



Science, Technology and Mathematics (STM) Medium of Curbing Insecurity and Economics Depression in South-West Nigeria

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Abstract

This study will examine how science, technology, and mathematics (STM) can solve insecurity and economic problems in southwest Nigeria. The study employed a survey research design. The total population of this study consisted of 5,670 people, of which 3,789 were randomly selected across the five states in southwest Nigeria. The instruments used were a structured questionnaire titled Science, Technology and Mathematic Tool for Solving Insecurity and Economics Problems in South-West Nigeria Rating Scale (STMTSIEPRS) ($r=0.85$). Three research questions were formulated and tested. Data were analysed using Multiple Regression. The results revealed a significant primary influence of Science, Technology and Mathematics on Economic insecurity in South-West Nigeria with ($R = .258$ and a multiple R^2 of $.066$). Also, it revealed the relative contribution of two dependent variables to the independent variables, expressed as beta weights, vis insecurity (beta equals $.006$, $t= 5.178$) and economic problems (beta equals $.419$, $\beta = .419$, $t = 5.086$). It was therefore concluded that Mathematics, Science and Technology play a major role in the economic advancement of a community and as well can enhance strong security if adequately utilized. It was recommended that the Government fund researches on Science, Technology and Mathematics to end economic recession and insecurity.

Keywords: Economic depression, insecurity.



Introduction

Security simply means liberty to live, to be involved in economic activities' without fear, worship, play politicking without being attacked, and freedom of citizenry without being infringed on one right (Abubakar, Shafiu, Alhassan, Fulani & Isah, 2002). It encompasses both the physical safety of an individual to live freely and free from the physical attack of any form, to live a good life with all wants, conducive accommodation and guaranteed feeding; if any of these is impeded or threatened, then there is insecurity (Adagbabiri & Okolie, 2018). Terrorism, civil unrest, kidnapping for ransom, maritime crime, militancy, armed robbery, banditry, cultism, ritual killing, cybercrime, and farmer-herder rivalry, among others, were indices that classify a country as a danger zone. The indices above made Nigeria among the group of nations as a country with the highest terrorism threats (Ugboduma & Alio 2014). However, these negatively impact both public and private enterprises, reducing access to entrepreneurship, job losses, unemployment, and people's capability to pursue economic growth and development.

Many strategies have been put in place to curb insurgency activities in Nigeria. Nigeria government, in her effort to buy ammunition that cost billions of naira; not only this, some states in South West, Eastern part and Northern parts of Nigeria also supported the Federal government in establishing their own defence outfits such as Amontekun, outfits in South West, South East Security network and Miyetii Allah in the North. Despite all these security mechanisms put in place by both the Federal government and the state government, it cannot control crime or apprehend the perpetrators that are terrorizing the nation.

Nevertheless, the activities of these bandit had badly affect our economy. An economy refers to a system of production, distribution, and consumption of goods and services within a specific geographic region or environment. It is the system of decision-making involving how scarce resources are used so that goods and services can be produced and consumed. It encompasses all the activities and interactions involving individuals, businesses, governments, and other entities that contribute to the overall functioning of a society's material well-being. Economies are characterized by the way resources, such as labor, capital, and natural resources, are allocated to fulfill various needs and wants. One may wonders why our military men and the various organization were unable to fight insurgences successfully, the reason is not far-fetch, before our security agents could become a warlord they must possesses war tactics or experience and equipment that are technologically coded and our military boys must know how to handle the weapons (Ibidapo-Obe, 2010).

To fortify our defensive mechanism, Science, Technology and Mathematics (STM) must not be left out for it involvement play a crucial role in terms of designing secure encryption methods, analyzing data for anomalies and patterns, developing algorithms for identification and authentication, and contributing to various security-related technologies and strategies (Nwangwu, 2010). Tracing the impact (STM) have in curbing economic depression and insecurity, it was observed that Science, Technology and Mathematics is a tools that can be used to restructure intelligent gathering mechanism of our security personnel that had been intercepted by insurgents (Aguele & Usman, 2007)

Science, Technology and Mathematics (STM) play a crucial role in economic development by providing a foundation for analysis, prediction, and optimization in various economic activities (Ajibola, 2016)). Mathematics models analyzed economic trends and also use to forecast future



outcomes that can bring sustainable development. STM are used to create sophisticated models to analyze network vulnerabilities and design secure network architectures (Sunita, 2020). Mathematics models help in ammonizing different policies, changes in variables, and potential scenarios, leading to more effective economic planning such as allocation of resources, logistics, and supply chain management that enhance market optimal pricing strategies and product positioning (Uwatt, 2004).

In terms of security, the security network of a nation can only be enhanced through mathematical techniques, these techniques strategize the defense sector to detect and prevent unauthorized access and mitigating threats like hacking, malware, and denial-of-service attacks (American Association for the Advancement of Science 2006). The contribution of mathematicians cannot be overemphasize in defense sector, the cases of insurgency in Nigeria would have being a thing of the past if the government had provided enabling environment for mathematicians to contribute to the designing of security gadgets, such as surveillance cameras and access control mechanisms to ensure physical safety (Charles-Ogan& Gladys (2014). Mathematically the security network of a nation can be enhanced through devices develop from mathematics code. Devices like digital forensics, Warcraft and biometric indicator (Aborisode & Oshinaik, 2019).

Statement of the problem

The problem facing Nigeria nowadays is the problems of economic recession and insecurity. Nigeria in the decades is known as a land flowing with chesses and honey. Immediately after FESTAC 1977, the wealth of Nigeria vanished and hunger, killing, human trafficking, kidnapping and insecurity became the order of the day. There are many outcries over economic recession and insecurity in Nigeria. The government is unable to provide employment for the youths and as such the youths see crimes as a means of survival. Nigerians cannot afford three square meal per day. Erratic electricity supply is the order of the day. Those who are gainfully employed earn salaries that could not sustain them .To worsen the matter our politicians had engaged the youths as political thugs' to achieve political goals. Thus, this study assessed the Science, Technology and Mathematics (STM) Medium of Curbing Insecurity and Economics Depression in South-West Nigeria.

Purpose of the Study

The general purpose of the study is to examine how Science, Technology and Mathematics can fight insecurity and economic depressions in South West Nigeria. Specifically, it sought to determine;

1. the extent Science, Technology and Mathematics check economic depression in South West Nigeria.
2. the extent Science, Technology and Mathematics check insecurity in South West Nigeria.
3. the relative contribution of Science, Technology and Mathematics in curbing insecurity and Economic problems in South West Nigeria.

Research Questions

The following research questions were generated for the study.

- RQ₁. To what extent does Science, Technology and Mathematics check economic depression in South West Nigeria?
- RQ₂. To what extent does Science, Technology and Mathematics check insecurity in South West Nigeria?
- RQ₃. What is relative contribution of Science, Technology and Mathematics in curbing insecurity and Economic problems in South West Nigeria.

Methodology

The research design adopted for the study was a survey design. This study is to assess how Science, Technology and Mathematics could be a determinant of economic advancement and security of life and property in South West Nigeria. The total population for the study was 7, 321 of which 3,675 respondents were randomly selected across the region in South West Nigeria. A self-developed structured questionnaire that was used title Science, Technology and Mathematics Tool for solving Insecurity and Economic Depression Rating Scale (STMTSIEDRS). The instrument consists of twenty (20) items. It undergoes face and content validation by two professionals on the field of test and measurement and a reliability coefficient, $r=0.82$ was obtained to ascertain the reliability of the instrument. The data collected was analyzed using multiple regression.

Analysis of Data/ Results

The results of the study are presented in the tables below:

RQ₁: there will be no significant influence of Science, Technology and Mathematic in curbing Economics Depression in South-West Nigeria.

Table 1: Summary of Regression Analysis of Science, Technology and Mathematics in curbing Economic Depression in South West Nigeria.

R	R. Square	Adjusted R Squares	Std. Error of the Estimate		
.618 ^a	.383	.376	.32331		
ANOVA					
Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	57354.820	1	9559.137	11.051	.000 ^b
Residual	680525.00	3785		.352	
Total	737879.82	3784			

Source: *Fieldwork, 2022*

Table 1 show that the contribution of Science, Technology and Mathematics in checking insecurity in South West Nigeria. The table show a coefficient of multiple correlation ($R = .618$ and a multiple R^2 of $.376$). This means that 37% of the total variance observed in the study while 63% of the variance was accounted for by the variables not considered in the study. Also, the F ratio 11.051 from the analysis of variance shows that the regression is statistically significant.

RQ₂: there will be no significant effect of Science, Technology and Mathematics on security of life and property of people in South West Nigeria.

Table 2: Summary of Multiple Regression Analysis on the influence of Science, Technology and Mathematics on Insecurity in South West Nigeria.

R	R. Square	Adjusted R Squares	Std. Error of the Estimate		
.258 ^a	.066	.057	.3974		
ANOVA					
Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	38580.926	1	4559.370	16.322	.000 ^b
Residual	362236.00	3785		.432	
Total	400816.926	3784			

Source: *Fieldwork, 2022*

Table 1 show that the contribution of Science, Technology and Mathematics in checking insecurity in South West Nigeria. The table show a coefficient of multiple correlation (R = .258 and a multiple R² of .066). This means that 6.6% of the total variance observed in the study while 93.4% of the variance was accounted for by variables not considered in the study. Also, the F ratio 16.322 from the analysis of variance shows that the regression is statistically significant.

RQ₃: What is relative contribution the Science, Technology and Mathematics to insecurity and economic depression in South West Nigeria.

Table 3: Relative Contribution the Science, Technology and Mathematics to Economic and Insecurity in South West Nigeria.

Model	Unstandardized Coefficient		Stand. Coefficient	T	Sig
	B	Std. Error	Beta Contribution		
((Constant)	-	6.321		12.131	.001
Insecurity	.621	1.456	.006	5.178	.000
Economic Problems	.628	.100	.419	5.086	.000

Source: *Fieldwork, 2022*

Table 3 revealed the relative contribution of two dependent variables to independent variable, expressed as beta weights, vis insecurity ($\beta = .006$, $t = 5.178$) and economic problems ($\beta = .419$, $t = 5.086$).

Discussion of findings



The study assessed the influence of Science, Technology and Mathematics in curbing insecurity and economic depression in South West Nigeria. In contrary to the finding of Baro1991in Uni Project materials (2022), Nigeria economic recession could be attributed to poor implementation of STM that entrapped and affected tremendously economy advancement. It also contradicts the findings of (Ibidapo-Obe) that Science, Technology and Mathematics had been seen as weapon that can eradicate the challenges posed by economic recession. Despite the result of the findings the fact still remain that Science, Technology and Mathematics have much impact on economic developments. .

Moreover, table two reveals that Science, Technology and Mathematics has significant effect on security of life and property of people in South West Nigeria. This finding is in line with the findings of Ozoigbo, (2019) pointed out that Cryptography, Wavelet Transformation, Number Theory and Prime Numbers can assist military intelligence unit.

Finally, table three also revealed that there was no significant interaction effect of Science, Technology and Mathematics on economic advancement and security of life and property of people in South West Nigeria. The study showed that Science, Technology and Mathematics has no impact on economic advancement and security of life and property of people in South West Nigeria. This is not in line with the finding of Anaduaka and Hassan (2017) who stated that mathematics, sciences, technology are propellers that can move a nation forward. It however corroborates the finding of Akhuemonkhan and Gur (2007) that creativity related to divergent, reflective and convergent thinking. A nation that does not invest in education may eventually collapse if Science, Technology and Mathematics is not given prior attention. For any country to have remarkable development there is a need for such country to build her economy and security out fit on Science, Technology and Mathematics.

Conclusion and Recommendations

This study revealed that Science, Technology and Mathematics does not actually have impact on economic advancement and security of life and property but conclusively mathematics mode life's, make firm security on a nation and reconstruct economy, hence any nation that is toying with mathematics education is a failure. Based on the findings of the study, the following suggestions are made:

- Mathematics should be made compulsory at all level of education.
- Government must fund researches on Science, Technology and Mathematics so as to put an end to economic recession and insecurity.
- Enabling environment must be given to teachers of Science, Technology and Mathematics to discharge their duties without fear.

Reference

1. Abubakar, F. L., Shafiu, H. A. O., Alhassan, U. U., Fulani, S. M. & Isah, A. (2022). The impact of insecurity on secondary schools in Northern Nigeria. *Art and Social Science Research* 12 (2), 50- 68.
2. Aborisade, T. F., & Oshinaike, G. O. (2019). Small arms proliferation and insecurity in Nigeria A threat to National Development. *African Security Review*, 28(2), 145-162.



3. Adagbabiri, M. M. & Okolie, U. C. (2018). Corruption and the Challenges of Insecurity in Nigeria's Fourth Republic. *Journal of Political Science and Leadership Research*, 4 (3), 41-56.
4. Anadauka, U. S. & Hassan, S. (2017). Effect of Dart Game as Instructional Media on Secondary School Students' Interest and Achievement in Algebra. *Abuja Journal of Education*, 9(1), 1-18
5. Ajibola, J. O. (2016). Economic Growth amidst Insecurity: The Nigeria Experience. *Online Journal of Finance and Accounting*, 7 (7), 56-71.
6. Aguele, L.I and Usman, K.O (2007). Mathematics Education for Dynamic Economy in Nigeria in the 1st 21 Century. *Journal of Social Sciences*, 15(3), 293 – 296
7. Akhuemonkhan, M. & Gur, H. (2007). Creativity Training in Problem Solving: A Model of Creativity in Mathematics Teacher Education. *New Horizons in Education*, 55 (3), 107 – 122. Retrieved from Federal College of Education (Special) Oyo Virtual Library on February 12th, 2021.
9. American Association for the Advancement of Science (2006). UN Global Counter Terrorism Strategy/ Counter-Terrorism Implementation till IC: in Sorskolaldesktop/UNglobal/Counter-terrorism
10. Baro, (1991) in Uni Project materials (2022) Contribution of Mathematics to Economic Growth of Nigeria |Uni project materials | Undergraduate Project Topic.
11. Charles-Ogan& Gladys (2014). Impacts of Mathematical Skills on National Security. *European Scientific Journal*, 10 (33) 1-5.
12. Ibidapo-Obe O. (2010). Harnessing Science and Technology Research results for Sustainable National Development. Paper presented at 2010 Science and Technology Summit, Abuja, August 9th – 10th, 2010.
13. Ozoigbo, B. I. (2019). Insecurity in Nigeria: Genesis, consequences and panacea. *European Journal of Social Sciences Studies*, 4 (4), 270-281.
14. Nwangwu, P. U. (2010) Education for democracy, Security and National development in Nigeria.
15. Keynote Address presented at the 2nd National Conference for democracy, Security and National development 4th May, 2010. Faculty of Education, Enugu State University of Science and Technology.
18. Ugboduma, S. O. & Alio, B. C. (2014) Mathematics: An effective tool for poverty alleviation, and solving crime and security problems. *ABACUS: The Journal of Mathematical Association of Nigeria*, 39 (1), 325-335.
19. Sunita Y. (2020). Role of mathematics in the development of society. *Electronic journal* 6(4) <https://www.researchgate.net/publication/343775504>.
20. Uwatt, B. U. (2004) Governance and Nigeria Development prospects. Leading issues of Macro-economics management and development, *Nigeria economic society*, 62 -68