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REVIEW ARTICLE

SHARED AGENT BANKING NETWORK EXPANSION STRATEGY AND INCLUSIVE ECONOMIC PRODUCTIVITY IN NIGERIA: AN EXPLORATORY SURVEY

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ABSTRACT

This research investigated the Shared Agent Network Expansion Facility (SANEF), as a strategy to improve economic productivity in Nigeria. Primary data were sourced and analyzed with Pearson's Product-Moment Correlation Co-efficient (PPMCC) represented by 'r' and Coefficient of Determination (r2). The obtained results were robust displaying relatively good coefficients though at different degrees. Hypothesis one (H01) exhibited very high coefficients with PPMCC or 'r' coefficient standing at 0.9040 and indicating an almost excellent linear relationship. Hypothesis two (H02) had PPMCC or 'r' coefficient of 0.8177, also indicating a high coefficient to attest to its relevance. However, Hypothesis (H03) had an average PPMCC or 'r' value standing at 0.6413. These coefficients are high enough to induce reasonable and positive influence on productiveness and thus could be considered relevant to policies targeted at enhancing economic Productivity. It is based on this that we concluded that Shared Agent Banking Network Expansion Strategies are suitable to policies targeted at boosting inclusive economic Productivity in Nigeria. Therefore, it is recommended that the Central Bank of Nigeria (CBN) as a regulatory authority should sustain and reinforce the strategy through the SANEF scheme and banks should augment Agents' products for effective allocation of funds in the economy in general and in the rural areas in particular.

KEYWORDS

Point of Sale (POS); Cash withdrawal and Deposit; Funds transfer; SANEF.

1. INTRODUCTION

In 2015, the United Nations (UN) General Assembly endorsed the 2030 Agenda for Sustainable Development in which 17 Sustainable Development Goals (SDGs) were highlighted (Glass and Newig., 2019; United Nations Economic Commission for Europe (UNECE), 2020). For the African States and Nigeria in particular, the most prominent goals that directly apply to the African economy were GOAL #1: No Poverty; seeks to eradicate extreme poverty; GOAL #2: Zero Hunger; which is targeted at ending hunger and GOAL #8: decent work and economic growth; aimed to promote and sustain inclusive economic growth (Grimshaw and Kuhn, 2019). To achieve and sustain these goals, government administrations in Nigeria have made efforts to expand banking services to rural and unbanked communities. It was consequent upon this that Central Bank of Nigeria (CBN) mandated Deposit Money Banks (DMBs) to open branches in rural areas (CBN, 2018). The strategy was directed at removing restrictions that pose difficulties to people particularly the disadvantaged and difficult to reach areas from participating in everyday financial sector product offerings. Nevertheless, the Rural Banking policy failed because it was not economically viable. Consequent upon this, the desire of government to increase access to finances in rural communities did not yield the much-needed results through the policy (Ngong et al., 2022; Soetan and Umukoro, 2023; Dabor., 2024).

The major aim of rural banking was to fulfill government desire for 'financial inclusion' a term now used to denote the spreading of banking products to societies that are devoid of banks particular in rural societies (Ngong et al., 2022). Determined to push the strategy of financial inclusion, the CBN in collaboration with Chief Executive officers (CEOs) of banks initiated and setup the Shared Agent Network Expansion Facility (SANEF) Limited. SANEF was set up to aid even allocation of finances through banking products to unbanked societies (CBN, 2018). Shared Agent Banking Network implies providing financial services, especially banking products to bank clients by authorized third party agents through a distributed network of retail outlets. This strategy is projected to help in the distribution of financial products to a larger customer base, especially smaller business units to aid in increased productivity. These retail outlets serviced by agents are identified with Point of Sale (POS) nomenclature as small business units (CBN, 2010). From an intellectual perspective, the setting up of SANEF was a replacement for the failed rural banking policy (Ngong et al., 2022). Thus, it was mandatory for SANEF limited to ensure that Shared Agents are present in all 774 local government areas of Nigeria (CBN,2010). From the CBN report of 2010 SANEF Limited was instituted to stimulate financial inclusion and strengthen financial markets (CBN, 2010). Agbada, opined that one fundamental strategy adopted to provide funds for productive activities and enhance economic growth of nations is through financial inclusion approach (Agbada, 2019). Ultimately, financial inclusion became prominent because of government desire to provide quick finances to less privileged citizens and people dwelling in rural communities in particular (Agbada and Osuji, 2013). This is targeted at stimulating economic activities and ultimately, GDP increase. Figure 1 exhibits SANEF products and services at some retail outlets in Nigeria.

Figure 1: SANEF Shared Agents products and services, (2023). **Source:** https://www.sanefng.com

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The considerations for financial inclusion heightened because it seems to assuage poverty by helping to distribute finances to a large segment of households and business operators, thus facilitating economic prosperity. The fundamental activity of Shared Agents strategy which SANEF pursues is hinged on advancing financial inclusion. What then is 'financial inclusion?' Grant and Kagan (Grant., 2024). suggest that financial inclusion is effort put in place so that financial products may become affordable and reachable to all individuals, households and businesses, regardless of their company size. *Nanda and Kaur,* simply perceives 'financial inclusion' as the availability of finance and the equality of opportunity to access financial services (*Nanda and Kaur, 2016)*. From this definition, financial inclusion implies availability of accessible finances that are within the reach of the entire populace (Bhuvana and Vasantha, 2016). Thus, Shared Agent banking goals are targeted at spreading banking products to a large number of business units is appropriate to financial inclusion objectives. The facility is meant to provide funds to CBN-licensed Mobile Money Operators and Super Agents to increase their activities and networks so as to intensify financial inclusion goals in Nigeria (Ngong et al., 2022). The Nigerian Business affirmed that the SANEF scheme was established in an attempt by CBN to continuously empower Shared Agents to broaden financial inclusion towards the attainment of the goal of 20% financial exclusion of eligible Nigerians (The Nigerian Business, 2018). To achieve this goal and allow the program to be viable, Shared Agents could combine 'Agency businesses' with other commercial activities such as Business centers, Cosmetics and Provision stores, Micro and Small business entrepreneurial activities.

In this study, Shared Agent banking activities are used to explain inclusive Economic productivity and that brings into focus the discussion on the issue of economic productivity, the state of being efficiently and profitably productive. Productivity is the rate at which goods and services are produced by a standard population of workers. An increase in the value of finished products as per income from productivity refers to Economic growth or GDP Increase. Economic growth indices are crucial signs to indicate the wellbeing resulting from the level of productivity of a nation's economy (Nzota, 2004). By definition, Economic growth means the increases in terms of goods and services created or produced over a period of one year. The terms 'the level of goods and services produced' is a measure of how vibrant, dynamic and responsive economic productivity activities are. Economic growth is usually gauged by Gross Domestic Product (GDP). In practice, GDP may be determined in several ways. GDP could be determined by the value of services and goods produced or the income generated from producing them or the expenses incurred while producing them.

Thus, on one view Central Statistics Office maintained that GDP is the total market worth of all finished products a country generated during a specific period of time, usually a year (CSO, 2024). It is on this presumption that this study tries to explore how Shared Agents strategy has promoted financial inclusion, essentially, the distribution of funds in rural settlements to influence economic productivity. In consonance with CBN report, the core objectives of Shared Agents are banking activities aimed at achieving financial inclusion targets, create jobs and promote productivity and inclusive growth in the economy (CBN, 2018). The objective of the study is therefore aligned to Shared Agents banking roles at POS locations. The dominant banking roles that Shared Agents play in Nigeria include: Cash withdrawal and Deposit, Funds transfer and Bill payment and Airtime sales.

These roles are automated and they are adopted in the study as our independent variables to explain Economic Productivity in Nigeria. Therefore, the objectives this study pursues include the following. To determine how Shared Agent Cash withdrawal and deposit activities relate to and influences inclusive economic Productivity in Nigeria; explore how Shared Agent Funds transfer activities enhanced inclusive economic Productivity in Nigeria and examine the extent to which Share Agent automated Bill payment and Airtime sales drive inclusive economic Productivity in Nigeria. Derived from the objective, three hypotheses are formulated and tested to enable us establish logical inferences and draw conclusions. They are stated as follows:

- Shared Agent Cash withdrawals and deposits do influence economic Productivity in Nigeria.
- A relationship exists between Shared Agent Funds transfer activities and economic Productivity in Nigeria.
- Share Agent automated Bill payment and Airtime sale activities do drive economic Productivity in Nigeria.

2. Literature Review

The Nigerian economic boom era of the 1970s and early 1980s was powered majorly by oil exploration and job creating activities of Micro, Small and Medium scale businesses. The resulting economic buoyancy could not be sustained effectively for several factors. These factors range mainly from shortage of operating capital for entrepreneurs to the lopsided allocation of finances particularly for businesses located in rural areas which constitute a strong and powerful workforce in an economy. CBN, contends that the Nigerian economy has been battling with slow growth in productivity resulting from extreme poverty of citizenry notably amongst people in economically remote areas (CBN, 2018). This means that grass root economic activities are seriously marginalized financially. This reasoning led to the adoption of financial inclusion program in the hope of enhancing and possibly achieving some sort of flow of finances to businesses irrespective of location to upturn productivity and build the economy. Ultimately, the desire to achieve this goal brought about SANEF strategy in which report specified core activities of Shared Agents (CBN, 2018; Walsh, 2021). Literally, the duties specified by Supper agents, otherwise banks for Shared Agents are numerous. However, in practice common Shared Agent duties at agent's location or POS stations include: Cash withdrawal, Cash Deposit, Funds transfer, Bill payment and Airtime purchase. These duties are basically the focal points the study intends to delve into and also wish to devote the rest of this review on.

A dominant Shared Agent assignment at the POS operation stations is Cash withdrawals and deposits. Agents provide ready cash particularly for grass-root businesses undertakings. They also accept deposits primarily to meet with withdrawal obligations and demands. These activities have somewhat provided easy way of funding businesses for productive enterprising and operations since inception in Nigeria. Some researcher contends that earning insufficient money makes businesses entities to be materially poorer because they will be unable to source for good funds for operations (Walsh, 2021). The attendant anxiety of no funds may cause distractions on everyday productivity of households, firms and even nations. When the dearth of cash lingers, financial concerns negatively affect entrepreneurs' behaviour and indeed productivity at work (Walsh, 2021). The work of attempted to provide answers to the question: 'Do the shortage of cash impairs worker productivity?' The research conducted a field survey using 408 employees in Odisha State, India (Kaur et al., 2019). Findings from the research revealed that good planning for supply of cash can dramatically enhance and amplify productivity though the task could be cognitively demanding. Cash deposits it was noted also generate funds to augment working capital for production.

Another major Shared Agent function put forward by SANEF is 'Funds transfer' duties to businesses and other economic units. Deductions from empirical and theoretical literatures signified that proceeds from Shared Agent transfer of funds activities facilitate economic Productivity. Agents provide quick funds by way of transfer operations to settle economic transactions; aid the buying of raw materials and provide working capital for running the daily expenses of economic units. A group researcher discussed fund (cash) transfer services in a number of African countries to evaluate how much they have influenced production with particular reference to agricultural products and small businesses (Evans et al., 2023). The results apparently showed that the provision of ready cash is no doubt a good option for increasing and enhancing working capital for households' farm and business operations. According to a study, the effect of Tanzania's Social Cash Transfer services was relatively large such that it was able to provide needed and sufficient funds for the populace to boost their living standards right from bottom level to above average (Evans et al., 2023). These funds were targeted at households who do not have assets. Findings revealed that cash transfer operations provided funds that significantly helped some community members to own farming equipment such as hoes, axes, et cetera and others to own poultry farms where chickens were nurtured. The availability of finances acquired through cash transfer mechanisms shifted the working patterns of communities in Tanzania from being casual workers and increased their productive capacities and activities by becoming farm owners. In Tanzania, posits that funds supplied through unconditional transfer schemes targeted at households produced fairly impressive results (Tanzania, 2023). Production of food was appreciably augmented and poverty was reduced immensely such that the gains of the program were consistently improving.

The third prominent role that Shared Agent play is automated 'Bill payment and Airtime sale' activities. These are bills processed by electronic machine gadgets. Airtime sales and purchases, that is, the recharging of mobile telephones is now automated as against the recharge card era that was initially the only system of recharging mobile phones. It is employed by MSMEs, particularly, households and startups to settle bills sometimes at POS locations serviced by Shared Agents. This is gradually replacing the complexities of manual bill payment processes. It enables Shared Agents handle several payments of bill deals everyday through different modes and systems. GoCardless.com asserts that electronic bill

payment has several advantages as it helps business owners as well as individuals to efficiently manage recurring bills due for payment, reduce delay in payments, accelerate flow of cash, take informed and quick decisions, et cetera (GoCardless.com, 2022). In financial markets, the luxury of making quick payments and settling bills allows individuals to focus more on value added assignments and tasks which include formulating business strategies, meeting customers' needs, enhancing customer satisfaction with the hope of retaining them. Automated bill payment helps to solve the perennial difficulties deferred repayments that was prevalent with cash and cheque systems of settlement. Deferred or delayed payments are linked with employing cheques for payment whereby the proceeds may not be realized instantly owing to several technical human errors. GoCardless.com, argued that bank customers' accounts on which automated payment access directly cannot be stolen or expired and hence it has a higher success rate (GoCardless.com, 2022). Overall, bank accounts processes are cost effective, less stressful, usually protected and somewhat secured thus aiding the speed of transaction. Besides, automated bill settlement and airtime purchases and sales significantly curtail human errors which eventually translate into efficient and accurate financial practices.

This study limited itself to only three core areas, activities or roles that Shared Agents perform at POS locations. There may be need to include other financial services such as Account opening, Balance inquiry, Obtaining Bank Verification Number (BVN), et cetera in further studies to expand knowledge in this field of study. The consistent global financial meltdown necessitates the need for effective funds allocation particularly to the unbanked societies which Shared Agents provide, thus it creates avenue for future studies. Therefore, the need to explore other SANEF Shared Agents features to boost financial inclusion which is the ultimate goal for the establishment of SANEF Limited cannot be overemphasized. Obviously, the need for further research is inexhaustible.

3. Method, Data And Analysis

This section of the study consisting of the Method, Data and Analysis is divided into the following sub-topics.

3.1 Research design

This study made use of primary data, so the research is an ideographic study of the level of individual, that is, a study aimed at individuals. Therefore, the pattern followed by the research design is referred to as 'Survey Design' and is aimed to study our research population by selecting and studying samples chosen from the population so as to make inferences and draw conclusions relevant to the general characteristics of the population and variables. Survey designs are particularly flexible, versatile and functional. Babbie affirmed that survey design is a prominent and systematic technique used by most researchers and scientists to gather data for analysis in research studies (Babbie, 2020). The survey was therefore carried out through the use of designed and analytical questionnaires.

3.2 Defining the study population and sample size

Creswell defined population and asserts that at the broadest level Population is a group of individuals or things possessing one characteristic that distinguishes them from other groups (Creswell, 2015). Thus, the Population of the study is made up of SANEF Shared Agents in all local government areas of Nigeria. However, considering the large size of the population, a Sample population was drawn and examined. Following Creswell, sample population is said to be the actual list of sampling units from which the sample is selected, in other words, the group of participants or things in a study selected from the target population from which inferences are generalized to the target population (Creswell, 2015). Specifically, the Sample population consists of all SANEF Agents in the commercial cities of Edo and Delta States namely: Benin City, Warri and Ughelli. From the Sample population, a sample size made up of seven hundred (700) Shared Agents was randomly selected (Creswell, 2015). Logically, this Sample size is large enough to represent a fair size of the Sample population on which relevant results may be drawn for general use.

3.3 Sampling techniques and questionnaire design

The sampling technique adopted in this study is the Random sampling technique. This was adopted because it is conservatively estimated adequate in term of cost and time duration. The Random technique is believed to give a fairer view of the population under study more efficiently with a view to eliminating avoidable biases. The random sampling instrument used is structured questionnaires administered to the sample population. Questionnaire administration is considered valid for this purpose because the scores obtained can predict outcomes expected it would predict (Creswell, 2015).

The questionnaire was designed to align with 'Item-Specific-Response-Options (ISRO) technique. A study explained 'Item specific' to mean that the 'Response options' are specific to each question and that a set of Response options may differ for different questions (Wronski, 2016). The graduated five-point scale for ISRO technique ranges from 'Very Affirmative; Somewhat Affirmative; Neither Affirmative nor Negative; Somewhat Negative to Very Negative' with attached weights decreasing from 5, 4, 3, 2 and 1 respectively to the Response options. Sauro affirmed that a five-point rating scale can be weighted 5 to 1 from very affirmative option to very negative option respectively and asserts that while presenting data, the score column may contain the numerical equivalent scores to the respondent's answers (i.e. the weight) and the nominal column relates to the frequency of respondent's answers (Sauro, 2024).

3.4 Data analysis techniques

Essentially, data analysis techniques are statistical tools aimed to serve only one purpose in every research and that is deriving the measuring parameters employed in data analysis. In this study, our measuring parameters are: The Correlation coefficient ('r') and Coefficient of determination (r^2) which are used to analyze the relationship between the variables. For any research therefore, depending on the suitability of technique to specific study, the estimation of the research model could be carried out using statistical tools such as: Statistical Package for Social Sciences (SPSS), Econometric Views software (E-View), or Pearson Product Moment Correlation Coefficient (PPMCC), all of which produce these measuring parameters, 'r' and r^2. Computing 'r' requires a proper formula to determine an accurate measurement for any particular research. According to **Boone and Boone**, to properly analyze a five-point rating scale such as the ISRO rating scale, it is very suitable to utilize Pearson's Product Moment Correlation Coefficient (PPMCC) designated 'r' **(**Boone and Boone, 2012). Among the most frequently utilized indices of correlation is Pearson's Product Moment Correlation Coefficient, which is denoted by r (Puth et al., 2014). This informed our choice of PPMCC technique.

3.5 Theoretical framework and model specification

Based on the approach of our empirical estimation of data was conducted using Pearson's Product-Moment Correlation Co-efficient (PPMCC) technique to obtain products for analysis (**Boone and Boone, 2012)**. The PPMCC technique produces an interrelationship coefficient typified by the symbol 'r'. The PPMCC method is a reliable statistical tool and is employed as a quantifiable method of calculating the straight-line relationship existing between two or more variables. Obadan, affirmed that a computable method of calculating the relationship between variables X and Y is estimated employing PPMCC or (r^{xy}) (Obadan, 2012). He thus proposed formula 1 for computing the values of coefficients for analysis as follows:

$$\text{PPMCC or } r^{xy} = \frac{\sum (X - \overline{X})(Y - \overline{Y})}{\sqrt{\sum (X - \overline{X})^2 \sum (Y - \overline{Y})^2}} \quad (1)$$

Where: r^{xy} = PPMCC for X and Y variables

X = Weighted answer response options.

Y = Frequency of answer response options

$\sum$ = Summation sign

$\overline{X}$ = Mean of Weighted Answer response options

$\overline{Y}$ = Mean of frequency of Answer response options

In computing PPMCC or 'r', the weights for Answer options represents data for X variable and the Frequencies derived represents Y variable data. Formula 1 employs real values of variables for computation and in practice, it is extremely cumbersome to administer mathematically. That being obvious, a study recommended formula 2, a much simpler formula

(Obadan, 2012). This uses the deviations from the Mean of 'Weights attached to Response options' and from the Mean of 'Frequency obtained' to compute 'r'. Formula 2 is as displayed below.

$$r^{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} \quad (2)$$

Where: x = $X - \overline{X}$ and

y = $Y - \overline{Y}$

3.6 Expected results

Obadan posits that on estimation, the expected values of PPMCC or 'r' that will be derived fall within the range from -1 to +1 and it is on this result that inferences are made and conclusions drawn as hereunder (Obadan, 2012).

- When 'r' value is zero (0), it portends no relationship exists between variables.
- When 'r' value reads +1, it signifies a perfect and positive correlation.
- When 'r' value shows -1, it indicates that a perfect and negative correlation exists.
- When 'r' is squared, it is called 'Coefficient of Determination (r^2)'.

4. Results And Discussion

Data derived from random samplings activities through questionnaire distribution are presented in this section. The data for each hypothesis is first presented in tables, then column charts and analyzed. As earlier stated, questionnaires were randomly distributed to 700 Shared agents in our sample population, out of which 665 questionnaires were retrieved and analyzed. The percentage of questionnaire retrieved constitutes 95% of total distributed.

4.1 Presentation of results for hypothesis one

Hypothesis 1 ($H0_1$) dealt with shared agent cash withdrawals and deposits activities and how it correlates with economic productivity in Nigeria. The question that captured the contents of $H0_1$ states as follows:

How satisfied or dissatisfied would you assert that shared agent cash withdrawals and deposits activities facilitate economic productivity in Nigeria?

Table 1 exhibits the response frequencies expressed in figures and also in percentages.

Table 1: Responses frequencies assembled for H01

Response Options for $H0_1$	Response Frequencies	Response Frequencies in Percentages (%)
Very Satisfied	176	26.46%
Somewhat Satisfied	201	30.23%
Neither Satisfied nor Dissatisfied	119	17.90%
Somewhat Dissatisfied	91	13.68%
Very Dissatisfied	78	11.73%
Total	665	100.00%

Table 1 shows the characteristics of the data collected and revealed that while 26.46% of respondents are very satisfied that Shared Agent Cash withdrawals and deposit's function provide funds for enhancing economic productivity, 30.23% indicated satisfaction but only to some extent. Together, 56.69% of total respondents are positive that Shared Agent deposit and withdrawal activities are boosting economic productivity. The data in table 1 are now represented in a column chart in figure 2 to show clearly their distinctive characteristics.

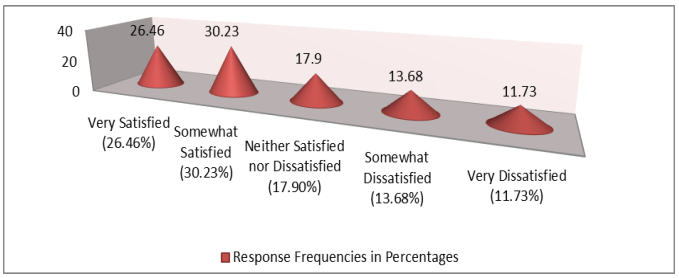

Figure 2: Responses frequencies Column chart for $H0_1$.

4.2 Analysis of data for hypothesis one ($H0_1$)

As earlier mentioned, the products derived for PPMCC or 'r' coefficient and coefficient of determination (r^2) are used to analyze the formulated hypotheses. To derive these products, we employed table 2 to compute the sums of the components in formula 2, that is, the 'weighted response options' (X) and 'response frequencies (Y).

Table 2: Derivation of totals (∑) of variables for H01

Response Options for $H0_1$	X	Y	x = X - X̄	y = Y - Ȳ	xy	x^2	y^2
Very Satisfied	5	176	2	43	86	4	1849
Somewhat Satisfied	4	201	1	68	68	1	4624
Neither Satisfied nor Dissatisfied	3	119	00	-14	00	00	196
Somewhat Dissatisfied	2	91	-1	-42	42	1	1764
Very Dissatisfied	1	78	-2	-55	110	4	3025
Total (∑)	15	665	00	00	306	10	11458

Mean of weighted answer options; $\overline{X} = \frac{\sum X}{n} = \frac{15}{5} = 3$

Mean of Frequency Response Options $\overline{Y} = \frac{\sum Y}{n} = \frac{665}{5} = 133$

From equation 2; PPMCC; $r^{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{306}{\sqrt{10x11458}} = \frac{306}{338.50} = 0.9040$

Therefore: PPMCC or r^{xy} = 0.9040 and

The Coefficient of Determination (r^2) = $(0.9040)^2$ = 0.8172 or 81.72%

4.3 Presentation of result for hypothesis two ($H0_2$)

Hypothesis 2 ($H0_2$) examined the correlation between Shared Agent Funds transfer activities and economic Productivity. The question that linked these variables states as follows:

To what degree are you certain or uncertain that Shared Agent Funds transfer activities in Nigeria facilitates economic Productivity?

The data of response frequencies assembled for this question are exhibited in table.3 and are used to estimate and analyze $H0_2$

Table 3: Responses Frequencies for Hypothesis two (H02)		
Response Options for $H0_2$	Response Frequencies	Response Frequencies in Percentages (%)
Very Certain	161	24.21%
Somewhat Certain	205	30.83%
Neither Certain nor Uncertain	114	17.14%
Somewhat Uncertain	97	14.59%
Very Uncertain	88	13.23%
Total	665	100.00%

Hypothesis two ($H0_2$) response frequencies distribution are exhibited in Table 3. It shows that 24.21% and 30.83% of respondents are very certain and somewhat certain respectively. It means that Shared Agent Funds transfer activities facilitates productivity in the Nigerian economy. Going by the survey result, it shows that a total of 55.04% of respondents are positive that fund transfer activities can enhance business transactions and boost the economy in Nigeria. Results in table 3 are represented in a column chart in figure 3 to exhibit their clear characters.

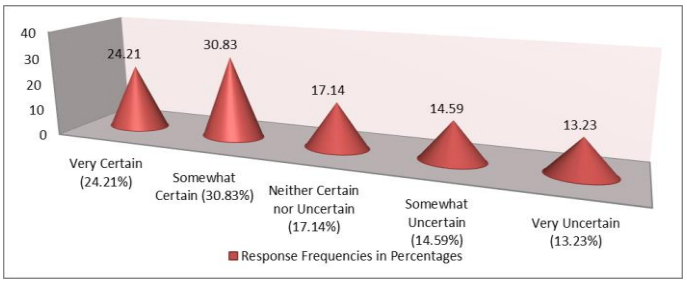

Figure 3: Responses frequencies column chart for $H0_2$.

4.4 Analysis of data for hypothesis two ($H0_2$)

In estimating the product for PPMCC or 'r' coefficient for hypothesis two ($H0_2$), we employed table 4 to derive the sums or totals of the variables X and Y representing the Weights attached to Answer Options and the Response Frequencies obtained respectively. It is from the calculated value of 'r' that the Coefficients of Determination (r^2) was gauged.

Table 4: Derivation of totals (∑) of variables for H02							
Response Options for $H0_2$	X	Y	$x = X - \ddot{X}$	$y = Y - \bar{Y}$	xy	x^2	y^2
Very Certain	5	161	2	28	56	4	784
Somewhat Certain	4	205	1	72	72	1	5184
Neither Certain nor Uncertain	3	114	00	-19	00	00	361
Somewhat Uncertain	2	97	-1	-36	36	1	1296
Very Uncertain	1	88	-2	-45	90	4	2025
Total (∑)	15	665	00	00	254	10	9650

Mean of weighted answer options; $\overline{X} = \frac{\sum X}{n} = \frac{15}{5} = 3$

Mean of Frequency Response Options $\overline{Y} = \frac{\sum Y}{n} = \frac{665}{5} = 133$

From equation 2, PPMCC, $r^{xy} = \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{254}{\sqrt{10x9650}} = \frac{254}{310.64} = 0.8177$

Therefore: PPMCC) or r^{xy} = 0.8177 and

The Coefficient of Determination (r^2) = $(0.8177)^2$ = 0.6686 or 66.86%.

4.5 Presentation of result for hypothesis three

Hypothesis three ($H0_3$) investigated the association between Share Agent automated Bill payment and Airtime sale activities and inclusive economic Productivity in Nigeria. The question employed to source data for the variables under review states as follows:

How contented or discontented would you affirm that Share Agent automated Bill payment and Airtime sale activities enhances inclusive economic Productivity in the Nigerian economy?

The sourced data of Response Frequencies through random sampling for hypothesis three ($H0_3$) are as displayed on table 5.

Table 5: Response frequency for Hypothesis three, (H03)		
Response Options for $H0_3$	Response Frequencies in absolute figures	Response Frequencies in Percentages (%)
Very Contented	139	20.90%
Somewhat Contented	234	35.19%
Neither Contented nor Discontented	101	15.19%
Somewhat Discontented	126	18.95%
Very Discontented	65	9.77%
Total	665	100.00 %

Table 5 shows clearly that while 20.90% of the respondents are very contented with the question, 35.19% indicate that they are somewhat contented. A fair proportion of respondents standing at 18.95% are discontented. The contents of table 4.5 in percentages are represented in figure 4.3 to show clearly the characteristics of the data sourced.

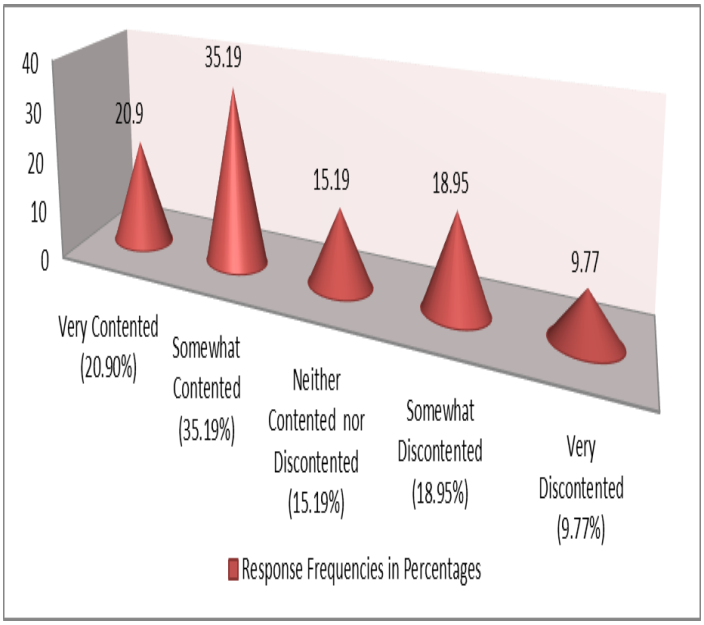

Figure 4: Responses frequencies Column chart for $H0_3$.

4.6 Analysis of data for hypothesis three ($H0_3$)

To derive the sums of the variable's components in the model equation, we employed table 6. The products from the table were utilized to compute PPMCC or 'r' coefficient and the Coefficient of Determination (r^2).

Table 6: Derivation of totals (∑) of variables for H03

Response Options for $H0_3$	X	Y	x = X - $\dot{X}$	y = Y - $\bar{Y}$	Xy	x^2	y^2
Very Contented	5	139	2	6	12	4	36
Somewhat Contented	4	234	1	101	101	1	10201
Neither Contented nor Discontented	3	101	0	-32	00	00	1024
Somewhat Discontented	2	126	-1	-7	7	1	49
Very Discontented	1	65	-2	-68	136	4	4624
Total (∑)	15	665	00	00	256	10	15934

Source: Authors' computation, 2024

Mean of weighted answer options; $\overline{X} = \frac{\sum X}{n} = \frac{15}{5} = 3$

Mean of frequency response options $\overline{Y} = \frac{\sum Y}{n} = \frac{665}{5} = 133$

From equation 2; PPMCC; r^{xy}

$$= \frac{\sum xy}{\sqrt{\sum x^2 \sum y^2}} = \frac{256}{\sqrt{10x15934}} = \frac{256}{399.17} = 0.6413$$

Therefore: PPMCC or r^{xy} = 0.6413 and

The Coefficient of Determination (r^2) = $(0.6413)^2$ = 0.4113 or 41.13%.

5. Discussion Of Results

This study explored shared agent banking network expansion strategy and inclusive economic productivity in Nigeria. We employed three proxies for Shared Agents operations namely: cash withdrawal and deposit, funds transfer and bill payment and airtime sales, each serving as independent variable to explain economic productivity - the dependent variable in each hypothesis model. For consistency and alignment with the body of the study, each of the independent variables were represented by X which in the three models estimated stood for the weighted answer response options and Y stood for frequency of answer response options. For each of the hypothesis model, we derived two measuring parameters from the estimation to be analyzed in our discussion of findings. These parameters include:

- The Pearson's Product-Moment Correlation Co-efficient (PPMCC) or 'r' coefficient and
- The (r^2) coefficient or adjusted R square

For ease of understanding, we now wish to explain what these parameters measure. Statistically, PPMCC or 'r' coefficient describes the magnitude and strength of linear relationship exhibited by the variables being investigated. It indicates the existence of a weak or strong alliance amongst the variables. Furthermore, it shows the direction of interrelationship. It could indicate a negative or positive correlation depending on the sign attached to the estimated coefficient. Moreover, when 'r' coefficient is squared, it produces another measuring coefficient referred to as Coefficient of Determination (r^2). According to a study, r^2 symbolizes the 'proportion of total variation of dependent variable (Y) predicted by the explanatory variable(s) (X) in an estimated model (Oaikhenan and Udegbunan, 2013). The value of this coefficient is also referred as 'adjusted $r^{2'}$ lies within the range of 0 and 1 and expresses the extent of fitness in a model estimated. It is against this backdrop that the analyses of the estimated hypotheses were based.

Hypothesis one ($H0_1$) reviewed shared agent cash withdrawals and deposits and how it affected economic productivity. It's PPMCC or (r) coefficient stood at 0.9040. This exhibits a robust and near perfectly and excellent linear relationship. By implication it portends that Shared Agent Cash withdrawals and deposits optimally augmented economic productivity. Its associated Coefficient of Determination (r^2) stood up to 0.8172 or 81.72% implying that Shared Agent Cash withdrawals and deposits predicted 81.72% effects in economic productivity. This result is considered good enough to reject or set aside the null hypothesis. It affirmed the alternative hypothesis which implies that a very strong and productive relationship exists amongst the variables being reviewed. Deductions from results affirmed that Shared Agent deposits and withdrawals activities could be relevant to policies crafted to stimulate economic productivity.

The undeviating relationship between shared agent funds transfer activities and all-encompassing economic Productivity was analyzed utilizing hypothesis two ($H0_2$). The outcome of the empirical estimation portends that the 'r' coefficient stood at to 0.8177 or 81.77%. Obviously, this product portrays high coefficient. It attests to the fact that a strong correlation exists between the variables, suggesting that funds transfer activities of Shared agents has strong and positive influence on economic productivity. The affiliated Coefficient of Determination (r^2) stood at 0.6686 or 66.86% signifying that Shared Agent Funds transfer activities predicted 66.86% of variation or fluctuation in economic productivity. Statistically, the coefficient is large enough to lead us to turn down the null hypothesis and embrace the alternate hypothesis that affirmed a strong and positive linear relationship. Based on the foregoing outcomes, Shared Agent Funds transfer could be counted as worthy to influence a broad in content policies on economic productivity in Nigeria.

The third hypothesis ($H0_3$) concentrated on how Share Agent automated Bill payment and Airtime sale activities drive economic Productivity. Its PPMCC or 'r' stood at 0.6413 and portends a positive and moderately high coefficient. The somewhat middling value of the 'r' coefficient signifies that Share Agent automated bill payment and airtime sale activities had a positive, though somewhat modest power on economic Productivity. The adjusted (r^2) coefficient which determines the extent to which the independent variables predict economic productivity lied at 0.4113 or 41.13%. It suggests that Share Agent automated Bill payment and Airtime sale activities explained only 41.13% of economic Productivity in Nigeria. Though the value of 'r' coefficient showed that Share Agent automated Bill payment and Airtime sale variable could moderately influence policies formulated to affect economic Productivity, its R-squared coefficient standing at 41.13% appears to cast doubts on how effective this variable could be said to be relevant.

6. Conclusion And Suggestion

Overall, the results of the three hypotheses models estimated exhibited positive signs denoting that they are all significant and have the ability to leverage economic productivity positively. However, the intensity of influence each model exerted was different on the dependent - economic productivity. While the coefficients of $H0_1$ stood extremely high indicating a somewhat near perfect linear relationship, $H0_2$ displayed a coefficient relatively high but less than the former. $H0_3$ compared to the first two had an averagely moderate coefficients, thus each hypothesis exerted influence in its capacity on productivity in Nigeria. Collectively, all derived model results indicate to a large extent significance and relevance, thus it compelled us to conclude that shared agent banking network expansion strategies are appropriate and suitable policies that have the power of enhancing and sustaining inclusive economic Productivity in Nigeria.

The wellbeing of any nation's economy depends largely on its economic activities, a factor that has strong bearing on its productivity. The volume of commodities, services and finished products or goods produced depends on the supply of financial resources, access to quick funds particularly in productive industries. The products derived from the tested hypotheses showed proof of relevance to the specified objectives the scheme is set to achieve. This though was at various degrees to affirm that shared agent network expansion goals targeted at spreading banking products for productive purposes could be an effective means of stimulating and invigorating the economy. It implies that shared Agents have the dexterity to grow the economy through their activities and could

influence the allocation and supply of finances to amplify economic productivity. It is on this premise that we are recommending that concerted efforts should be made by the regulatory authority – the CBN to push the strategy of financial inclusion through established shared agent network expansion facility (SANEF) limited strategies. We also recommend that Stakeholders should possibly expand Shared Agent products, work out access to quick cash to boost wide spread allocation of productive funds particularly for grass root economic activities in the rural and unbanked areas and thus give room for rapid growth in the economy.

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Conflict Of Interest Statement

The authors declare that they do not have any conflict of interest.

Author Contributions

Andrew Omosioni Agbada: Conceived the study, developed the methodology, performed all analysis, wrote initial draft. Collected data

Vremudia Onyeayana Wekpe: Wrote final draft, review, critiqued methodology communications management, data curation.

Ethics Approval Statement

There are no ethical considerations for this research.

Data Availability Statement

The data that supports the results are included in the body of the work.

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