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STUDY OF GA SOUTH MUNICIPALITY'S USE OF E-ZWICH PAYMENT SYSTEM IN THE DISBURSEMENT OF LEAP FUNDS

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Abstract:
Electronic payments or E-payments are fiscal transactions made devoid of the use of paper documents such as cheques, bankers' drafts and withdrawal slips etc. These E-payments systems include debit card, credit card, smart card, e-wallet, e-cash, electronic cheques etc. E-payment systems enjoyed disparate acceptance levels worldwide with some methods being highly favoured compared to others. This study investigates the challenges of implementing and using electronic payments in Ghana with a special focus on its use in the implementation of Livelihood Empowerment Against Poverty (Leap) Program in the Ga South Municipality of Accra, Ghana. This study found out that challenges militating against smooth implementation of E-zwich include difficulty of use where there is poor or no internet connectivity, fingerprint authentication problems, difficulty of locating banks accredited with E-zwich point of payment near beneficiaries' residence. The study therefore recommends that implementers of the E-zwich payment system should invest more in efficient Internet systems and easy location of facility (banks of E-zwich points of payment) to enhance faster operations. Also Community Leap Implementation Committee (CLIC) officers should be resourced to continue with more sensitization and education on the use of E-zwich.

Key words: Electronic Payment, E-zwich, Livelihood Empowerment Against Poverty, cash transfer

JEL classification: A13

1. INTRODUCTION

Electronic payment system is a system that permits online payment between parties using an electronic surrogate of financial institutions (Bold, Porteous, & Rotman, 2012). The Ghanaian economy owing to its continuous growth has attracted interest in the use of electronic payment (e-payment) systems in cash transfer programmes. The payment system of a country works when the system is real and financial markets work (Levine, 1999). A particular Electronic payment system is used based on its standard and or the availability of the system in a particular area or a country (Humphrey, Kim, & Vale, 2001).

Traditional cash transfer programmes works such that cash is physically handed over to a set of pay points – often post offices or government offices. Programme beneficiaries travel to these pay points to collect cash payments at the stipulated times. When cash is transferred to beneficiaries through e-payment technologies such as mobile phone accounts or smartcards, there is potential to cut costs and reduce corruption compared with physical payment methods (Bold et al., 2012). E-payment systems can also improve accessibility and security for programme recipients, which are important for reaching vulnerable groups including older people, persons with disabilities and people in remote areas (Pickens, Porteous, & Rotman, 2009).

Introduced in Ghana in 2008, the e-ZWICH is Africa's first biometric electronic payment system (Haruna, 2012). The main objective of its introduction is to lessen risks of ATM card theft incidences. The Ghana Interbank Payment and Settlement System (GHIPSS) Limited, established by the Bank of Ghana is the issuer of the e-ZWICH smart card.

A couple of studies on the implementation challenges are abound in literature (Sousa & Voss, 2002). One study by Kumaga examined the challenges of the new payment system.

(Kumaga, 2011) explained that lack of acceptance; ignorance, network lapses and lack of tips for banking staff are the major challenges to the adoption of the e-zwich. In the author's view Ghanaians generally feel better carrying cash than carrying money in the form of a chip thus making it difficult for them to accept electronic payment systems in general and the e-zwich smartcard in particular.

What puts this research apart from previous studies is its specific nature – evaluating challenges relative to its application in the disbursement of LEAP funds in the Ga South Municipality of the Greater Accra Region of Ghana.

2. METHOLOGY

2.1 The Study area

The study area involves four communities in the Ga South Municipality in the Greater Accra Region of Ghana implementing the E-zwich payment system for LEAP cash transfers. The specific areas in the Ga South Municipality are namely Obom, Hobor, Tuba and Weija.

2.2 Data sources

The study makes use of both primary and secondary data sources

2.3 Primary Data sources

A combination of quantitative and qualitative primary data sources were used to conduct this study. The quantitative data was obtained through the administration of questionnaires with closed and open ended questions to selected LEAP beneficiaries in the four communities in the Ga South Municipality. Qualitative data was obtained through in-depth interviews of officials of the LEAP programme at the Ga South Municipality, Social Welfare Department and the Ministry of Gender, Children and Social Protection.

2.4 Secondary Data Sources

The secondary data was gathered from the medium-term development plan of the Ga South Municipality, LEAP programme annual activity reports, E-zwich brochures, E-zwich implementation documents and research papers published in scientific and academic journals. Literature gathered on electronic payment systems for social cash transfers among others was obtained from research papers published in scientific and academic journals online and from books at the University of Ghana library.

2.5 Socio Demographic Variables

2.5.1 Background of beneficiaries

This section presents background information on the respondents who participated in the study. Of the 50 respondents who responded to the beneficiaries' questionnaire, the largest proportion (48%) were direct beneficiaries, followed by caregivers (36%) with 16% doubling as both caregivers and direct beneficiaries as shown in figure 1.

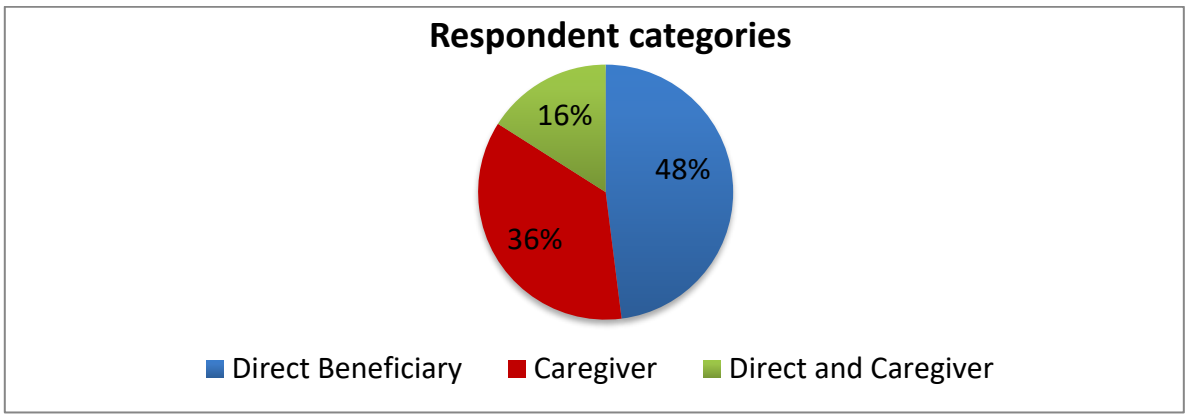

Figure 1. Respondent categories
Source: Field Survey data

With regards to the gender of respondents, about 68% of beneficiaries who participated in the study were females with 32% being male as presented in Figure 2 below.

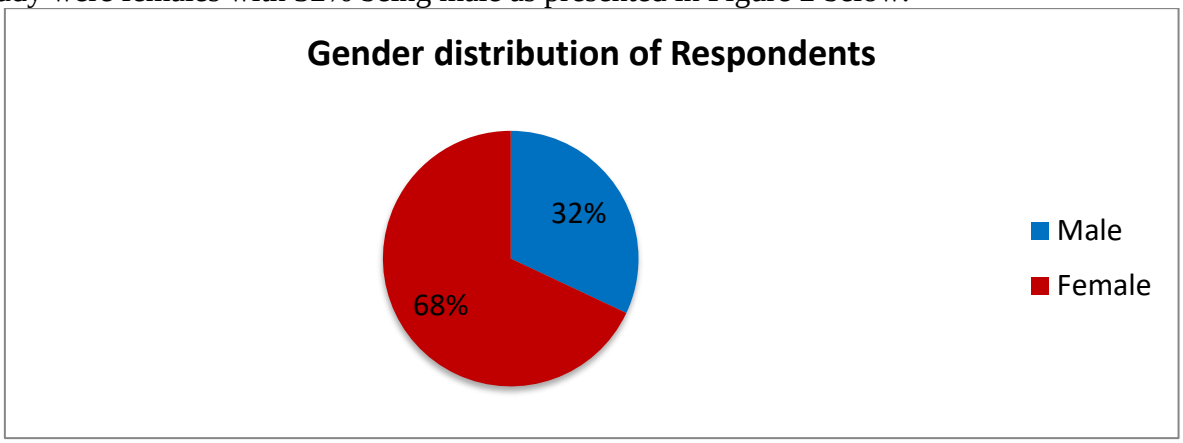

Figure 2. Gender distribution of Respondents
Source: Field Survey data

Generally women and children are classified as vulnerable groups in society. One of the objectives of LEAP aims at caring for the vulnerable in society this clearly explains the reason why there are more women enrolled on the LEAP programme. Therefore LEAP is on course with its objective of alleviating the poverty levels of the vulnerable in society.

In terms of age, (38%) of the respondents were 65 years and above followed by those aged 55-64 who formed 20% of the total respondents. Those aged 18-24 years formed the least number of respondents interviewed, which were only 4% of the 50 respondents. A detail is presented in Table 1 below.

Table 1. Age of Respondents

Age	Percentage
18-24	4%
25-34	6%
35-44	18%
45-54	14%
55-64	20%
65+	38%

Source: Field Survey data

Additionally, majority of the respondents were widowed (28%) followed by the married (24%), singles (22%) and the least being those were in consensual union (6%). A detail of the marital status of respondents is depicted in Table 2 below.

Table 2. Marital status of Respondents

Marital status	Percentage
Married	24%
Single	22%
Divorced	12%
Separated	8%
Consensual Union	6%
Widowed	28%

Source: Field Survey data

For the education background of the respondents, close to half of the respondents were found to have had no formal education (48%) followed by those with basic education (26%), secondary education (16%) with only 10% having tertiary education. Refer to Fig 3 below.

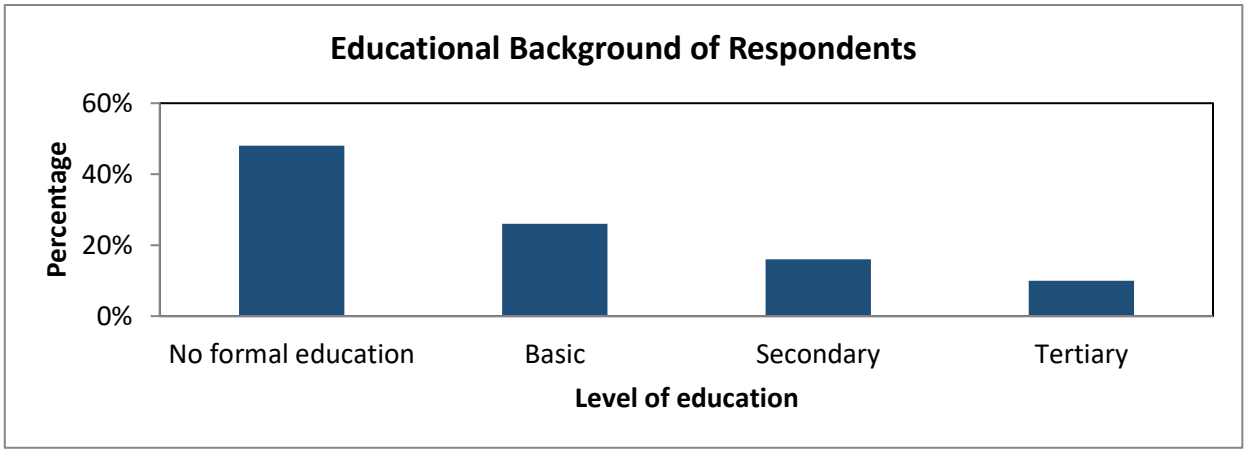

Figure 3. Educational Backgrounds of Respondents

Source: Field Survey data

In general, education (formal or non-formal) is an important springboard that lifts people out of poverty. The study results show that majority of respondents (48%) who are beneficiaries on the LEAP programme, have no formal education, The researchers believe this situation quailed them to be enrolled on the LEAP programme, therefore lack of education increases the risk of becoming poor. Also majority of the beneficiaries who participated in the study were out of work (34%) followed by homemakers (22%) and the least being students (4%). Details are presented on Table 3 below.

Table 3. Occupational background of respondents

Employment Status	Percentage
Employed for wages	8%
Self Employed	16%
Out of work	34%
Homemaker	22%
Student	4%
Retired	16%

Source: Field Survey data

Background of participants from the LEAP institutions

Table 4 summarizes the background of officials from the Ga South Municipal Assembly, Department of Social Welfare, and Ministry of Gender, Children and Social Protection.

Table 4. Job titles of respondents

Job title of respondents	Length of service	Gender
Head of Operations for LEAP programme, Department of Social Welfare	8 years	Male
Deputy Director, Department of Social Welfare	8 years	Male
CLIC Member, Ga South LEAP programme	8 years	Female
Deputy Director, Ministry of Gender, Children and Social Protection	12	Male
Programme Coordinator for LEAP, Ga South Municipality	6	Male

Source: Field Survey data

2.6 Breakdown of Community Sample size for LEAP beneficiaries

The four communities used for the study are Obom, Hobor, Weija and Tuba. A breakdown of 50 beneficiaries in the four communities is presented in figure 4.

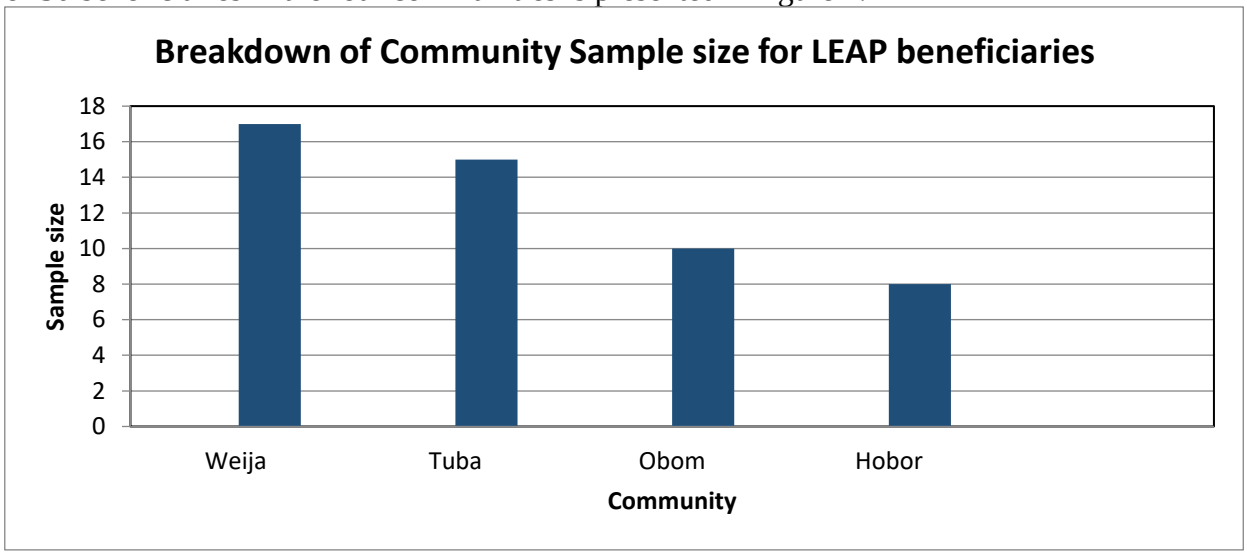

Figure 4. Breakdown of Sample size for LEAP beneficiaries

Source: Field Survey data

The LEAP Officials from the Social Welfare Department, the Ministry of Gender, Children and Social Protection and the Municipal Assembly were sampled using purposive sampling technique with the help of the District LEAP Coordinators.

2.7 Ethical Consideration

Measures were put in place to ensure that the study was conducted in an ethical manner. The information gathered from the respondents was protected. One of such measures was to obtain the respondents consent on the study before their participation. During data collection, the researcher explained and gave consent forms to respondents, which included the objectives of the study and the benefits for participation in the study.

2.8 Theoretical framework

A combination of theoretical frameworks, one propounded by (Von Bertalanffy, 1972) and the other by Bold and Rotman were applied. Bertalanffy's theory which describe how a system should function is based on the perspective that the 'whole is greater than the sum of its parts.'' In other words, the outcome of a project is not explained simply by component parts (inputs and activities) but also the relationships between and among those parts and their environment (context). Bertalanffy's system theory further posited that an outcome is determined by a system comprising of the parts, the organization of the parts, and the relationships among those parts and the environment. Furthermore, Bertalanffy viewed a system as ''a set of elements standing in interrelation among themselves and with the environment.'' (Von Bertalanffy, 1972).

According to this theory, the relationship between the elements of an outcome is not static. It is dynamic and changing. With this, Bertalanffy described systems as either being ''closed'', in which nothing either enters or leaves the system, or ''open'', in which exchange occurs among component parts and the environment. (Banathy, 2000) in the use of this theory indicated that systems are regarded to have four major characteristics:

(1) Systems are goal oriented;
(2) Systems have inputs from their environment;
(3) Systems have outputs to achieve their goals; and
(4) There is feedback from the environment about the output.

System model to programme evaluation is shown in Fig.1 In Figure 1 the linkages are shown in the characteristics of a system. Objectives of the system are influenced by feedback and feed forward (and vice versa). The processes involved in a system are also influenced by feedback, feed forward and inputs. Processes in general are linked to the objective of the system. Inputs of a system are linked to feedback and feed forward. Finally the context determines the needs to be addressed by feed forward and feed forward in order to achieve the objectives of the system.

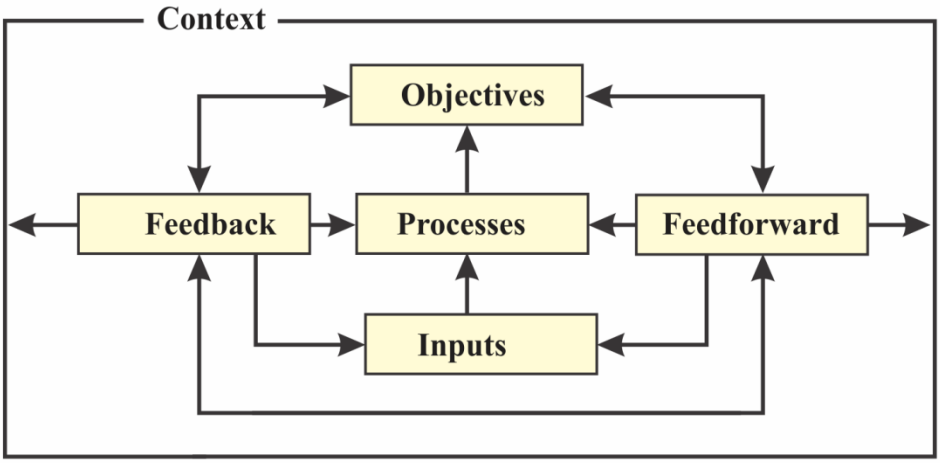

Figure 5. System model to programme evaluation
Source: adopted from (Banathy, 2000) Evaluation model

Banathy (2000) further explained that the system could be composed of subsystems as well as units or parts making the whole interaction. Once organized, a system is not simply a collection of parts but a functional entity that has properties that cannot exist independently as a collection of parts.

The application of systems theory in project implementation and evaluation is described by (Churchman, 1968) as follows: In order to be a functioning system, the total system has to define its objectives and performance measures; the environment has to be considered as an influencing factor; the resources must be determined; the components of the system must be defined; and the management of the system must be set (Churchman, 1968).

The strength of the systems theory in project evaluation is that it helps to view the outcome of the project in a more holistic way in that it looks at the inter-relationship among the various elements of the project such as the inputs, activities and the environment. Systems theory thus emphasizes the need to consider the project context or environment in examining the outcome of the project.

2.9 Merits and demerits of Bertalanffy's system theory

Some of the merits are that the systems theory recognizes interdependence of certain external traits such as the personnel impact of environment on the organizational structure. It also focuses on the environment and how outcomes can influence the institution. In addition, it seeks to explain the relationship between the elements or members that interact and cooperate with each other. Moreover, this theory widens the theoretical scope for examining organizational behavior.
The systems theory has been debated and criticized over time (Krohn & Weyer, 1994). One argument has been that it escapes from reality and it is not productive. Systems theory emphasizes on certain perspectives and relatively ignores other perspectives. It is important to consider what the consequences are for ignoring certain perspectives.

In general, system theory allows you to analyze a set of elements, which are interrelated, and which perform a common goal with clear descriptions and explanations. This implies the parts that make up the association are co-dependent and together they can achieve a common goal. Bertalanffy's system theory recognizes the interdependence of the elements in an association through effective communication, which then impacts the association. It does not recognize collaboration. The success of the cash transfer system requires that the teams involves should collaborate to be able to succeed rather than individuals operating alone.

The study posits that the implementation of the LEAP payment system is influenced by environmental factors and actors such poverty, LEAP beneficiaries, politicians, civil society groups, social policy think tanks among others. Based on these environmental factors the project sets out to achieve the objectives, such as more efficient transfer of LEAP cash, faster and convenient transfer of LEAP cash, better record keeping, improved security of LEAP funds, elimination of ghost names and ensuring more satisfaction of the system for beneficiaries. To this, the systems theory in our understanding confirms that if all the above factors work in harmony, the success of the LEAP payment system can be achievable.

The framework of the systems theory establishes a link between the inputs, process/activities, output and objectives of the project, which are all influenced by the environmental context. The inputs for project includes computer systems used to set up the E-zwich system, the LEAP officials in charge of administering the funds, monitoring officials, the LEAP funds and the banks and ATM machines used for withdrawing the E-zwich electronic cash.

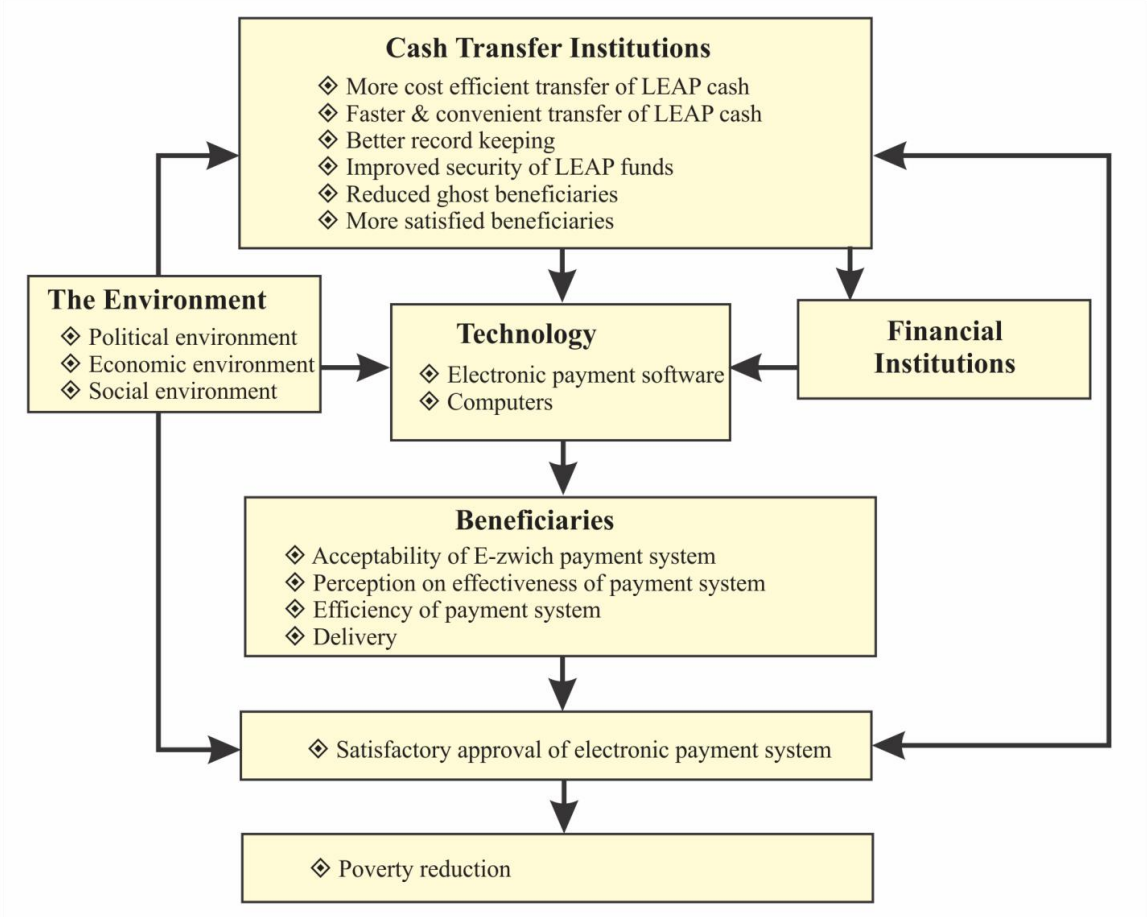

Figure 6. Components of Electronic Payment system for social cash transfers
Source: adapted from (Bold et al., 2012)

The project activities include sensitization of the beneficiaries on the use of the E-zwich, registration and subscription of beneficiaries on the new payment system, disbursement of cash to beneficiaries and monitoring of the process. These generate outputs such as beneficiaries receiving their cash, proper recording keeping, accountability, and efficiency of LEAP cash transfer. Eventually, these will lead to improved living standards of beneficiaries. Outputs will lead to the fulfillment of the objectives.

Therefore by applying the systems theory, the study seeks to evaluate the activities for adopting the E-zwich payment system for LEAP and then it ascertains the successes and challenges of the activities. By applying the systems theory, the study examines whether the process of the activities is attaining the intended outcome. The study also factors the effect of the environment on the effectiveness of the process.

Again this study sees the framework by (Bold et al., 2012) as relevant for investigating the electronic payment system. The work of (Bold et al., 2012) adequately summarizes an alternate and perhaps even more useful framework for electronic payment systems for social cash transfer. According to them, the system consists of two main components, which include:

1) Institutions (social cash transfer institutions and financial institutions)
2) Beneficiaries

Bold and Rodman's theoretical framework, which is more related to the objectives of this study, has a specific relation to social cash transfer. Bold and Rotman explained that for a successful electronic cash transfer systems, the institution for the social cash transfer aims to ensure more cost efficient transfer of LEAP cash; faster & convenient transfer of LEAP cash; better record keeping; improved security of LEAP funds; reduce ghost names and more satisfied beneficiaries.

To be able to do this the institution must work with financial institutions, using efficient technology to transmit the cash electronically to the beneficiaries. They explain that the type of

technology to be adopted is influenced by the social, economic and political environment in which the programme is being operated. A satisfactory approval of the electronic payment system by beneficiaries would then lead to the achievement of the ultimate goal of such a social cash transfers, thus to reduce poverty. The above is summarized in the framework in Figure 6.

3. DATA ANALYSIS

3.1 Challenges with E-zwich payment system

There are series of challenges faced in disbursement of to G2P program funds in certain areas or countries due to inherent challenges in the system used (Gelb & Decker, 2012), (Chopra & Sodhi, 2004). Here we explore the challenges of E-zwich from the perspective of the beneficiaries and that of the implementers

3.2 Challenges with E-zwich payment system: Beneficiaries' perspectives

The beneficiaries' points out a number of challenges they have faced so far accessing funds using the E-zwich system. One of them is the delay in payment due to network breakdown, a challenge similarly expressed by (Antwi, Hamza, & Bavoh, 2015). Others explained that they do not have banks close to where they live and have to walk long distances or take vehicles to get to the nearest bank. This may sometimes involve a lot of time, cost and efforts. Others also bemoaned the difficulties they go through to imprint their fingerprints on the E-zwich machines.

According to some of them, sometimes it takes the assistance of the banking staff to assist them to imprint their fingerprints correctly. Other challenges mentioned include difficulty of caregivers to cash money on behalf of beneficiaries in event that the beneficiaries are unable to turn up at payment centers. Lack of automatic notification when payment is made and unfamiliarity with the use of E-zwich cards are similar to results presented by (Arora, Ujakpa, Jonathan, Appiah-Annin, & Mwanza, 2016). These findings are summarized below.

Challenges with E-zwich payment system: Beneficiaries perspectives

- Sometimes payment delays due to network breakdown
- Difficulty of locating nearby banks
- Sometimes the machine does not recognize finger prints
- Difficulty of caregivers to cash money for beneficiaries
- Lack of automatic notification when payment is made
- Unfamiliarity with the use of E-zwich cards

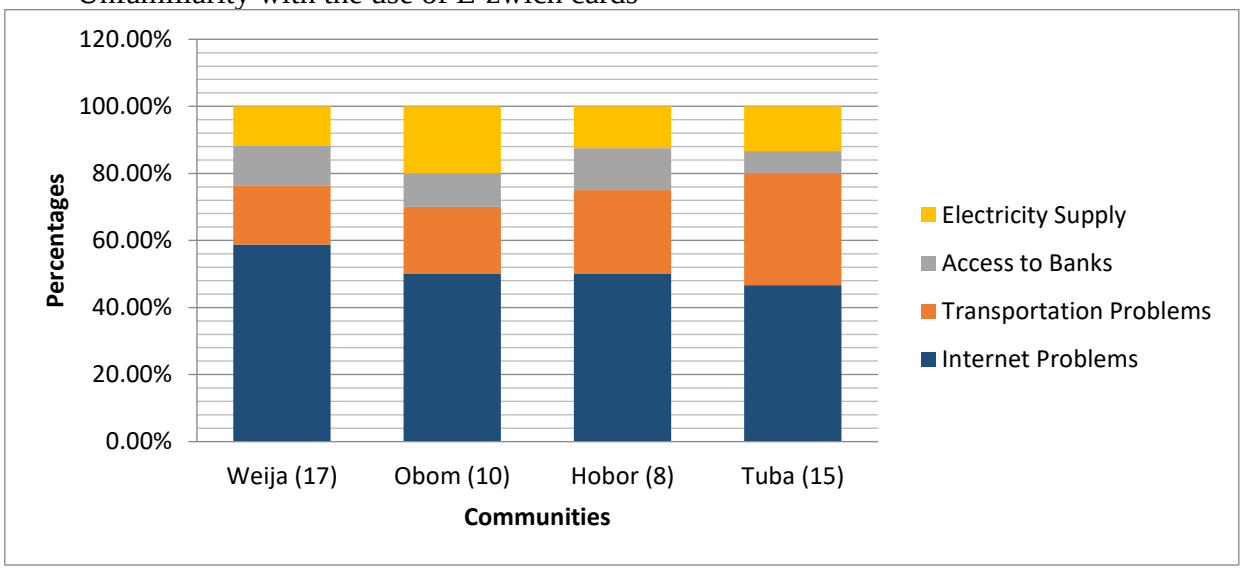

Figure 7. One key challenge to E-zwich by LEAP beneficiaries

Source: Field Survey data

Responses to one key challenge of E-zwich beneficiaries

Beneficiaries in the four communities response to key challenges faced in accessing funds is presented in figure 7. The beneficiaries were asked to give one key challenge that they have encountered accessing LEAP payments system with E-zwich. Fifty-One point four percent mentioned the issue of poor internet network, followed by 24% accounting for transportation problems, and followed by 14.4% for electricity supply and 10.2% indicating access to banks that operate E-zwich.

The study revealed that, out of the total 18 respondents of the rural communities, 66.70% forming majority indicated electricity supply as a great challenge in accessing electronic payment using E-zwich and 33.3% said it's a normal challenge of power outage whiles a total of 32 respondents of the peri-urban communities, 37.5% minority said it's a great challenge and 62.5% said it's a normal challenge of power outage and they use stand by generators.

Comparing rural and peri-urban challenges of E-zwich LEAP beneficiaries

Sixty-one point one percent which accounts for majority of respondents said access to bank is a great challenge whiles 25% minority said it's a normal challenge. Also, 83.3% majority said transportation problems has been a great challenge due to poor road network, high transport cost, while 21.9% minority said it's a normal challenge.

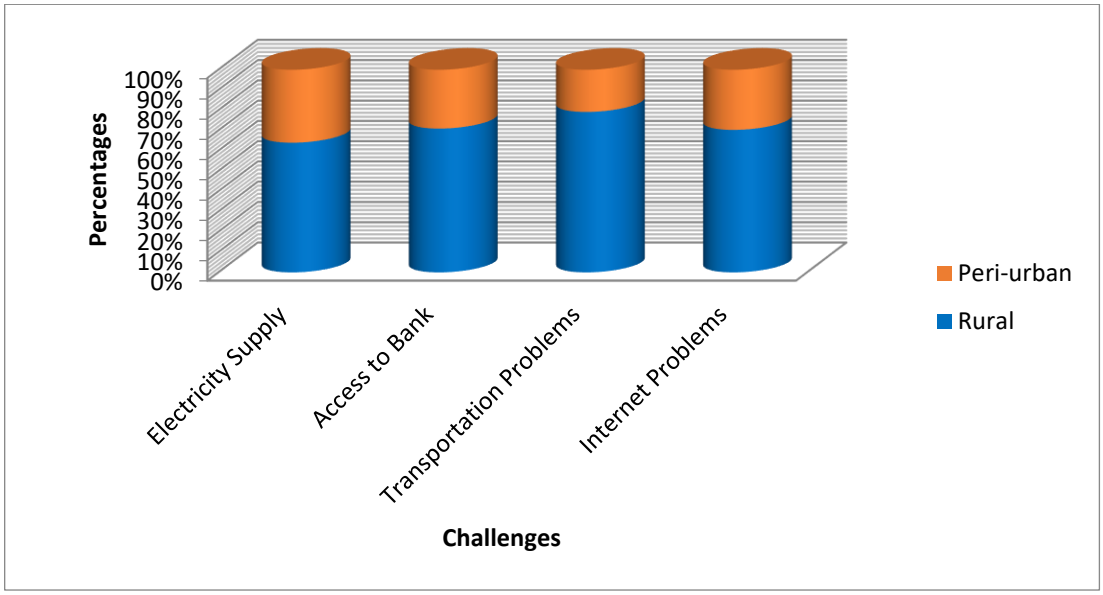

Figure 8. Comparison of rural and peri-urban challenges of E-zwich

Source: Field Survey data

The last but not least, 88.9% forming a majority said internet problems has been a great challenge whiles 37.5% said it's a normal challenge. In conclusion of the comparison of rural and peri-urban communities, 37.5% majority of the rural communities said it's a great challenge whiles 15.2% minority of the peri-urban also said it's a great challenge

3.3. Challenges with E-zwich payment system: Implementers' perspectives

During the in-depth interview involving the Officials from the LEAP institutions, the implementers were asked to explain the challenges they have encountered implementing the E-zwich payment system for LEAP. One of the key challenges 80% of them mentioned was the issue of poor internet network which sometimes slowed down their work. 20% also mentioned logistical constraints such as inadequate transportation and sensitization equipment, which sometimes make their work more difficult.

The study emphasized all the importance of CLIC members in their roles as liaison officers between the Department of Social Welfare and potential beneficiaries within the community. CLIC

members are supposed to identify credible beneficiaries, their residence and how to locate them. In other words, they identify households with vulnerable people, disabled, elderly, and orphaned living in severe poverty conditions. After the identification process, the Department of Social Welfare registers and documents these households and enrolls them on to the LEAP grant.

The responsibilities of a CLIC member is such that he had this to say, ``*I always go to villages to inform beneficiaries about the next payment and help them in the process.*``

Another CLIC member had this to say about educating beneficiaries. ``*I educate the beneficiaries on how to handle and safely keep their E-zwich card and also how to spend the money wisely.*

"The CLIC members have to go from village to village at an average distance of 5-6km to sensitize beneficiaries on E-zwich or to assist them access their funds".

The CLIC members outlined various challenges, which the study finds is being faced by all other implementers.

Challenges with E-zwich payment system: Implementers' perspectives

- Difficulty in registration and enrolment in areas with poor or no internet connectivity
- Logistical constraints: The CLIC members have to go from village to village at an average distance of 5-6km to inform beneficiaries to come for their transfers
- The stress of going through registration process for caregiver change

3.4 Preference of e-ZWICH to Postal system of payment by LEAP beneficiaries

The study employed frequency distribution to determine the preferences of LEAP beneficiaries in terms of the payment systems. The findings are illustrated in figure 9 below.

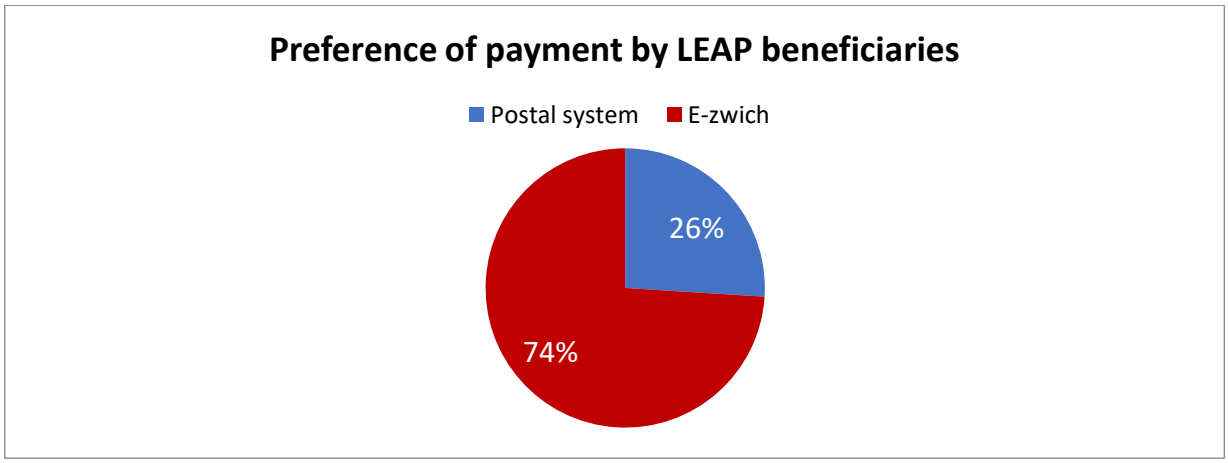

Figure 9. Preference of payment by LEAP beneficiaries

Source: Field Survey data

4. CONCLUSION

In this study, the researchers selected respondents from two community groups namely communities from rural and peri-urban areas respectively. The reason was to observe any dynamics in both rural and peri-urban communities when it comes to electronic payments, specifically E-zwich.

Results of the study establish that beneficiaries in the rural communities faced similar challenges as their counterparts in peri-urban areas but at different levels. In the rural areas, it was observed that there were frequent power outages, poor or lack of internet connectivity, transportation problems and access to financial institutions was a great challenge.

In the peri-urban areas, it was observed that accessibility to modern facilities such us internet, good transportation system, electricity supply, banks among others were almost everywhere and aided easy access to electronic payments with minimal problems.

Some beneficiaries however expressed difficulty in delegating caregivers or relatives to access their funds on their behalf since beneficiaries only require authentication of transaction with their fingerprints.

Future studies will delve into other forms of electronic payment systems available in Ghana and their acceptance and success rates. This in our opinion will serve as a sound basis to make recommendations on whether or not to switch to other forms of e-payment.

Recommendation

- It is recommended that LEAP implementers should explore other forms of electronic payment systems that could allow caregivers or relatives to access funds on behalf of direct beneficiaries while safeguarding the security and integrity of the funds.
- The Internet service needs to be upgraded or updated to avoid transactional delays in payment of LEAP cash.
- It is recommended that social protection policy should take into consideration modern technological systems to make social protection programmes and projects achievable for all stakeholders.

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