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## **Can social assistance programmes stimulate fairness of access to Agricultural Inputs Acquisition and reduce poverty among small-scale farmers in Southwestern, Nigeria?**

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### **Abstract**

This article examines whether social assistance programmes can reduce the poverty and extremely poverty in societies marred by high levels of income concentration in the non-agricultural livelihood? The study focus on one of the most confessed effective method of e-wallet scheme in agricultural-inputs acquisition and analyze the extent this method is able to improve the life chances of extremely poor beneficiaries. A mixed method approaches were adopted and this include a quantitative survey of about 8,000 beneficiaries, a representative sample of 100 in each State of the Southwest zone, with 95% confidence level, to give 600 household sizes data. Causal impact of social intervention programmes analysis on agricultural development were examined and the study adopted the use of fuzzy regression discontinuity design (RDD) because of its peculiarities. Descriptive statistics revealed 87.5% of the participants in the programme had income increase, mean age of 47years, diversification index of 11.5. Instrument adopted in the RDD is F statistic of 40.91, a strong instrument. OLS results imply that a 1 percentage increase in per capita income from the e-wallet scheme participation is linked with 0.75 increase in a household's probability to engage in livelihood diversification. There exist a causal impact of e-wallet participation and income increase and regular market access. The downward bias of the OLS coefficient indicates that poorer farmer's selected into social programme assistance have the tendency to improve on their poverty status. Hence, social assistance programme as an effective channel to actively promote rural development, market access, improved income, value chain analysis and diversification.

**KEYWORDS:** Social assistance programme, E-Wallet scheme, rural farmers, agricultural inputs distribution rural telephone interconnectivity and welfare effects.

## Introduction

Literature have argued that the poverty rate in Nigeria has multiplied over the past twenty years notwithstanding of the record of economic growth of 54% (annually in the last 5 years) or equivalent during the years under review (MDGs Nigeria, 2010). Moreover, indicators of underdevelopment such as inequality, as measured by the Gini coefficient, was 43.8 as of 2005 and rose to 75.3% in 2016 (Ortiz and Cummins, 2011, NBS, 2017). Recent economic recession the country found itself has worsen the situation because of the influences of the recent increase in food prices, incessant fuel shortages and financial crisis among others have aggravated this situation. Recent studies have argued that Poverty, inequality, vulnerability and instability are influenced by limited economic opportunities, spatial inequities and ethnicity, age and gender inequalities (Handa *et al*, 2013, Davidone *et al*, 2017).

In the agricultural livelihood, access to productive resources and constrains to informal and formal lending avenues have been a dominant challenges (Jacob *et al*, 2010, God-son ibeji *et al*, 2016). In addition, economic recession, owing of salaries of government workers and high price inflation has aggravated the situation and adding too many of the prevailing vulnerabilities confronting the poor (kehinde *et al*, 2016). Past studies have indicated that social assistance programmes and social protection interventions can stimulate poverty reduction and reducing vulnerability, promoting growth and increasing steadiness (Vink & Kirsten, 2003, Tittone *et al*, 2010, Holems *et al*, 2011 Hagen-Zanker, and Tavakoli, 2011). In Nigeria, social protection policy and programming have emerged in recent years, with the government and its development partners currently implementing cash transfers to address the country's high rates of poverty and vulnerability (Adesina, 2013, Apata, *et al* 2016).

It has been argued by past studies that social assistance programmes stimulate fairness of access to Agricultural Inputs Acquisition and can be an effectual intervention by government and development partners at reducing poverty and its associated problems in several developing countries (Schultz, 2004; Schady & Rosero, 2008; Macours *et al.*, 2012; Ardington *et al.*, 2013; Filipinski *et al.*, 2015; Apata, 2016). In many developing countries role small-scale agriculture play in economic development and rural transformations remains challenged, economy activity and food security in this region *has* benefited directly from subsistence agriculture, although drivers of economic growth are found solely in revolutionizing agricultural sectors (Abel, 2013, Gavrilovic *et al*, 2016). In addition, in meeting up with the rising population, food requirements and in commensurable measure and quantity, there is a need to focus on the role small-scale agriculture play in employment generation in the rural areas, food production and agricultural related activities among others (Dercon, 2009; Aliber & Hart, 2009, Birner & Resnick, 2010, Fields 2011).

In Nigeria, to drive the economy, agricultural transformation has been modeled to fast track development in multifaceted rural areas and access to timely Agricultural Inputs has been argued to be the key (Osinowo, 2012, Adesina, 2013, Apata, 2016). Literatures have shown that social assistance programmes can be used in targeting the small-scale farmers to have access to Agricultural Inputs timely and mitigating impact on poverty (van der Berg *et al.*, 2010). Evidence from past studies suggest that social assistance programmes has been making positive influences on household welfare (Ardington & Lund, 1995, Altman & Boyce, 2008), progresses food security (Case & Deaton, 1998; Duflo, 2003, Pauw, 2007, Ardington *et al.*, 2009, Pienaar & von Fintel, 2013), mitigates impacts of HIV/Aids

(Booyens, 2004, Apata, 2013) and can also creating livelihood diversification (Adesina, 2013, Adebo, 2016, Slater, *et al.*, 2016). Respectively, these studies as evidenced that social assistance directly improves household welfare, help the small-scale farmers to integrate into formal markets among others.

Recent data from the Nigeria Bureau of Statistics (NBS) 2017, estimated that poverty incidence in Nigeria has risen from 54% in 2004 to 79% in 2016. This report also indicated that 77% of these poor people are into agricultural livelihood and on a small-scaled level. The impacts of the recent food, fuel and financial crisis have also exacerbated this situation. Moreover, it was evidenced from past studies that poverty, inequality and instability are strongly influenced by limited economic opportunities, spatial inequities and ethnicity, age and gender inequalities. In the context of high levels of poverty and inequality, the existing social assistance programme is currently facing a number of challenges. The key ones include the low coverage of existing programmes, the implementation has witnessed narrow set of instruments, poor service delivery, and the fragmentation of approaches and projects across the country. Hence, for any serious social programmes interventions to be meaningful, focus must be on small-scale farmers (Adesina, 2013, Apata, *et al* 2016, Kehinde *et al*, 2016).

Around the world, social protection programmes interventions are increasingly attracting government and donor resources, with an eye to reducing poverty and vulnerability, promoting growth and increasing stability. In Nigeria too, social protection policy and programming have emerged in recent years, with the government and its development partners currently implementing social assistance programmes to address the country's high rates of poverty and vulnerability. Several studies have been conducted on the effect of social assistance programme particularly e-wallet scheme, little analysis has been done to assess the effectiveness of this mechanisms towards the poorest, hence this study begins to fill these gaps and presents an empirical analysis.

Therefore, this article examines whether social assistance programmes can reduce the poverty and extremely poverty in societies marred by high levels of income concentration in the non-agricultural livelihood? The study focus on one of the most confessed effective method of e-wallet scheme in agricultural-inputs acquisition and analyze the extent this method is able to improve the life chances of extremely poor beneficiaries, through the three major goals, increased income, market access and engagement in the value chain analysis.

E-wallet-powered Growth Enhancement Support Scheme, which was designed by the Nigerian Government in 2012 is to address challenges faced particularly small-scaled farmers to access important agricultural inputs such as improved seeds, agrochemicals and fertilizers at subsidized prices. Past studies have indicated that these important agricultural inputs are important to increase agricultural outputs and farmer's productivity. However, channels of distribution of these agricultural inputs have witnessed highly organized distortion depriving the end users of access. Consequently, the social assistance programme of e-wallet scheme was established to correct this anomalies and institute machinery that will facilitate prompt access and delivery of agricultural inputs meant for farmers. Also, the scheme was founded to facilitate and improve farmers' prompt access to agricultural information and market services. The motive driving e-wallet scheme is to treat agriculture as a business to generate wealth for millions of farmers in Nigeria (Adesina, 2013). This is done by taking the government out of the procurement and distribution of fertilizers and seeds and to reach the farmers directly. Success have been recorded on the successes of this programme as benefitted farmers produced an additional food

supply of 8.1 million Metric Tonnes (MT), which was 71% above the target set for the program in the previous year.

Consequently, the objective of this study is to assess social assistance programmes of e-wallet scheme on income increase of participants and explore causal relationship between the two. Also to examine how far it has stimulate fairness of access to agricultural inputs acquisition and poverty reduction among small-scale farmers in Southwestern, Nigeria. It is hope that this analysis would provide useful guidance for policy makers in Nigeria as they explore the options for scaling-up access to transfers and for reforming the current system. In addition, an assessment of the pilot phase of the scheme becomes necessary for an effective implementation.

## Methodology

### Area of study and sampling procedure

The study area is South western Zone of Nigeria. This zone has six states in it: which consist of Lagos, Ogun, Oyo, Osun, Ondo and Ekiti states and it is also known as the south West geographical zone of Nigeria. The area lies between longitude 20 311 and 60 001 East and Latitude 60 211 and 80 371N with a total land area of 77,818 km<sup>2</sup> and a projected population of 28, 767, 752 in 2006 (NPC, 2008). The study area is bounded in the East by Edo and Delta states, in the North by Kwara and Kogi states, in the West by the Republic of Benin and in the south by the Gulf of Guinea. The study area has 85 constituted Forest reserves with a forest area cover of 842,499 hectare

Figure 1 shows the position of the study area in the map of Nigeria.



In the realization of the objective of the study, a mixed method approaches were adopted and this include a quantitative survey of about 8,000 beneficiaries and a qualitative survey comprised of an in-depth interviews with thirty programmer's participants from all the Southwestern, Nigeria. The data set reflects the results of interviews in all the six states in the Southwest zone. This approaches enable the study to obtain a representative sample at each State in the zone and hence, a representative samples of 100 households were collected, with 95% confidence level, to give 600 household sizes, however, 583 data were useful for analysis. The qualitative research was conducted through an in-depth interviews on the identified representative samples.

Literature have documented several methods to evaluate the causal impact of social intervention programmes on agricultural development using multiple methods, this include among others, propensity

score matching, panel data methods and a fuzzy regression discontinuity design (RDD) (Ellis, 1998, Duflo, 2003; Bertrand *et al.*, 2003; Booyesen, 2004, Ranchod, 2006, Agüero *et al.*, 2007, David and Lemieux, 2008, Ardington *et al.*, 2009; Coetzee, 2013; Ardington *et al.*, 2013;; Abel, 2013; Von-Fintel, and Pienaar, 2015). Hence, the study adopted the use of RDD because of its peculiarities in evaluating the degree of participation and factors influencing same. Also, the use of RDD's have progressively become popular tool to ascertain causal effects in social sciences and sciences, and are relatively easy to translate (Imbens & Lemieux, 2008, David and Lemieux, 2009, Angrist & Pischke, 2009, Ardington *et al.*, 2009, Christiansen *et al.*, 2010). Hence, the basic idea is that a certain continuous variable is appalled due to a rule-based external policy or eligibility criteria. Individuals just below that threshold are said to be on the side of the policy eligibility criteria. The rule-based externally policy is the e-wallet scheme. The causal relationship was estimated through socio-economics variables of the participants and policy of eligibility criteria influencing the same.

### **Regression Discontinuity Designs (RDD)**

Regression Discontinuity (RD) designs were first presented by Campbell (1960) as a way of estimating treatment effects in a non-experimental setting where treatment is defined by whether an observed “assignment” variable (also referred to in the literature as the “forcing” variable or the “running” variable) exceeds a recognized cutoff point. In their preliminary application of RD designs, Thistlethwaite and Campbell (1960) analyzed the impact of merit awards on future academic outcomes, using the fact that the allocation of these awards was based on an observed test score. The rationale was that individuals with scores just below the cutoff (who did not receive the award) were good comparisons to those just above the cutoff (who did receive the award). Hence, with this novelty, it did not draw much interest in economics until relatively recently. A growing number of studies have thus emerged which then relied on RD designs to estimate program effects in a wide variety of economic contexts.

Primary studies by Van der Klaauw (2008) and Angrist and Victor (1999) developed a threshold rules often used by educational institutions to estimate the effect of financial aid and class size, respectively, on educational outcomes. Black (2009) follow suit by exploiting the presence of discontinuities at the geographical level (school district boundaries) to estimate the willingness to pay for good schools. As observed, an important motivation behind this recent flurry of research is a recognition, formalized by Hahn *et al.* (2001) that RD designs require seemingly mild assumptions compared to those needed for other nonexperimental approaches. Also, with motive that the RD design is not “just another” evaluation strategy, and that causal inferences from RD designs are potentially more credible than those from typical “natural experiment” strategies (e.g. difference-in-differences or instrumental variables), which have been heavily employed in applied research in recent decades. Lee (2008) argued that one need not assume the RD design isolates treatment variation that is “as good as randomized”; instead, such randomized variation is a consequence of agents’ inability to precisely control the assignment variable near the known cutoff. Reviewed of literature clearly indicate that RD designs can be used in a wide variety of contexts covering a large number of important economic questions and has thus becoming a major element in the toolkit of empirical economists (Battistin and Rettore, 2002, Porter, 2003, Lee, 2008)

Assuming that the relationship between Y and X is otherwise linear, a simple way of estimating the treatment effect  $\tau$  is by fitting the linear regression

$$Y = \alpha + D\tau + X\beta + \varepsilon \tag{1}$$

Where  $\varepsilon$  is the usual error term that can be viewed as a purely random error generating variation in the value of  $Y$  around the regression line  $\alpha + D\tau + X\beta$ . The coefficient  $\tau$  could be viewed as an estimate of the causal effect of the award (Thistlethwaite and Campbell 1960).

In estimating the Local linear regressions, a non-parametric way of consistently estimating the treatment effect in an RD design (Hahn *et al.* 2001, Porter (2003). Following Imbens and Lemieux (2008), the study focus on the case of farmers who has access to government intervention (e-wallet scheme) and this thus led to estimating the equation with a standard regression.

The regression model was design into two the left hand side of the cutoff point

$$Y = \alpha_l + \beta_l \cdot (X - c) + \varepsilon, \quad (1)$$

Where  $c-h \leq X < c$ ,

While the regression model on the right hand side of the cutoff point is

$$Y = \alpha_r + \beta_r \cdot (X - c) + \varepsilon, \text{ where } c \leq X \leq c+h. \quad (2)$$

For convenient estimation, the two regressions were pooled together, hence;

$$Y = \alpha_l + \tau \cdot D + \beta_l \cdot (X - c) + (\beta_r - \beta_l) \cdot D \cdot (X - c) + \varepsilon, \text{ where } c-h \leq X \leq c+h, \quad (3)$$

Hence, the equation is structured as follows:

$$Y_i = \beta_0^{\wedge} + \beta_1^{\wedge} d_1 + \beta_2^{\wedge} d_2 + \beta_i^{\wedge} d_i (Z_1 - Z_c) + \beta_{2i}^{\wedge} X_i (Z_i - Z_c) + \beta_{14} X_{14} + \varepsilon_i \quad (4)$$

Where  $Y$  = outcome (income accrues) as a result of participating in e-wallet scheme or not

$B$  = coefficients

$d$  = treatment effect

$Z$  = assignment variable

$$Y_i = \beta_0^{\wedge} + \beta_1^{\wedge} \text{Log}(\text{Access to e-wallet scheme}) + \gamma \cdot X_i + \varepsilon_i \quad (5)$$

$X_1$  = Independent variables ( $X_1 - X_{14}$ )

The standard error of the estimated treatment effect can then be directly obtained from the regression (Hahn *et al.* 2001). The study adopt the linear specification model to provide a close approximation over a limited range of values of  $X_i$  (coefficients).

## Estimation procedures

Past studies have argued that normally fuzzy RDD's are estimated using Two-Stage Least Squares (2SLS), with the threshold functioning as the exogenous instrument to distinguish causal effects, in this case e-wallet scheme (Klasen & Woolard, 2009, Kehinde *et al.*, 2016). Hence, likelihoods that beneficiaries of the e-wallet scheme, had a first stage interaction model and are thus used in the second stage to obtain the causal effects of timely access to e-wallet scheme on income and generally well-being ( $y$ ): However, there was a discontinuity in the number of participants that had relatively lower income than the threshold.

Past studies have revealed that the use of RDD approach is most effective at reducing bias if conducted on a sub-sample close to the threshold (Lee, 2008). Taking a cue from the current research conducted in Lesotho which revealed that local spillovers also benefit non-recipient households (Filipski *et al.*, 2015) and Von-Fintel, and Pienaar, 2015 research that explored community-level externalities to generate a robust analysis. Hence, this study considered significant socio-economic variables that influencing access to e-wallet scheme and other factors (environmental-level externalities) influencing same.

Exploring the fuzzy RDD seeming in the data for a robust analysis, the study examined the effect of the access to e-wallet scheme on the probability of being a small-scaled farmer and increased income, market access and engagement in the value chain analysis. Through this assessment, the study reveal the means through which farmers maximize the benefits of the e-wallet scheme access vis-à-vis those farmers who did not.

Participants selected into the study were the beneficiaries of e-wallet policy scheme. In the buildup of the threshold farm income pre and after benefiting from the e-wallet policy scheme were taken. This approaches enable the study to observe the influence of the e-wallet on farm income, value-addition market access and livelihood diversification. Hence, this divides respondents into a neat treatment and control group around the threshold. Somewhat huge disparities in outcome variables around the threshold are plausibly caused by the external “rule” only and were not considered (Lee, 2008). Thus, could access to e-wallet scheme leads to an improved farm income, value chain, market access and livelihood diversification?

## **Variables and their definitions**

### ***Dependent variable***

The dependent variable used for this study is the access to e-wallet scheme of the respondent’s farm outputs in terms of knowledge and utilization of the scheme. This is captured by their assets/income or losses accrued. This is to serve as function of knowledge of farmers on timely access to agricultural inputs, daily good farm management practices and their level of utilization of resources at their disposal. In addition, knowledge about value addition, market access/market to absolve their outputs/farm products and livelihood diversification. Also utilization of the effective information provision that goes with the scheme.

### ***Independent variables***

For this study, 14 independent variables (see Table 1) were identified and hypothesized to influence the dependent variable. From these 14 variables 8 were continuous and 6 were discrete. Selection of these independent variables used in the study was logically taken from the review of past research and published literature related to the scope of the study and thus influence the dependent variables (Filipski *et al.*, 2015, Von-Fintel, and Pienaar, 2015).



**Table 1.** List of independent variables and measurements

Variables	Measurements	Signs
Age (years) (X1)	Measured in terms of number of years of age	negative relationship
Education of head (years) (X2)	Education refers to the level of formal and non-formal education and this was scored in terms of ability to read and write and enrolment in primary, secondary schools or post-secondary	Educational level positively affects use of information and decision to participate in a worthwhile programme
Sex (X3)	Measured in terms of female or male	Male was assumed to have positive relation
Marital Status (X4)	This indicates whether respondents are married, unmarried, single, or widowed. This data was operationalized through scoring system labelled from questionnaire	positive relationship among married respondents
Household size (X5)	The size of the household of the respondent measured in terms of total number of members in the family including the elderly and children.	household size was assumed to have positive relation
Access to market (X6)	Access to market has impact on the level of income and farm produce. It is a place where farm produce are exchange for money.	variable was assumed to have a positive relationship
Access to credit (X7)	Access to credit has impact on the level of utilization of recommended technological packages and this in turn will expose respondents to divergent information.	variable was assumed to have a positive relationship
Access to extension services (X8)	It was measured using a weighted index	variable was assumed to have a positive relationship
Farm size expansion (X9)	This refers to the area of cultivated land owned by the respondents or their families. It was assumed that access o productive scheme (like e-wallet) likelihood of farm expansion can take place. .	Therefore, it was hypothesized that farm size expansion has a positive relationship
Livelihood Diversification index (X10)	It was measured using a weighted index	variable was assumed to have a positive relationship
Number employed in household (X11)	It was measured using a weighted index	variable was assumed to have a positive relationship
Access to good road (X12)	Access to good road has impact on the level of moving goods from one place to another.	variable was assumed to have a positive relationship
Access to small farm machineries (X13)	Access to small farm machineries has impact on the level of utilization of recommended technological packages for improved production.	variable was assumed to have a positive relationship
Participation in value –addition. (X14)	It was measured using a weighted index	variable was assumed to have a positive relationship

Source: Own calculations where \*\*\*p<0.01 \*\*p<0.05 \*p<0.1

## Results and Discussions

### Descriptive Statistics

Results of the study revealed that there is an improvement on farm size cultivation as there established a causal effect of e-wallet scheme participation and farm size. This is as a result to timely access to agricultural inputs and market for agricultural outputs, thus leading to income increase. The results of the descriptive statistics revealed that 87.5% of the participants in the programme had income increase

and are mostly young adults (mean age of 47years). Diversification index of 11.5 was found out and this was influenced by educational level of the participants and timely access to information on the social assistance programme and stimulus of value addition. Also participation in e-wallet scheme created additional livelihood through value chain analysis and enable such households to pursue non-market farming activities.

**Table 2: Description of Main Variables used in RDD model**

Particulars	Access to e-wallet scheme participating	Access to e-wallet scheme (non-participating farmer)	Difference	N
Per capita monthly household income (Naira)	45,002.00	31,002.04	113.27***	545
Per capita monthly income from participation in e-wallet scheme (Naira)	84,378.75	31,002.04	39.77***	517
Age (years)	47	59	0.381	583
Education of head (years)	5.02	3.41	1.82*	583
Proportion of heads male	0.82	0.77	0.19***	583
Proportion of heads married	0.89	0.72	0.16***	583
Household size	5.02	7.08	-1.45***	583
Distance to market (m)	74.05	74.05	-24.16	583
Per capita access to immediate credit (Naira)	150,000.00	20,000.00	57.09*	583
Access to extension services	0.71	0.43	0.14*	583
Farm size expansion	0.67	0.31	0.24**	583
Livelihood Diversification index	11.5	0.14	0.15*	524
Number employed in household	0.64	0.49	0.16***	545
Proportion access to good road	0.58	0.37	0.21***	550
Proportion access to small farm machineries	0.55	0.24	0.15*	550
Proportion rating themselves as participated in value –addition.	0.62	0.17	0.24**	501
Proportion rating themselves as improved wellbeing	0.89	0.31	0.03*	537

**Source:** Own calculations where \*p<0.01 \*\*p<0.05 \*\*\*p<0.1

### **The causal effect of e-wallet scheme on access to Agricultural Inputs Acquisition and poverty reduction.**

The instrument adopted in the RDD indicated the F statistic of 40.91, which indicates a strong instrument. Results of the OLS results imply that a 1 percentage increase in per capita income from the e-wallet scheme participation is linked with 0.75 increase in a household’s probability to engage in livelihood diversification. Although these outcomes cannot be differentiated between the two lines of causality expressed above. On the analysis of instrumenting the RDD the outcomes indicated an estimate to 1.2 per cent, which showed that there is exist a causal impact of e-wallet participation and income increase and regular market access. Moreover, the probability of farm-inputs acquisition prompts diversification to non-farm income sources and this could be ascribed causally to e-wallet participation scheme. The Hausman test on the casualty also indicated a simultaneity. In addition, the first stage regression shows that crossing the threshold substantially raises the probability of deriving full benefits in the participation in the e-wallet scheme. The downward bias of the OLS coefficient indicates that poorer farmer’s select into social programme assistance have the tendency to improve on their poverty status, because there is an assurance of timely access to agricultural inputs and market for their produce.

Income from other non-labour sources and credit availability supported by e-wallet scheme also tend to motivate individuals to increase farm size and agricultural outputs.

Table 3 Linear Probability Model for the tendency of e-wallet scheme to stimulate access to Agricultural Inputs and improved well-being

Particulars	Access to e-wallet scheme (participating farmer)	Access to e-wallet scheme (non-participating farmer)	Access to e-wallet scheme (participating farmer)
	OLS	2SLS first stage	2SLS second stage
log(per capita income from access to e-wallet scheme)	0.75***		0.012***
log(per capita income from other sources)	0.014**	-0.034	0.015**
log(per capita access to credit)	0.88***	-0.012	0.081**
access to extension	0.51***	0.142	0.031**
Education of head (years)	0.02***	0.034**	0.002***
Proportion of heads male	0.82	0.77	0.19***
Proportion of heads married	0.047*	0.182	0.038*
log(HH size)	0.051***	0.102	0.063***
Distance to market (m)	-0.031	-0.136	-0.031
Access to market	1.1***	0.18	1.38***
Farm size expansion	0.04*	0.31	0.14**
Livelihood Diversification index	1.3***	0.14	1.42***
Proportion access to good road	0.58	0.37	0.21***
Proportion access to small farm machineries	0.05*	0.41**	0.061**
Proportion rating themselves as participated in value –addition.	0.041***	0.28**	0.051**
Constant	0.318***	-1.725***	0.501***
R-squared	0.071	0.42	0.070
N	583	583	583
Hausman p-value			0.072*
F statistic	40.91	75.03	48.91

Source: RDD computer results,

Notes: Own calculations. Estimates are weighted. Where \*\*\*p<0.01 \*\*p<0.05 \*p<0.1

## Conclusions

The descriptive analysis of the study revealed that Female-headed households are less likely to embark on farm size increase than male-headed households, while married heads tend to do so. Also, larger households are significantly more likely to increase in farm size, value addition. Thus reflects an indication that this is a livelihood strategy when large families are not adequately supported by other forms of income. A control for access to good farm roads and small farm machineries were introduced to account for potential selection on infrastructure and access to service delivery, hence participants to

the e-wallet scheme are generally poorly resourced, and as such their agricultural activities still support subsistence living rather than market activity.

This paper's contribution to knowledge is two-fold: social assistance programme as an effective channel to actively promote rural development (since majority derived their livelihood from agriculture and agricultural related activities) through timely access to agricultural inputs and market, and improved income, value chain analysis and diversification. The causal relationship between the social assistance programmes of e-wallet scheme and poverty reduction indicated a simultaneity. That is policy to improve prompt access to agricultural input and market could also lead to poverty reduction. Hence, this study confirms what other previous studies have reported on social assistance programmes that had a positive impact in reducing poverty in the country. Social assistance programme of e-wallet scheme has witnessed several challenges among which are mismatch of e-wallet with other technologies, telephone network disappointments, low density handling of agro dealers among others. Hence, there is need for effective interconnectivity of rural telephone networking, extension agents to improve on interpersonal communication of the rural populace, medium of effective information dissemination to be established or improved upon in the identified centres.

The study revealed that social assistance programmes of e-wallet scheme can be used to reduce poverty as 87.5% of the participants in the programme had income increase and mostly young adults. The result of the RDD revealed that a 1 percentage increase in per capita income from the e-wallet scheme participation is linked with 0.75 increase in a household's probability to engage in livelihood diversification. There is exist a causal impact of e-wallet participation and income increase and regular market access. Hence, access to e-wallet scheme stimulate fairness of access to agricultural inputs acquisition among participants. Thus, this study provided useful guidance for policy makers in Nigeria as they explore the options for scaling-up access to transfers and for reforming the current system. Consequently, this study call for urgent need for the assessment of the pilot phase of the scheme for an effective implementation.

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