and sales before repayment of loans can start.
The analysis for the repayment capability model of microfinance banks in the table above shows that loan size, lending rate and repayment pattern have significantly contributed to repayment failure. This depicts that a unit increase in loan size, lending rate and repayment pattern significantly increase hazard ratio for loan repayment by 0.999, 1.000 and 1.0079 respectively at 1 per cent level of significance which implies the inability of the microfinance bank’s clients to meet up with their instalment repayment. Though similar result was established in the study conducted by Idowu & Salami in 2010 where lending rates charged by microfinance banks in Ogbomoso were very high, and affected the loan repayment by hairdressers to the extent that income made by the hairdressers had not improved after collection of loan due to short repayment period attached to the loan but the study considered hairdressers only in their study while this study covered many other sectors of the economy. The result above rejects the null hypothesis and accepts alternate hypothesis which states that loan size has significant effect on repayment capability of microfinance banks’ clients.

SUMMARY, CONCLUSION AND RECOMMENDATIONS

The relationship between loan size, repayment pattern, lending rate and repayment capability was further inspected with the cox regression approach. The estimated hazard ratio affords proof of a substantial influence of all the exogenous variables on repayment capability. It is perceived from the results that increase in loan size, lending rate and repayment pattern resulting to lower repayment schedules has the propensity of increasing the hazard ratio for repayment capability. In other words, client’s incapability to uphold the instalment repayment could significantly be influenced by large loan size borrowed, high lending rate and multiple repayment schedules within a short range of time. Given the above result, the study therefore rejects the null hypothesis that loan size has no significant effect on repayment capability of microfinance banks clients which implies that loan size has a significant effect on clients’ repayment capability. This proposes that the loan size borrowed by the microfinance bank’s client, the lending rate and type of repayment schedule for the loan have significant influence on the ability of the client to pay instalment amount over the duration of loan repayment.

One of the major difficulties confronted by microfinance banks in their extension of loans to customers is that higher percentage of their borrowers are usually risky and low net-worth individuals with little or no collateral which in the event of default may affect the survival of microfinance banks. However, microfinance banks should make loan repayment patterns very flexible to avoid loan default though they may fear that repayment pattern flexibility endangers repayment quality, but it is remarkable for microfinance banks to have loan monitoring team to avoid diversion. The study therefore proffers the following recommendations for policy implementation:

1. Loan size given should be based on client’s cash-flow, and financial capability
2. Microfinance banks should insist on graduated loan policy, they should start with small loan, when repayment is done, they can advance bigger loan

3. Effective monitoring of loan utilization should be done by MFBs follow-up team to avoid diversion of loan by the borrowers

4. The microfinance banks’ loan policy should be revised by restricting the loan repayment patterns from weekly to monthly basis to create enough intervals for borrowers to pay-off their loans and interest conveniently.

5. The microfinance banks’ lending criteria should be strictly adhered to by the staff for the appraisal of customers’ loan requests before approval to avoid loan default, any erring staff should be sanctioned.

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Big Data Management in Transport & Logistics Industry: A Literature Review

Shuo Dang
Management School, University of Liverpool, Liverpool, UK.

Jing Shi
Management School, University of Liverpool; Guangxi Liugang Logistics Co., Ltd.
to_shijing@163.com

Yang Li
Department of Computer Science, University of Liverpool

Abstract
Nowadays, the amount of data produced from transport & logistics industry appears significant increase. Meanwhile, under the worldwide competition, professionals are struggling in dealing with the huge data. Thus, the adoption of new information technologies has become essential for most of transport & logistics businesses to improve their activities with the investigation of how to produce, capture and analyse data. Big Data Management is one of the best techniques which can help them in overcoming their problems (Tiwari, et al., 2018). Realizing its benefits, this paper will provide a literature review of big data in the transport & logistics industry to demonstrate its knowledge and understanding of related research in recent five years, especially the application cases. During the analysis, this paper will discuss the strength, weakness, opportunities and threats of adopting big data, to identify the research directions for future study in transport & logistics domains.

Keywords: Big Data Management, Transport, Logistics

1. Introduction
The widespread using of information technologies in transport & logistics industry leads to the fast increase of data sources (Nguyen, et al., 2017). And, this increasingly massive amount of data also provides logistics companies with lots of opportunities for exploring new values and the challenges, which could raise powerful competitive advantages in terms of management and analysis. In academic area, researchers have given a new concept as Big Data in this practice, which also has been a new trend of application in the field of transport & logistics (Tiwari, et al., 2018). Thus, this paper will perform a comprehensive literature review for the
related articles in recent five years to investigate and critically analyse the knowledge and application cases of big data in transport & logistics industry.

The structure of this paper is organized as follows. Firstly, in section II, the overall background of transport & logistics industry will be given. Then, in section III, this paper will analyse the strength, weakness, opportunities and threats of Big Data in transport & logistics, with relevant cases to support. At last, a brief review of some prospects of Big Data in transport & logistics and limitations of this paper will be concluded in section IV.

2. Background

Generally, the logistics operations include freight transport, supply chain management, e-commerce, inventory, delivery, handling, reverse logistics and so on. According to Tan (2015), the methodological advancements and analytical capabilities of Big Data technologies play a vital role in new business models and the improvement of customer experience, when applied in transport & logistics chains. For example, new data-driven businesses and opportunities appear across global forwarding networks based on the development of analytics capabilities in Big Data (Govindan, et al., 2018). The data captured along the forwarding networks including cargo, size, weight, location and destination by professionals from millions of shipments around the world every day, promotes to the optimization of operation efficiency and business models. Besides, now, transport & logistics industry has been considered as an important data source, which can develop these Big Data applications to a new level as well.

3. Literature Analysis

The adoption of Big Data in transport & logistics industry can usually refer to three dimensions: operational efficiency, customer experience and new business models (Nguyen, et al., 2017). In this section, the strength, weakness, opportunities and threats of Big Data are discussed in detail referring to transport & logistics issues.

3.1 Strength Analysis

A. Big Data Technology

The Big Data technology generally involve commercial and open-source platforms and services for storage, security, access and processing of data (Hopkins & Hawking, 2018). Cloud computing is one of the widely used Big Data technologies and internet-based. With the cloud computing, users can access files to share or process data from any device that can access the Internet. Besides, cloud computing is also a good tool that support the processing of this huge amount of unstructured data and turn it into actionable business intelligence (Misbahuddin, et al., 2015). In another word, Cloud offers everything as a service business model for IoT (Internet of Things) and big data. And, the investigation of cloud computing, big data and IoT has been well adopted in the Intelligent Transport Systems applications.
Application Case: Take the Agent Vehicle Tracking solution from DHL as an example (shown in figure 1). In 2011, DHL has adopted cloud computing throughout their organization and believe that Big Data would improve their logistics operational performance, such as efficiency and service quality (Hopkins & Hawking, 2018). To achieve the goals of ‘Plan Zero’ (Zero Vehicle Accidents, Zero Environmental Impacts and so on), DHL implemented a range of truck telematics and established cloud computing platforms to collect and process sensor data from trucks, including speed, distance travelled, location, engine data and so on, with control rooms which monitor and change driver behaviors. According to the annual report from DHL, by 2016, DHL had reduced their GHG emissions by 42 percent. Specially, 32 percent of this reduction was due to Agent Vehicle Tracking (Hopkins & Hawking, 2018).

Analysis: Cloud-based service has four key strong supports to big data: Scalability, Flexibility, collaborated and Security (Tiwari, et al., 2018). Firstly, from the view of scalability and flexibility, Cloud-based services are ideal for businesses with growing or fluctuating demands. Logistics companies always meet seasonal demand fluctuations on delivery, especially affected by the commercial promotions, for example, ‘Black Friday’ in the UK or ‘Double Eleven Day’ in China. In the case of DHL, the fluctuation of logistics demands may lead to the data change on its type and amount, which requires the big data platform in the capability of scalable and flexible. And, Cloud Computing can allow this growth or fluctuation, and the steadily process a huge amount of unstructured data.

Besides, the cloud computing can increase the collaboration of a business team. The members of Agent Vehicle Tracking team in DHL can access, edit and share documents anytime from anywhere, which enables them to do more together and better.

At last, cloud-based services improve the security of data storage. Cloud-based services can enable the data storage, computing and memory resources in an elastic and “transparent” way, which can avoid the data loss as far as possible (Hopkins & Hawking, 2018).

B. Big Data Analytics

Data Analytics includes descriptive analytics, diagnostic analytics, predictive analytics, prescriptive analytics and so on (Nguyen, et al., 2017). In transport & logistics operations, the Big Data analytics can support the dynamic routes design by processing real-time information from sensor data or external customer information.

Application Case: As an example, Routific is a commercial route optimisation software developed
for most delivery businesses to improve the performance of last-mile delivery.

In figure 2, it exposes the user interface of ‘Routific’ for on-demand logistics management, where the freight fleet can be tracked for last-mile delivery optimisation.

![Image of Routific user interface](image)

Figure 2. The user interface of last-mile optimization tool (Tiwari, et al., 2018)

**Analysis:** In the case of last-mile optimization tool, the software – ‘Routific’ provides a flexible solution to the Vehicle Routing Problem, based on the factors in terms of time windows, delivery types, vehicle capacities, driver speeds, priority stops, driver shift times, driver breaks, traffic, and more (Tiwari, et al., 2018). According to the statistics on its website, the software – ‘Routific’ can help its customers save time and fuel with 40% shorter routes (Routific, 2018).

As for the operational level, Big Data analytics applied in the ‘Routific’ can dynamically analyse and optimise the distribution network in consider of the coordination between transport routes and transit points, by processing real-time sensor data from vehicles (Govindan, et al., 2018).

However, in previous, the route plan was based the past inefficient resources such as historical averages or even personal experience, which was hard to reflect the reality.

### 3.2 Weakness Analysis

**A. Big Data Technology**

Firstly, Cloud computing platforms need lots of investment for its development and maintains. Most of the Small & Medium-sized Enterprises (SMES) relies on the Third-Party service, such as Amazon, Microsoft and iCloud, which may meet more risks on information leakages, especially for the information related to market strategy. In addition, since cloud computing needs a constant internet connection, if the Third-Party services has any failure, the daily operations of SMES will also be significantly impacted.

**B. Big Data Analytics**

At first, it is not all companies can afford the cost on the building of analytical capabilities.
Generally, the Big Data analytics are always developed by high-level professionals who are named as ‘Data Analytics’ in many cases. Recently, some large firms are beginning to create “Chief Analytics Officer” roles to oversee the building of analytical capabilities, such as UPS. But, both the cost of human resources and technologies development are very expensive. Only few large logistics companies could afford its costs. Thus, if some SMEs want to improve their transport or logistics performance by the Big Data analytics, they must rely on the Third-Party services.

Besides, while cost is often a limiting factor in many technology decisions, ease of use appears to be a more pressing issue than cost (Gasova, et al., 2017). Because, the implementation of a complex big data system throughout the organisation always needs staff training and professionals to support, which would cost a lot of time on it.

3.3 Opportunities Analysis

A. Big Data Technologies

The application of Big Data technologies is still a new trend in transport & logistics field, which promotes to a fast growth of new technologies, such as Artificial Intelligence (AI) and Data Science. Meanwhile, the investigation of new technologies is also leading to the development of fully auto-decision processes, known as Smart Logistics in the transport & logistics industry (Gasova, et al., 2017). Under this context, transport & logistics industry and Big Data are in together development.

In Smart Logistics, the research and development of new intelligent self-driving vehicles in a Big Data and IoT-based traffic infrastructure has been popular in recent years (Wang, et al., 2016). The new intelligent self-driving vehicles would be a key trend in transport & logistics area during the following years and bring more flexible and automated logistics solutions as well. Because, the shared sensor data provides more great deal of information on weather and traffic for the optimisation of efficiency and self-management on the flow of logistics and goods. For example, Mercedes is leading to the design of “future Truck 2025” that presents a self-driving truck would change the future of shipping methods (Borgi, et al., 2017).

B. Big Data Analytics

Based on Big Data predictive analytics, the Predictive Analytics allows logistics providers to improve their process efficiency and service quality by forecasting demands before any request or order will be placed, to short its delivery time (Tiwari, et al., 2018). Take the concept of Internet of Trains as an example. The Internet of Trains is a new trend of maintenance services proposed by Siemens in past few years, which could reduce the train failures by analysing the sensor data, to achieve a data-driven predictive maintenance of trains fleet (Teradata, 2015).

3.4 Threats Analysis

A. Big Data Technologies

Firstly, the development of Big Data technologies may meet a threat on the data monopoly. Even though transport & logistics industry can create huge amounts of data due to the adoption of new technologies, such as IoT, all these data may meet a forbidden challenge on share from
several large firms in the transport & logistics industry, which may affect the development of Big Data technologies in logistics domains (Hopkins & Hawking, 2018).

In addition, the privacy and security issues are still a serious challenge for the storage and transmission of enormous quantity of sensor data (Tiwari, et al., 2018). For example, in 2016, over 50 million of Facebook users suffered their data exploited by a political consultancy. There’re no detail regulations for professionals or businesses on the development of the crowd-sourced data and application platforms. However, those multi-platforms, such as Google, adopted big data technologies are becoming more and more easy to locate or track objects, including vehicles and people. which may lead to new threats in terms of privacy and security. If misunderstood and misconfigured, it may pose risk to our data, privacy, and safety.

B. Big Data Analytics

One of the important challenges maybe from the predictive analytics limitations. On one hand, predictive models cannot offer a reliable answer for future during the self-learning and self-regulating processes. Because, history data cannot always predict the future, which means the data fitting is unable to resolve all the issues. On the other hand, data that are inaccurate, incomplete, or inconsistent can also noise the results of prescriptive analytics and create serious operational problems for businesses. For example, the self-driven car may meet traffic accidents, due to inaccurate decisions under the inaccuracies in transport data and road conditions information. Besides, the inaccurate decisions caused by predicative analytics limitations may lead to a threat on legal insight. For example, the self-driven car from Uber caused a casualty accident in America at the beginning of 2018. How to determine its legal responsibility was a difficult.

4. Conclusion & Limitation

This paper explored a literature overview of Big Data, and analysed the main strength, weakness, opportunities and threats in the transport & logistics industry. The application of Big Data technology and analytics in transport and logistics fields is still in development. Firstly, this paper proposed that the Big Data technology and new knowledge explored from the vast of sensor data along the logistics chains are in together development, which could offer valuable opportunities. Besides, the technical limitations and risks of Big Data in transport & logistics industry also needs to concerned by scientists and researchers, such as the raising challenges of privacy and safety. In addition, since the analysis of this literature review is based on materials just collected from academic journals, in future researches, it shall collect more information from practice. At last, this review just reflects the recent views of scholars who research on Big Data in the field of transport & logistics. Therefore, the analysis proposed in this review needs to be further enhanced based on much more academic journals and practical cases.
Reference


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Human Resource in Agricultural Enterprises in Industry 4.0
A Case of Thai Nguyen Province, Vietnam

Phung Tran My Hanh
Thai Nguyen University of Economic and Business Administration, Vietnam

Abstract

Human resource is one of the important resources in enterprises in general and agricultural enterprises in particular, especially in the background of Industry 4.0. However, Thai Nguyen’s human resource in agribusiness has critical shortage in both quantity and quality. This article analysed human resource in agricultural enterprises, labor productivity in this area and the impacts of the Industrial revolution 4.0 on human resource in agribusiness. Secondary data was collected in Thai Nguyen statistics office in the period from 2013 to 2017 and this study used descriptive and inferential statistics approach. The research has shown that Industry 4.0 has brought both opportunities and challenges, as well as positive and negative effects on human resources in Thai Nguyen’s agricultural enterprises. Young workforce has opportunity accessing to new technology and enhancing labor productivity, but the quality of labors and low-skilled human resources are the challenges of Thai Nguyen’s human resources. From the empirical finding, the author recommended some core solutions to provincial leaders, agricultural enterprises and human resources to enhance the quality of human resources in Thai Nguyen’s agribusiness in the Industrial revolution 4.0.

Keywords: human resources, agricultural enterprise, Industry 4.0, Thai Nguyen province, Vietnam

INTRODUCTION

“The Wave of Technology” of the Industrial revolution 4.0 is increasing dramatically around the world and impacting on all areas of social life, including agriculture enterprises. In the process of existence and development of enterprises; high-skilled human resources are the resources that influence to the development of enterprises, especially the background of Industry 4.0 will create major changes in labor’s supply and demands’. With more than 50% of the working-age population, a period that occurs only once in the demographic history of each nation, Thai Nguyen is in a period known as “Golden Population Structure” with young human resources and have the ability to access the change of science and technology quickly. The core of Vietnam’s economic strategy has been rapid integration into the world economy, with the breakthrough in technology in the fourth industrial revolution. Although the growth and development along with the development trend of the world, Vietnam in general and Thai Nguyen in particular is still a heavy place in agriculture and rural areas, so agriculture is an important economic field. However, the quality of human resources, especially the quality of
human resources in agricultural enterprises was very low, lacking in various skills that adapt to requirements of labor market. The adaptability of employees who work in agricultural enterprises is limited, the ability to apply and create in the workplace is low. Vietnam’s human resources index ranks the 62nd in the world and the 14th in the Asia Pacific region; only 5% of the laborers are proficient in English and only 10.4% are skilled workers (ManpowerGroup Solutions, 2018).

Sara Gustafson (2016) indicated that information and communications technologies can increase farmers’ resilience to various shocks. By increasing their access to weather and market information, digital technologies can help farmers make more informed decisions regarding when and which crops to plant, as well as when and where to sell those crops. In addition, this digital revolution has huge potential to reduce poverty throughout developing regions. Food security and sustainable food systems are closely intertwined and the Fourth Industrial Revolution holds great promise and opportunity (James C.Collins, 2016).

Industrial revolution 4.0 also poses many challenges, especially which will dramatically change the structure of labs and the labor market. Automation systems will gradually replace manual labors in the economy as a whole. This will affect the income of simple workers and increase unemployment. The demand for employment is totally new compared with the past but it is necessary to actively prepare and regulate appropriate policies (Phung Tran My Hanh, 2018).

According to the author Do Kim Chung (2017) supposed that the influence of this revolution, traditional agriculture has developed into “Smart Agriculture”. Vietnam needs to know the impact of this revolution on human resources in agribusiness in order to recommend appropriate human resource development strategies and meet the demands of “The Wave of Technology” in the Industrial revolution 4.0.

The research was conducted to analyze the income, labor productivity and quality of human resource in agricultural enterprises in Industry 4.0 through secondary data from Thai Nguyen statistic. The results of the study indicate that the Industrial revolution 4.0 has both positive and negative impacts on human resources in agricultural enterprises. From the field findings, the researcher recommends some solutions for provincial leaders, agricultural enterprises and human resources in order to “catch up the Wave of Technology” in Industry 4.0

LITERATURE REVIEW

Human resource

“Human resources” are derived from the English term “human resource”, which has been used extensively since the 1960s in many Western and Asian countries. This has become common place in the world.

According to the World Bank (WB), human resource is the total human capital (physical, intellectual, occupational, etc.) that every individual can mobilize in the production process, business or any activity. Mai Quoc Chanh and Tran Xuan Cau (2000) showed that human resources are different from other resources (financial resources, material resources, technology resources ...) in that: in the process of mobilization, human resources are influenced mainly by natural factors (birth, death ...) and social factors (employment, unemployment ...)

General Statistics Office of Vietnam defined that “human resources include people who are 15 years of age or older who are employed (working people) and those in working age who are capable of working but are in a state of being: being unemployed, going to school, doing homework in their home, having no need to work and other non-working people (not including people in the armed forces)".
Agricultural enterprise

Bui Tuan Anh (2017) defines that agricultural enterprises are enterprises directly involved in production and business activities of agricultural products and foodstuffs or supply inputs to produce inputs for these enterprises. Therefore, the results of production and business activities of agricultural enterprises are closely related to the characteristics of agricultural production.

Industry 4.0

The term "Industrie 4.0" derives from a project in the High-Tech Strategy of the German Government, which encourages computerization of production. This term was first used in 2011 at the Hannover Fair - the world’s leading trade fair for technology and industry, the industry’s largest and most important event, held annually by Deutsche Messe AG.

This term has only really been of interest to the world since Klaus Schwab, President of the World Economic Forum (WEF), introduced the book "The Industrial Revolution 4.0" at the 46th World Economic Forum, WEF 46 was held in Davos - Klosters, Switzerland on January 20, 2016 with the theme of “The 4th Industrial Revolution”, attracting the participation of 40 heads of state and over 2,500 Guests from more than 100 countries, including US Vice President Joe Biden, British Prime Minister David Cameron, Bill Gates, Microsoft CEO Satya Nadella, Chairman Alibaba Jack Ma, ... The Industrial Revolution Concept 4th or 4th Industry has been clarified at this forum (National agency for Science and Technology Information, 2017).

According to Klaus Schwab (2016): “The fourth industrial revolution, however, is not only about smart and connected machines and systems. Its scope is much wider. Occurring simultaneously are waves of further breakthroughs in areas ranging from gene sequencing to nanotechnology, from renewables to quantum computing. It is the fusion of these technologies and their interaction across the physical, digital and biological domains that make the fourth industrial revolution fundamentally different from previous revolutions”

RESEARCH METHODOLOGY

Research site

Thai Nguyen province is one of the political, economic and educational centre of the northern mountainous midland in Vietnam. Along with trending of economic development and the Industrial revolution 4.0 in Vietnam as well as the northern mountainous midland, Thai Nguyen province; with favorable conditions on geographic location, socio-economic characteristics; has created favorable conditions for the enterprise’s development. In addition, with the policies about investment and enterprise development of Thai Nguyen’s provincial leaders, many enterprises have established and attracted thousands labors from other provinces to work; but the amount of agricultural enterprises has increased slowly. (Thai Nguyen statistics office, 2018).

Data collection

The data used in this study is quantitative and qualitative data. Quantitative data obtained such as the number of acting enterprises, the number of agricultural enterprises, the number of employees and their income in agricultural enterprises in the background of the fourth industrial revolution, from 2013 to 2017 in Thai Nguyen province, Vietnam. The qualitative data is from Thai Nguyen profile and the agricultural enterprises informations; general description of the agricultural enterprises and the results research related to human resources in agricultural enterprises in Industry 4.0.
Secondary data of the Thai Nguyen statistics office was used. This data is retrieved and collected in connection with research in order to analyze for this research.

**Descriptive and Inferential Statistics**

Descriptive analysis and inferential statistical analysis were used in this article. Descriptive statistics utilize numerical, tables and graphical methods to describe the number of agricultural enterprises and human resources in the Industrial revolution 4.0 for each indicator and the average score obtained to summarize the information that they reveal and to present that information in a meaningful way.

Inferential statistics uses the data to make estimates, decisions, predictions, or other generalizations about human resources in agricultural enterprises in Thai Nguyen in the fourth industrial revolution from which the data was obtained.

**ANALYSIS AND DISCUSSION**

The number of agricultural enterprises and human resources in this area in Thai Nguyen province in Industry 4.0

The amount of enterprises increased steadily in Thai Nguyen province in the period from 2013 to 2017. In 2013, the number of acting enterprises was 2,090 enterprises, with the growing rate reaching about 3.26%. As a result of the financial crisis and the global economic downturn from 2013, in the year 2014 the number of acting enterprises fell to 2,019 enterprises and the growing rate decreased 3.52% compared to the year 2013. In the year 2017, the number of acting enterprises rose up 2,894 enterprises; and the growing rate reached to the highest in this period, with 32.87%. From 2013 to 2017, the average growing rate of enterprises was about 8.08%.

Figure 1 has shown the number of enterprise and growing rate enterprise in Thai Nguyen province from 2013 to 2017 as follow:

![Figure 1. Total number of enterprises and growing rate of enterprises in Thai Nguyen province, Vietnam Source: Thai Nguyen statistics office](image_url)

The enterprises by kind of economic sectors has included Agriculture, forestry and fishing enterprise, manufacturing and construction enterprise and service enterprises. In the period 5
years, from 2013 to 2017, the number of Agriculture, forestry and fishing enterprises remained stably and the proportion of these enterprises accounted under 1% in total number of acting enterprises in Thai Nguyen province. From 2013 to 2016, the volume of Agriculture, forestry and fishing enterprises were about from 13 to 14 enterprises, whereas there was a slight increase in the amount of Agriculture, forestry and fishing enterprises in the year 2017, at 21 enterprises.

Table 1. Number of enterprises by kind of economic activity in Thai Nguyen province, Vietnam

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<td>Number of enterprises</td>
<td>13</td>
<td>14</td>
<td>13</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>Structure (%)</td>
<td>0.62</td>
<td>0.69</td>
<td>0.63</td>
<td>0.64</td>
<td>0.73</td>
</tr>
<tr>
<td><strong>Manufacturing, construction enterprise</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of enterprises</td>
<td>814</td>
<td>785</td>
<td>830</td>
<td>890</td>
<td>1169</td>
</tr>
<tr>
<td>Structure (%)</td>
<td>38.95</td>
<td>38.88</td>
<td>40.45</td>
<td>40.86</td>
<td>40.39</td>
</tr>
<tr>
<td><strong>Service enterprise</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of enterprises</td>
<td>1263</td>
<td>1220</td>
<td>1209</td>
<td>1274</td>
<td>1704</td>
</tr>
<tr>
<td>Structure (%)</td>
<td>60.43</td>
<td>60.43</td>
<td>58.92</td>
<td>58.50</td>
<td>58.88</td>
</tr>
<tr>
<td><strong>Total enterprise</strong></td>
<td>2090</td>
<td>2019</td>
<td>2052</td>
<td>2178</td>
<td>2894</td>
</tr>
</tbody>
</table>

Source: Thai Nguyen statistics office

Although the number of Agriculture, forestry and fishing enterprises increased slightly, but these enterprises have played a critical role in job creation for employees in Thai Nguyen’s economy as well as Vietnam’s economy. In 2013, the number of employees who worked in agriculture enterprises was 463 people; while in the year 2014, the volume of employees in this area increased up to 497 people with the growing rate reached to 7.34%. There was a sharp increase in the number of employees who worked in agriculture, forestry and fishing enterprises from just 579 people to 879 people from 2016 to 2017, with growing rate in 2017 about 51.81%. The reason for the increasing of labors who worked in this area was that Thai Nguyen’s government invested to build new industrial zones such as Diem Thuy, Nam Pho Yen, Quyet Thang...Therefore, it has attracted many laborers to work in enterprises, especially Agriculture, forestry and fishing enterprises in Thai Nguyen province. In addition, this is also in the period of “Golden population structure” in Thai Nguyen, along with the background of industrial revolution 4.0 also that created the changing labors market in the province.

The tendency of the number of employees and growing rate of employees in Agriculture, forestry and fishing enterprises has illustrated as figure 2:
Thai Nguyen labor productivity in agricultural enterprises in the Industrial revolution 4.0

Thai Nguyen’s enterprises took positive impacts of the fourth industrial revolution to enhance labor productivity in the period from 2013 to 2017. There was a dramatic increase in Thai Nguyen’s labor productivity from just 52.68 million dongs to 112.74 million dongs, a rise of about 60.06%. From 2013 to 2017, average growing rate of Thai Nguyen labor productivity was about 18.28%.

From 2013 to 2017, labor productivity in Manufacturing, construction enterprises and in Service enterprises increased sharply; especially in Manufacturing,construction enterprises. In 2013, labor productivity in Manufacturing, construction enterprises was about 84,79 million dongs, with growing rate fell to 17.81%; whereas in 2014 labor productivity was 131.66 million dongs, with growing rate reached to the highest, about 55.28%. Labor productivity in Manufacturing,construction enterprises continued to rise significantly and in the year 2017, labor productivity in this area was about 205.65 million dongs. From 2013 to 2017, labor productivity in service enterprises increased steadily from 104.04 million dongs to 142.81 million dongs; average growing rate of labor productivity in service enterprises was about 6.82%.
Table 2. Thai Nguyen labor productivity in enterprises by kinds of economic activity

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labor productivity in Agriculture, forestry and fishing</td>
<td>20.97</td>
<td>22.21</td>
<td>25.42</td>
<td>27.83</td>
<td>29.78</td>
</tr>
<tr>
<td>Labor productivity in Manufacturing, construction</td>
<td>84.79</td>
<td>131.66</td>
<td>165.33</td>
<td>187.78</td>
<td>205.65</td>
</tr>
<tr>
<td>Labor productivity in Service</td>
<td>104.04</td>
<td>113.45</td>
<td>121.82</td>
<td>136.87</td>
<td>142.81</td>
</tr>
<tr>
<td>Thai Nguyen’s labor productivity</td>
<td>52.68</td>
<td>67.20</td>
<td>85.10</td>
<td>100.37</td>
<td>112.74</td>
</tr>
</tbody>
</table>

Source: Author’s calculation based on Thai Nguyen statistics office

Compared with other kinds of economic activity, labor productivity in agricultural enterprises was the lowest, but the growing rate of labor productivity of this area rose steadily in the period from 2013 to 2017. In the year 2013, labor productivity in Agriculture, forestry and fishing was 20.97 million dongs, with the growing rate approximately 21.96% and reached its highest proportion of labor productivity; while the figure in 2014 was higher, at 22.21 million dongs with the growing rate about 5.92%. In 2017, labor productivity in Agriculture, forestry and fishing increased to 29.78 million dongs and the growing rate about 7%. In this period, average growing rate of labor productivity in agricultural enterprises was about 11.76%.

The information about Thai Nguyen labor productivity and the growing rate in enterprises by kinds of economic sectors have illustrated as figure 4:

![Figure 4. The growing rate of Thai Nguyen labor productivity in enterprises by kinds of economic activity](image)

Source: Author’s calculation based on Thai Nguyen statistics office
Average compensation per month of labors in agricultural enterprises compared with other kinds of economic activity in Thai Nguyen province in Industry 4.0

Figure 3 has illustrated that average compensation per month of employees in enterprises rose significantly, while average compensation per month of employees in agricultural enterprises decreased sharply in the period from 2013 to 2016.

Unit: thousand dongs per month

![Figure 3. Average compensation per month of employees in enterprises by kinds of economic activity in Thai Nguyen province](image)

Source: Thai Nguyen statistics office

In the year 2013, average employee’s income per month of Agriculture, forestry and fishing enterprises was at its highest; at 6,207 thousand dongs per month; while average employee’s income per month of other service activities was its lowest, at 2,283 thousand dongs per month. In 2016, compared with other kinds of economic sector enterprises in Thai Nguyen province, the average compensation per month of Agriculture, forestry and fishing enterprises decreased at 5,349 thousand dongs; whereas the average employee’s income per month of manufacturing enterprises was 10,531 thousand dongs and average wage per month of employees who worked in Thai Nguyen enterprises was 9,205 thousand dongs. The increase of industrial zones in Thai Nguyen and the human resource attracting policies of manufacturing enterprises about the salary led to a significant increase in income in the manufacturing sector. In addition, “the wave of technology” in the Industrial revolution 4.0 has applied in many manufacturing enterprises and this will improve labor productivity; thereby the employee’s income in this area increased rapidly in the period from 2013 to 2016.

The impact of Industry 4.0 on Thai Nguyen human resources in agricultural enterprises

Thai Nguyen is one of the fastest developing province getting started from agriculture, with advantages of great natural resources and human resources is in a period of “Golden Population Structure”. Agriculture is a foundation, a development axis, and a strong pillar of the economy and Agricultural enterprise is one of important Thai Nguyen economic sectors. Over the year, economic development of Thai Nguyen province has depend much on agriculture and these enterprises have recorded continuous growth with important achievements, contributing...
to nationwide economic stability, reducing poverty and improving the standard of living for rural areas.

The analysis results illustrated that total number of enterprises by kind of economic activity increased significantly, but the number of agricultural enterprises increased slightly. In the fourth industrial revolution, Thai Nguyen’s labor productivity in agricultural enterprises was the lowest compared to other kinds of economic sector, so the average compensation per month of labors in this area was very low. While other kinds of economic sectors, especially manufacturing enterprises with the fourth industrial revolution results in strong development of new technologies and robots, resulting in a bigger gap between the employee’s income in agricultural enterprises and manufacturing enterprises, and ultimately in potential social conflicts.

In addition, quality of human resources in Agricultural enterprises has not met the changing of Industry 4.0. The labors in Thai Nguyen with the advantages of low cost labors will significantly affect in Industry 4.0. The development of science and technology can lead to mass unemployment, as a large number of laborers in agriculture will not be able to adapt to new technologies. Human resources in agriculture enterprises are in short supply both in quantity and quality. Therefore, the needs of enterprises about high quality human resources have so much and it is difficult to find human resources because of lacking of young human resources in agriculture, shortage of skilled labor, shortage of soft skill, ...

The industrial revolution 4.0 and high technology applied to agriculture, enterprises need labor to fully meet the skills and think to exploit, use technology, apply advanced technology to manufacturing. However, the high rate of low-skilled labor force has a huge impact on access to science and technology. In addition, agricultural laborers are mostly old people, production mainly based on experience, the ability to apply technology to production is very limited; less updated scientific and technological information. Young professionals are very few in the agricultural sector and most do not like to participate in this field. This is an issue of concern for agriculture in general and for agribusiness in particular.

After the effects of industrial revolution 4.0, Vietnam has faced with many challenges, especially the ability to compete to maintain and seek job of low-qualified labors. In the "Readiness for the Future of Production Report 2018" report was released by the World Economic Forum (2018), in a total of 100 countries, Vietnam fell in the group of countries where are not ready for the 4th industrial revolution; the quality of human resources ranked No. 70 and the indicators related to innovation and the quality of human resources at a very low level.

The Industry 4.0 requires the Vietnamese labor market to improve its quality in a changing world of work. Beyond negative effect in Industry 4.0, employee in agricultural enterprise has many opportunities to approach and participate in the new technology as it has a youthful labors market with "Golden Population Structure". The industrial revolution 4.0 has the potential to develop human resources through improving the knowledge and professional experience of the local workforce to adapt to the requirements of automation and digitization, providing the labor market information, analysing and orientation, while sharing experience of international labor markets, connecting and enhancing labors all around the world.

CONCLUSION AND RECOMMENDATIONS

The research conducted above indicates that the number of agricultural enterprises has not changed significantly and the labor in this sector increased slightly compared to other kinds of economic sector in the period from 2013 to 2017. The labor productivity and average compensation per month of employees were the lowest because the agribusiness lack high-
skilled human resources to meet the change of “The Wave of Technology” in Industry 4.0. Thai Nguyen’s human resource are in the situation of lacking of young human resources in agriculture, shortage of skilled labor, shortage of soft skill,...

The results of this study indicate that the Industrial Revolution 4.0 is an indispensable trend, that is happening and nothing can be resisted. Beyond the challenges, Industry 4.0 has brought many opportunities for Thai Nguyen human resource adapt to the need of labor market. From the field findings, the author recommends some important requirements for employee to enhance labor productivity and quality of human resource in Thai Nguyen in the fourth Industrial revolution.

Provincial leaders and organizations should have ways of forecasting the labor market needs in “The Wave of Technology”。 There should be policies to help human resources be consulted, be fully informed about labor market needs, especially in agricultural enterprises, avoid unemployment after training. In addition, the training of human resources in agribusiness should be integrated with other national target programs, particularly in connection with the new rural development program of the national target.

When Agriculture 4.0 occurs, the labor market will have surplus labors, especially low-skilled workers. From there, it is necessary to have a mechanism to improve the quality of agricultural labor for agriculture 4.0. In addition, businesses need to combine with training institutions to develop specific training programs in order to integrate training with production.

Workers need to improve actively their skills, self-consciousness, practise the industrial style actively adapt to the requirements of agriculture 4.0.

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The Role of Money Supply in Economic Growth Enhancement: The Case Study of Nigeria

Cordelia Onyinyechi Omodero
Department of Accounting, College of Management Sciences, Michael Okpara University of Agriculture Umudike, Umuahia, Abia State, Nigeria.
cordeliaomodero@yahoo.com.

Abstract
The study examines the role of money supply in boosting economic growth in Nigeria. The objective of the study is to establish the individual influences of money supply components on economic growth in Nigeria. The study employs data from 2009 to 2018 and uses Ordinary Least Squares regression technique for analysis of the data. The findings reveal that broad money supply (M2) has an insignificant negative influence on RGDP, while M3 and credit to private sectors (CPS) exert insignificant positive influence on RGDP. The study among others suggests that the Monetary Authority in the country should come up with monetary policies that will help drive the economy better and such policies should include reduction of interest rates on credits given to the private sectors. This measure will go a long way to expand private sector businesses and create jobs.

Keywords: Money supply, broad money, credit to private sectors, economic growth, Nigeria.

1. Introduction
Money supply is a monetary policy tool that is highly essential in boosting economic growth activities of a nation. Monetary policy is an important instrument used by Central Banks of countries to maintain economic stability and promote economic growth (Prasert, Kanchana, Chukiat & Monekeo, 2015). Nnanna (2001) defines monetary policy as a tool at the disposal of the Monetary Authorities to influence the availability and cost of credit/money with the ultimate aim of achieving price stability. However, Monetary Authorities especially in the developing countries have a dual role of ensuring price stability and sustainable growth in an economy by employing instruments of monetary policy (Njimanted, Akume & Mukete, 2016). On the other hand economic growth shows the percentage increase in GDP and is measured based on the fixed and the market prices

Money supply is a key factor that determines economic growth in an economy and has the capability of ensuring smooth running of economic activities in both public and private sectors. The private sector depends on money supply for availability of credits to carry on businesses, though at a price but not a choking interest rate. The monetarists believe that money supply is
a tool that gives boost to economic growth based on unexpected increase in money stock (Jawaid, Qadri & Ali, 2011) while the Keynesians argue that money supply has a limited influence on economic growth (Twinoburyo & Odhiambo, 2017). Scholars such as (Chipote & Palesa, 2014; Kamaan, 2014; Inam & Ime, 2017) found that money supply exerts insignificant influence on economic growth thereby corroborating the Keynesian view. However, several other studies have established that money supply enhances economic growth of a nation (Nouri & Samimi, 2011; Onyeiwu, 2012; Havi & Enu, 2014; Osasohan, 2014; Prasert et al., 2015; Mohamed Aslam, 2016) among others.

Based on the above background, the study seeks to investigate the role of money supply in enhancing economic growth in Nigeria between the periods from 2009 to 2018. The components of money supply in Nigeria this study employs to determine the real effect of money supply on economic growth in the country include: money supply (M2), money supply (M3) and credit to private sectors (CPS) while the economic growth is measured by the country’s real GDP. M2 in Nigeria is the broad money supply which measures the total volume of money supply in the economy while M3 includes M2 in addition to long-term deposits. Credit to private sectors is the sum of money made available to private sectors for economic activities though at a price which is the interest rate.

![Graphs of RGDP, MSP(M2), MSP(M3), and CPS](image_url)

**Figure 1: Trend of data collected from CBN website and Statistical bulletin, 2017 edition.**

The figure I above shows the trends of money supply in Nigeria from 2009 to 2018. The M3 and CPS have been on a steady growth with the RGDP but the M2 declined in 2018. This is attributed to so many economic factors which includes the prevailing socio-economic and political influences. However, M2 is the volume of money meant to circulate in the economy, the reduction in M2 is a way of controlling inflation since too much money in circulation in the economy gives rise to inflation. The Central Bank of Nigeria used the monetary policy tools to regulate the flow of money in the economy to the best interest of the country’s economy. In order to maintain economic stability, money supply (M2) should be at the same rate with
economic activities. The implication is that the demand for money should not exceed its supply, to avoid economic stagnation that could lead to recession.

2. Theoretical review

2.1 The monetarist theory

Friedman (1968) championed the monetarist theory which stresses that money supply is a key macroeconomic element that influences the growth of an economy. The monetarist theory states that variations in the money supply are the most important determinants of the rate of economic growth and the behavior of the business cycle (Kenton, 2018). Monetarism postulates that money supply is the major driver of economic growth which implies that as money supply increases, people demand more, factories produce more and new jobs are created (Kimberly, 2018). The proponents of this theory have argued that money has significant effect on price level in an economy in the long run while in the short run, it affects output and employment (Ahuja, 2011). The monetarists believe that the size of the money supply is more important than any other factor affecting the economy. They also have the belief that monetary policies are more effective than fiscal policies which comprise tools such government expenditure, debts and taxation. This belief is based on their understanding that Central Banks of nations are more influential than the government since they have the responsibility to control the money supply (Kimberly, 2018). According to Khabo (2002) there is a direct link between monetary sector and the real sector of the economy. The implication is that the Central Banks of nations can exert so much influence on economic growth rate since the monetary policy tools including money supply is under their control. Therefore, if a nation’s money supply increases, economic activities will also increase and vice versa.

The monetarist theory formula is:

\[
MV = PQ
\]

Where:

- \( M \) = Money Supply
- \( V \) = Velocity (number of times an average amount is spent per year)
- \( P \) = Price of goods and services
- \( Q \) = Quantity of goods and services

2.2 Liquidity preference theory

Keynes (1936) propounded liquidity preference theory which states that the demand for money is not to borrow money but the desire to remain liquid, therefore, the price for the money is the interest rate. Liquidity preference theory combines money demand with the quantity of money supplied by the Central Bank to determine the money equilibrium level. According to John Maynard Keynes, the public holds money for three distinct reasons: firstly, for normal day to day transactions, secondly, as a precautionary measure and finally for speculative purposes which actually vary inversely with the rate of interest.

3. Empirical review

Jawad et al. (2011) applied co-integration and error correction model to examine the monetary fiscal trade policy and economic growth in Pakistan from 1981-2009 and found the existence of significant positive relationship between the variables both in the long and short run. The result specifically revealed that monetary policy is more effective than the fiscal policy in Pakistan. This finding confirms the Monetarists belief that monetary policy is a more effective economic policy than the fiscal policy. Nouri and Samimi (2011) used Levine and Renelt growth model to investigate the impact of monetary policy on economic growth in Iran from 1974-2008. The result from the Ordinary Least Squares (OLS) method revealed that money
supply exerted a significant positive influence on economic growth in Iran. This study validates the Monetarist postulation that money supply is the key driver of economic growth in a country.

Senbet (2011) employed quarterly data from 1959 to 2010 to examine the relative impact of monetary and fiscal policies on the US real economic activity using Granger Causality tests and Vector Auto Regressive (VAR) models. The study found evidence that monetary policy influenced real output better than fiscal policy in the US economy. This study also substantiates the assertion of the Monetarists that monetary policy exerts better influences on economic growth than fiscal policy. Onyeiwu (2012) assessed the impact of monetary policy on economic growth in Nigeria from 1981-2008 using Ordinary Least Squares Method (OLS). The findings revealed that money supply had a positive impact on GDP. Chipote and Palesa (2014) employed Error Correction Model and Johansen Co-integration to examine the impact of monetary policy on economic growth in South Africa for a period of 2000 to 2010. The findings revealed that money supply as a monetary policy tool had insignificant influence on economic growth in South Africa.

Havi and Enu (2014) examined the relative importance of monetary policy and fiscal policy on economic growth in Ghana from 1980-2012. The study utilized Ordinary Least Squares (OLS) method which revealed that money supply had a significant positive impact on the economy of Ghana. Kamaan (2014) statistically assessed the effect of monetary policy on economic growth in Kenya and the study disclosed that monetary policy did not have a significant impact on economic growth in Kenya. Osasohan (2014) studied the impact of monetary policy on economic growth in the United Kingdom (UK) from 1940-2012 using Vector Error Correction Model (VECM). The study found that money supply and rate of inflation were the major tools of UK monetary policy that enhances economic growth in the country.

Prasert et al. (2015) employed Pooled Mean Group Estimator (PMGE) to investigate the association between money supply and economic growth of selected ASEAN Economic Cooperation (AEC) countries from 1995-2013. The selected countries were Cambodia, Indonesia, Lae PDR, Malaysia, Philippines, Singapore, Thailand and Vietnam. The findings revealed that money supply which comprises narrow money (M1) and demand deposit (DD) had positive relationship with economic growth measured by GDP. Mohamed Aslam (2016) investigated the impact of money supply on Sri Lankan economy from 1959-2013. The study made use of gross domestic product (GDP) as the dependent variable while the independent variables were money supply, exchange rate, export earnings, import outflows and the consumer price index. The regression results indicated that money supply maintained significant positive influence on economic growth at 1% level of significance in Sri Lanka.

Njimanted et al. (2016) used Vector Auto-regression (VAR) method to analyze the effect of monetary policy tools on economic growth in the Central African Economic and Monetary Community (CEMAC). CEMAC was set up by a Treaty signed in 1972 by six states which include Cameroon, Chad, Equatorial Guinea, Gabon, The Central Africa and the Republic of Congo. The treaty was based on monetary co-operation arrangements in order to achieve price stability. The independent variables which were the monetary policy include money supply, interest and inflation rates. The study found that monetary policy tools affected the economic growth of the CEMAC community in diverse areas. Inam and Ime (2017) studied the impact of monetary policy on Nigeria’s economic growth from 1970-2012 using Ordinary Least Squares (OLS) method and Granger Causality test. The study found an insignificant positive relationship between money supply and economic growth.
4. Methodology
This study uses a causal research design whereby historical data are employed to examine the causal effect of the dependent variable on the independent variable. The dependent variable is the real gross domestic product (RGDP) while the independent variables include: broad money supply (M2), broad money supply (M3) and credit to private sectors (CPS) in Nigeria. All data were obtained from Central Bank of Nigeria (CBN) website and Statistical Bulletin, 2017 edition. The data collected covered a period from 2009 to 2018 and were analyzed using ordinary least squares technique with the aid of e-views version 9. All the data used were expressed in Billions of Naira.

The multiple regression model adopted for the study is:

\[ \text{RGDP} = \beta_0 + \beta_1(M2) + \beta_2(M3) + \beta_3(\text{CPS}) + \varepsilon \]

Where,
- \( \text{RGDP} = \) Real Gross Domestic Product
- \( M2 = \) Broad money supply (M2)
- \( M3 = \) Broad money supply (M3)
- \( \text{CPS} = \) Credit to Private Sectors
- \( \beta_0 = \) Constant
- \( \beta_1, \beta_2, \beta_3 = \) Regression Coefficients
- \( \varepsilon = \) Error term

A Priori economic expectation:
\( \beta_1, \beta_2, \beta_3 > 0 \)

The a priori economic expectation is that M2, M3 and CPS should be greater than zero indicating positive influence on RGDP.

5. Data analysis and interpretations

5.1 Trend analysis of data

![Trend of RGDP, M2, M3 and CPS](image)

Figure 2: Trend of RGDP, M2, M3 and CPS

Taking a closer observation on the figure 2 above, the money supply components do not seem to measure up with the RGDP. Although, from 2016 and up to 2018 there seems to be an improvement but the most important thing is that money supply in Nigeria should be adequate to drive economic growth as economically expected. The broad money supply commonly in circulation was at its peak in 2017 but declined again in 2018 while M3 took the lead. The growth in CPS is too slow, meanwhile it is necessary for the private sectors to have enough credit for business expansion that enhances economic growth in all ramifications.

5.2 Table 1: Regression results

<table>
<thead>
<tr>
<th>Dependent Variable: RGDP_N_BILLION</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSP_M2_N_BILLION</td>
<td>-0.361567</td>
<td>0.494232</td>
<td>-0.731572</td>
<td>0.4920</td>
</tr>
<tr>
<td>MSP_M3_N_BILLION</td>
<td>0.041420</td>
<td>0.486517</td>
<td>0.085137</td>
<td>0.9349</td>
</tr>
<tr>
<td>CPS_N_BILLION</td>
<td>1.916377</td>
<td>1.106148</td>
<td>1.732478</td>
<td>0.1339</td>
</tr>
<tr>
<td>C</td>
<td>36986.54</td>
<td>4262.964</td>
<td>8.676249</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

R-squared | 0.919286 | Mean dependent var | 63306.70 |
Adjusted R-squared | 0.878928 | S.D. dependent var | 7760.704 |
S.E. of regression | 2700.363 | Akaike info criterion | 18.92933 |
Sum squared resid | 43751751 | Schwarz criterion | 18.79656 |
Log likelihood | -90.64667 | Hannan-Quinn criter. | 2.003288 |
F-statistic | 22.77874 | Durbin-Watson stat | 0.001115 |
Prob(F-statistic) | 0.001115 |

Source: Author’s computation, 2019.

The table 1 above shows the regression result of the study from e-views version 9. The result shows a strong and positive correlation between money supply and economic growth represented by RGDP. The R which is the correlation is 95.9% (that is the square root of R²) while the R-squared is 91.9%. The R-squared is the coefficient of determination which shows the extent to which all the independent variables explain the changes in the dependent variable. In this study, the independent variables explain about 91.9% of the variations in the dependent variable while 8.1% goes to other factors the model did not consider. The adjusted R-squared shows the calculated value of the independent variables captured in the model in order to increase the R². The Durbin-Watson statistic is approximately 2 which indicates absence of autocorrelation in the sample. The F-statistic is 22.77874 with the p-value of 0.001 < 0.05. This result is statistically significant and shows that the model is appropriate for the study. In other words, the independent variables collectively influence economic growth in Nigeria positively and significantly.

However, the regression result on table 1 above also indicates the performance of the individual predictor variables and their level of influences on the response variable using the t-statistics. From table 1 above, M2 t-statistics is -0.731572 with the p-value of 0.49 > 0.05 level of significance. This implies that M2 has an insignificant negative influence on RGDP. M3 t-
statistics shows the value of 0.085137 with the p-value of 0.93 > 0.05 level of significance. This result indicates that M3 has insignificant positive influence on RGDP. In the same manner, CPS t-statistics is 1.732478 with the p-value of 0.13 > 0.05 level of significance. This result also indicates that CPS does not have a significant positive impact on RGDP. These findings agree with the Keynesians who believe that money supply has limited influence on economic growth and also validates the studies of (Chipote & Palesa, 2014; Kamaan, 2014; Inam & Ime, 2017) who found that money supply exerts insignificant influence on economic growth. On the contrary, the findings contradicts the monetarists thinking that money supply determine economic growth as well as the studies of (Nouri & Samimi, 2011; Onyeiwu, 2012; Havi & Enu, 2014; Osasohan, 2014; Prasert et al., 2015; Mohamed Aslam, 2016) who established that money supply enhances economic growth.

6. Conclusion and recommendation

Although the importance of money supply in an economy cannot be overestimated, however, its usefulness and effectiveness as a monetary policy tool depends on the country and the economic environment it is being applied. The Monetarists believe that monetary policy is better than the fiscal policy while the Keynesians argue that money supply has a limited effect on economic growth. This study has just contributed to the ongoing argument by establishing that money supply components jointly enhance economic growth (F-statistic result on table 1 above), while the individually (M2, M3 and CPS) none of them has significant influence economic growth. The broad money supply (M2) commonly used in circulating money in the economy exerts a negative influence though not significant while M3 and CPS put forth insignificant positive influence on economic growth.

Therefore, the study recommends that the Central Bank of Nigeria, should try to understand the role of money supply in enhancing economic growth and come up with monetary policies that will enable money supply to drive the economy properly in order to achieve economic growth. One of such policies is by reducing the price for credit to the private sectors because their activities contribute so much to economic growth in Nigeria. When the interest rates for obtaining credits are not choking the private sectors will invest more, thereby giving room for more outputs and job opportunities.

References


