

REMITTANCES AND FINANCIAL INCLUSION IN GHANA

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ABSTRACT

This paper investigated the extent to which remittances have impacted financial inclusion in Ghana. A sample of 16772 enumerated households from the GLSS6 was used for the study. The paper used Forced Entry Method to test the predictive ability of variables in the model. The paper found that internal remittances (remittances flows within Ghana) have a positive and significant influence on financial inclusion (loan request, loan grant and bank account opening). The paper further established that while external remittances (remittances to and from abroad) only influenced the probability of opening a bank account, it does not have any significant impact on loan application and loan grant to households that engage in remittances. The paper also found that remittances do not have any impact on loan request and loan grant when collateral was factored. Remittances, both internal and international, however showed a positive and a significant impact on bank account opening even after factoring collateral. The study concludes that remittances, to a large extent improve financial inclusion in Ghana. However, internal remittances have a higher potential to improve financial inclusion in Ghana than external remittances. This paper contributes to literature by indicating that remittances have a significant impact on financial inclusion but have a little impact when banks require collateral from loan applicants. This paper also serves as the foundation for the understanding of financial inclusion in Ghana.

Key Words: Collateral, financial inclusion, financial institutions, Ghana, remittances, loan application, migration

Background

Globally, migration of people from one place to another for varying reasons is not a new phenomenon. The World Bank report in 2014 on migration indicated that more than 200 million people are living in places other than their places of birth and this number continues to rise yearly. Consequently, People who migrate to other places send some remittances back home to their households for altruistic intention, self-interest motive, for repayment of loan motive and for co-insurance purpose (Solimano 2003). In the similar vein, households back home also send remittances to members living within or outside their country of origin for similar reasons. The “to and fro” of remittances has become a global concern over the years and researchers in both policy and academia are interested in finding the contribution of remittance to microeconomic and macroeconomic variables in both the countries where the migrants migrated from and countries where they settled.

Adams et.al (2008) refer to remittances as the cash and goods that are transferred to households by migrant workers who are domiciled outside the communities they come from and are currently working in an urban area or abroad. In 2010, the flow of remittances to African countries alone was US\$40billion making up 2.6% of Africa’s GDP (World Bank 2011). It is valued that the total remittances to developing countries in 2012 were US\$401billion (World Bank 2013). Considering the sum of money involved in remittance, it is important to note that it has contributed immensely to the growth and development of the home and host countries of migrants by having a robust positive influence on the economic growth of the home country (Ruiz-Arranz and Giuliano 2005; Saddique and Selvanathan 2012).

Ghana is one of the leading countries in the Sub-Sahara Africa with high level of migration statistics. In the recent Ghana Living Standard Survey (GLSS 6) report indicated that 48.6% of the Ghanaian populations who are above 7 years are migrants. In relation, unemployment rate in Ghana stood at 5.2%, accounting for the cause of migration in Ghana. The internal and international movement of Ghanaians usually results in the paying and receiving of remittances to and from household members both home and abroad. Remittances that were received by households in the urban households amounted to US\$1268.7 million which was about two times more than that received by rural households (GLSS6).

Studies have also established that financial inclusion, an integral theme in current global discussion has proved to be beneficial to many individual and households: through effective distribution of useful funds (Sarma 2008), better access to finance, thus encouraging faster and impartial growth in sinking income disparity (Beck and Demirguc-Kunt 2008; Honohan 2004), poverty reduction (Chibba 2009). While these scholars believe remittances positively influence financial inclusion, others believe remittances have no influence on financial inclusion. For instance, Fajnzylber and Lopez (2008); Anzoategui, Demirgüç-Kunt and Pería (2014) found a positive and significant impact of remittances on bank credit and bank deposit, other empirical studies such as Guliano and Ruiz-Arranz (2009) found contrary evidence to the effect that remittances relax the financial constraint of the receiving household and hence reduce the demand for loans from financial institutions thereby having a negative impact on financial inclusion. The two different schools of thought have raised the concern to examine whether or not remittances have any impact on financial inclusion in Ghana considering the migration rate of 48.6 % and annual remittance of GH¢1,673.1 as of

2014 (GLSS6). With the level of remittances flow in Ghana, the need for proper understanding and clarity on the effect of remittances on financial inclusion cannot be overemphasized.

Again, much attention has been given to the study on remittances in developed countries where data on remittances are readily available. The justification for Ghana as a study area is emphasized because there is limited and mostly inaccurate data on remittances in Ghana (Anzoategui et al. 2014). Helen and Lensik (2007) therefore advocated for more study on remittances and financial inclusion especially in developing countries. This paper examined the extent to which internal and international remittances influence financial inclusion in Ghana.

Theoretical Review

Concept of Financial Inclusion

According to Mbutor and Uba (2013) financial inclusion is a strategy aimed at increasing the number of people in an economy who are banked and hence holding a formal bank account with banks and other formal financial institutions. Beck et al. (2006) also defined financial inclusion as a banking sector outreach that allows access to formal financial services and their use by households and organizations, financial inclusion aims at advancing the use of formal mode of payments, including cheques, ATM cards, internet payments, mobile payments and others by populace. Financial inclusion is achieved by ensuring the ease of accessibility of financial services, availability, and making use of formal financial system for all members of an economy (Shankar 2013; Sarma 2008). Financial inclusion also serve as a financial deepening due to its role in increasing the size of financial system, growing diversification of firms' and households' portfolios and developing the financial markets (Visco 2007).

Dimensions of financial inclusion

Sarma (2008) defined financial inclusion as the process that guarantees easy access, availability, and use of financial services for all participants in an economy. Embedded in this definition are the three main dimensions of financial inclusion- banking penetration (Bank accessibility), availability of banking services and the usage dimension.

Banking penetration is described by Sarma (2008) as the "the size of 'banked' population i.e. the proportion of people having a bank account is a measure of the banking penetration". An appropriate straightforward alternative for access can be accomplished by counting the number of accounts that are opened through financial institutions and approximating the percentage of the citizenry with an account. *Availability of banking service* dimension measures the extent to which banking service is readily obtainable to people as and when it is needed. Sarma (2008) measured availability of banking service by "tghkghfndghe number of bank outlets (per 1000 population) and/or by the number of ATM per 1000 people". The study further considered the "number of bank employees per customer" and the "availability of internet based banking" to customers. *Usage Dimension* represent the degree to which a person who holds an account with financial institution utilizes the banking services is one of the dimensions of financial inclusion. Kempson et al. (2004) found that many people merely have accounts with financial institutions but barely utilise the service the financial institutions provide. He concluded that "a number of people with bank account are nonetheless making very little use of the services on offer...". Sarma (2008) measures the usage dimension as a proportiofsklhghdgsn of the volume of credit and deposit to GDP.

Concept of Remittance

Adams et al. (2008) defined remittance as the money and goods that are transmitted to households by migrant workers working outside of their origin communities, either in urban areas or abroad. Ratha (2003) further defined remittance as the sum of three items in the balance of payment statistics: "Compensation of Employees" (part of the income component of the current account), "Workers' Remittances" (part of current transfers in the current account), and "Migrants' Transfers" (part of the capital account). Githaiga (2014) referred to remittances as the money, its equivalents or something of value sent by individuals living or working outside their countries of birth to their home countries for the purpose of consumption by migrant family or direct investments by the migrant. Nyamongo et al. (2009) concluded that remittances are a cross-border earnings that migrants send to their countries of origin.

Remittances may either take the formal or the informal channel. Formal channels may include transfers that are usually based on the interpersonal relationships through business people, or carried out by courier companies, friends, relatives or oneself. The international standard sector on anti-money laundering and combating the financing of terrorism (AML/CFT), FATF generally describes "Formal" funds transfer systems as those included in the regulated financial system, leaving all other method of "Informal" category. The informal channels, on the other hand refers to all types of remittance transfer services that do not involve formal contracts, and hence are not likely to be recorded in national accounts (Freund and Spatafora 2005) thereby comprising 10% to 50% of the total remittances (Ratha 2003). Freund and Spatafora (2008) saw that recorded remittance is significantly influenced by the stock of migrants and the transaction cost of remittance.

Remittances and financial development

Many studies show that remittances correlate with indicators of financial development. For instance, Giuliano and Ruiz-Arranz (2005) found a robust positive impact of remittance on financial development. Moreover, threshold analyses reveal that remittances appear to substitute for a well-developed financial system by promoting growth more robustly in those countries with weak financial systems. A recent work by Aga and Martinez Peria (2014) with data from about 10,000 households in some selected Sub-Sahara Africa countries postulated that international remittances from migrants to the countries under consideration have the tendency of increasing the use of formal account in the home countries. This affirmed the study by Ambrosius (2012) that established a correlation between remittances and financial development. Extent literature in developed and developing countries has established a positive correlation between remittance and financial development in recipient economy (Aggarwal et

al., 2010; Ojapinwa and Bashorun 2014). Remittances also play a significant role in solving the liquidity constraint and provide alternative way of financing investment (Giuliano and Ruiz-Arranz 2009).

Woodruff and Zenteno (2004) believed that remittances do not only enhances financial development but promote entrepreneurial activities as well. Extent literature further reports that remittances influence investment (Adams and Cuecuecha 2013), economic growth (Abida and Sghaier 2014; Busch et al. 2002; Barajas et al. 2009; Imai et al. 2014), development (Fajnzyber and Lopez 2008), health (De Haas 2010), v reduces poverty (Adams 2004; Adams 2008; Adams and Page 2005; Gupta, Pattillo and Wagh 2009; Imai et al. 2014; Kapur 2003). However, a different line of research from Coulibaly (2015) postulated that though remittances may positively impact financial development in some countries, financial sectors in other countries may not have any significant impact as a result of remittances. This and other factors are the reason why Mexico, though the second receiver of remittances in the world, places more emphasis on interest rate and inflation than remittances in economic decision making (Ruiz and Vargas-Silva 2010). Anzoategui et al. (2014) however, did not find any relationship between remittances and the loan outcome of households, though there is a positive correlation with deposit account of households.

Theoretical foundation

Generally, there are two distinct schools of thoughts in relation to migration and development based on the pessimistic and optimistic views (Taylor1999).

Optimistic Views: Neo-Classical and Developmentalist (Classical) theory

This theory posits that remittances flow play a vital role in the development of a country. The Neo-Classical theory perceives migration as a means of optimising the allocation of factors of production to the benefit of both the sending and the receiving countries. The reallocation of resources and the balanced growth of resources is mostly deemed as the prerequisite for economic growth (Todaro 1969). The theory, however states that an unconstrained movement of labour in a free market will lead to an increment in the marginal cost of production of labour that arises from the scarcity of labour in the migrant’s sending country. This results in an increase in the wages and salaries of the migrant-sending countries. The flow of capital, including remittances, is expected to move in an exactly opposite direction as migration of labour and hence leading to a factor price equalisation (the Heckscher-Ohlin model).

Pessimistic Views: Cumulative Causation and the “Migrant Syndrome”

The pessimists see migration as the major cause of disparity between the developed and the under-developed countries. Papademetriou (1985:211-212) argued that in origin countries of the migrants, migration will lead to “the evolution into an uncontrollable depletion of their already meagre supplies of skilled man manpower-and the most healthy, dynamic, and productive members of their populations”. Again, migrants are usually educated young men and women who easily get jobs. Remittances sent to migrants’ households, who are often better-off, tend to further deepen the income inequality in the migrants’ country of origin (Lipton 1980). The exposure of wealth of remittances receiving households has the propensity of changing the local taste of these households and leads to an increase in foreign demand (Lipton 1980). This opposes the neo-classical view that remittances reduce poverty and inequality. In sum, migratory cumulative theory postulates that “migration deepens underdevelopment in migrant sending societies through various negative feedback mechanisms, which in its turn fuels further out-migration, thereby causing vicious circle of the migrant syndrome” (De Haas 2010).

Study Methods

Model Specification

This paper empirically investigate whether remittances received from both home and abroad (international and domestic remittances), and paid to household members living within Ghana and abroad have impact on the financial inclusion in Ghana. The elements of financial inclusion include *Bank Accounts Opening, Loan Request and Loan Grant*. The dependent variables used in the model are dummy (Yes/No) in nature which include *whether or not a household member has requested for a loan in the six months prior to the survey, whether or not the loan was granted and finally, whether a member of the household has a formal bank account with registered financial institution*. The paper used binary logistic regression which models how binary response variables depend on a set of explanatory variables, which can be categorical, continuous or a mix of both of them in a model. The data for this paper was derived from 2012/2013 Ghana Living Standard Survey round 6 (GLSS6). Out of 18,000 households, 16,772 households were successfully enumerated. Remittances, as used in the study, comprise goods, cash and non-cash items received and issued by households

Empirical Models

Using Binary logistic method the paper employed Forced Entry Method, which by default allows all the predictor variables to be tested in one block to determine their predictive ability while controlling for the effects of other predictors in the model. The models adopt and modify certain household characteristics and human capital variables as used by Adams et al. (2008).

Financial Inclusion Model

$$Financial\ Inclusion_i = \ln \left[\frac{\rho(x)}{1-\rho(x)} \right] = \beta_0 + \beta_1 ExtRemitRec_i + \beta_2 interRemitRec_i + ExtRemitGiv_i + \beta_4 InterRemitGiv_i + \beta_5 HHSize_i + \beta_6 MalesAbove18_i + \beta_7 FemalesAbove18_i + \beta_8 MembersSHS_i + \beta_9 MembersTer_i + \beta_{10} Salaries_i + u_i \dots \dots \dots (e)$$

Where;

ExRemitRec is whether or not a member of each of the households receive remittances from abroad, InterRemitRec represents whether or not a member of each of the households receive remittances from other members within Ghana (internal or domestic remittances), ExterRemitGiv represents whether or not households members paid out remittances to others living outside Ghana,

and finally, InterRemitRec represents whether or not households' members, from the survey results, paid out remittances to others living within Ghana.

On the part of household characteristics, HHSize represents the size of the households under consideration. That is the number of people living in each of the 16772 households.

MalesAbove18 represents the number of households that have male members who are 18 years and above 18 years, whereas FemalesAbove18 is the number households with female members who are 18 years and above, Salaries is a dummy variable that denotes whether or not households receive monthly salaries.

On the part of the human capital variables in the model, MembersSHS is the number of households with members who have attained SHS education, and MembersTertiary is the number of households that have members who have attained tertiary education.

Result and Findings

Data description

This section presents an initial summary of the variables being studied. Summary statistics comprising frequencies, means and standard deviations of the variables used in the model are discussed.

Table I: Descriptive Statistics of the Dependent variables and some independent variables

	Yes		No		Total	
	Freq.	Per.	Freq.	Per.	Freq.	Per.
Loan Application	1954	11.7	14806	88.3	16760	100
Loan Granted	1778	10.6	14994	89.4	16772	100
Bank Account	8026	47.9	8732	52.1	16758	100
Received External Remittances	13	0.1	16759	99.9	16772	100
Received Internal Remittances	773	4.6	15999	95.4	16772	100
Paid External Remittances	55	0.3	16717	99.7	16772	100
Paid Internal Remittances	493	2.9	16279	97.1	16772	100
Salaries	798	4.8	159974	95.2	16772	100

Table I shows the summary of the frequencies and percentages for each of the variables. In the case of loan application, 1954 (11.7%) out of the 16760 households responded that they have applied for a loan from financial institutions while 14806 (88.3%) indicated that they have not applied for loans in the past six months prior to the survey. With regards to loan granted, only 1778 (10.6%) out of the 16772 respondent households on loan grant, had been granted loan by financial institutions. 852(47.9%) per cent of the households have an official account with financial institutions and 926(52.1%) per cent have no account with any financial institution. This shows that majority of the respondents do not either have access to a financial institution or do not see the need to have a bank account. It is also observed that only 13(0.1) households have received remittances from outside Ghana while 773(4.6%) households out of the total 16772 households received remittances from people within the country six months to the survey. Again, only 50(0.3%) household paid external remittances while and 486 (2.9%) households paid internal remittances. Lastly, out of the 16772 households, only 798(4.8%) households receive monthly salaries. It is seen that about 15974 (95.2%) percent of the households do not receive any monthly salaries.

Table II: Descriptive Statistics of the independent variables

Variables	Description	Obs.	Sum	Mean	Sd.
Hhsiz	Total number of respondents in each household	16772	37135	2.21	1.671
MalesAbove18	Number of male members who are 18 years above 18 years in each of the households	15452	35055	2.09	1.643
FemalesAbove18	Number of female members in each of the households under consideration who are 18 years above 18 years in each of the households	15452	37317	2.22	1.723
MembersSHS	Number of respondents who have attained SHS level of education	15452	4226	0.27	0.583
MembersTer	Number of respondents who have attained Tertiary level of education	15452	2856	0.18	0.509

Table II of this paper shows the number, sum, mean and standard deviation of human capital pertaining to education and certain household characteristics variables used in the model. The table indicates that, 37,135 people in all are living in 16772 households and on average, 2 people live in each of the households. The average number of females and males who are 18 years and above living in 15452 households each with 35055 and 37317 respondents that responded to the survey respectively is 2. Again, less than one person from each of 15452 households has attained the secondary and tertiary levels of education. This

indicates that the human capital component of the model is low. For instance, the number of households with members having SHS and Tertiary level of education is 0.27 and 0.18 respectively.

Table III: Crosstabulation showing the relationship between Received External Remittance and Received Internal Remittance

			Internal remittance(rec'd)		Total
			Not received	Received	
External Remittances (Received)	Not received	Count	15995	764	16759
		% within external remittance (rec'd)	95.40%	4.60%	100.00%
		% within internal remittance(rec'd)	100.00%	98.80%	99.90%
		% of Total	95.40%	4.60%	99.90%
	Received	Count	4	9	13
		% within external remittance (rec'd)	30.80%	69.20%	100.00%
		% within internal remittance(rec'd)	0.00%	1.20%	0.10%
		% of Total	0.00%	0.10%	0.10%
	Total	Count	15999	773	16772
		% within external remittance (rec'd)	95.40%	4.60%	100.00%
% within internal remittance(rec'd)		100.00%	100.00%	100.00%	
% of Total		95.40%	4.60%	100.00%	

From table III, out of a total of 16759 respondent households who received no remittances from abroad, 15995 (95.4%) have not also received internal remittances. 764 (4.60%) who have not received external remittances received internal remittances. Out of the total 13 households who claim to have received external remittances, 4(30.80%) households received no internal remittances and 9(69.20%) households, received internal remittances. Out of the total number of 16772 households who responded as to whether they either received external remittances or not, 15999 (95.40%), did not receive internal remittances. 773(4.60%) households of the 16772 households received internal remittances.

Table IV: Crosstabulation showing the relationship between Paid External Remittance and Paid Internal Remittance

			Internal remittance(Paid)		Total
			Not Paid	Paid	
External Remittances (Paid)	Not Paid	Count	16234	483	16717
		% within external remittance (Paid)	97.10%	2.90%	100.00%
		% within internal remittance(Paid)	99.70%	98.00%	99.70%
		% of Total	96.80%	2.90%	99.70%
	Paid	Count	45	10	55
		% within external remittance (Paid)	81.80%	18.20%	100.00%
		% within internal remittance(Paid)	0.30%	2.00%	0.30%
		% of Total	0.30%	0.10%	0.30%
	Total	Count	16279	493	16772
		% within external remittance (Paid)	97.10%	2.90%	100.00%
% within internal remittance(Paid)		100.00%	100.00%	100.00%	
% of Total		97.10%	2.90%	100.00%	

From table IV it is observed that out of a total of 16717 households who claimed not to have paid any remittances outside Ghana, 16234 (97.10%) who did not pay remittances abroad, did not pay remittances to people in Ghana either. 483 of the households paid remittances to people within Ghana though these households did not pay any external remittances. A total of 55 respondent households paid remittances to other people outside Ghana, out of which 45(81.80%) of the households who paid remittances abroad, do not give remittances to people within Ghana. Only 10 households out of the 55(18.20%) households paid internal remittances. Out of the total number of 16772 households who responded as to whether or not they paid external remittances, 16279 (97.10%), did not send internal remittances. 493 (2.90%) paid internal remittances.

**Discussion of Findings
Remittances and Loan Application**

This sub-section provides findings based on the first objective of this paper- impact of remittances on loan application. Results are presented in Table 5. Logistic regression is used to examine the likelihood that a household will apply for a loan. Results presented include the coefficients (*B*), the p-values (*Sig.*) and the odds ratio (*Exp(B)*). Also reported is some goodness of fit indicators (Omnibus test and Hosmer and Lemeshow test) for the model.

Table V: Logistic Regression results showing how remittances influence Loan Application

		Internal remittance(Paid)		Total	
		Not Paid	Paid		
External Remittances (Paid)	Not Paid	Count	16234	483	16717
		% within external remittance (Paid)	97.10%	2.90%	100.00%
		% within internal remittance(Paid)	99.70%	98.00%	99.70%
	Paid	% of Total	96.80%	2.90%	99.70%
		Count	45	10	55
		% within external remittance (Paid)	81.80%	18.20%	100.00%
		% within internal remittance(Paid)	0.30%	2.00%	0.30%
		% of Total	0.30%	0.10%	0.30%
		Total	Count	16279	493
% within external remittance (Paid)	97.10%	2.90%	100.00%		
% within internal remittance(Paid)	100.00%	100.00%	100.00%		
% of Total	97.10%	2.90%	100.00%		

From table V, the coefficient for received internal remittance is .233 with an odds ratio greater than 1. This indicates that as more households receive internal remittances, the chances that they will apply for loans increases. In relation to the odds ratio of 1.262 ($Exp(B) = 1.262$), the implication is that households that received internal (domestic remittances) are 1.262 times more likely to apply for loans than households that do not receive remittances within Ghana. Again, Households that paid remittances to others living within Ghana have positive impact on the request for loans, with an odds ratio greater than 1 ($Exp(B) = 1.79$, $p = 0.000$). This implies that as more households paid out remittances to people within Ghana, the higher will be the probability of loan application.

It is observed from Table V that households that have members who have attained tertiary education are 1.085 times more likely to request for loans from financial institutions than households without members with tertiary education. This is in line with the findings of Todaro (1976) and Shultz (1982) that as people pursue higher education they secure a better job and hence have the requirement for loan application from financial institutions. Again, households that have salaried workers are a time more likely to request for loans than households without salaried workers as members. This is due to the fact that the loan application process and requirement for salaried workers is less cumbersome

Remittances and Loan Grant

The second objective of this paper is to examine how remittances influence the acquisition of loans. Results are presented in Table VI. Logistic regression is used to examine the likelihood that a household loan will be granted. Results presented include the coefficients (*B*), the p-values (*Sig.*) and the odds ratio (*Exp(B)*).

Table VI: Logistic Regression results showing how remittances influence Loan Granted

		Loan Granted		
		Coefficient	Sig.	Exp(B)
	Received External Remittance	-0.941	.378	.390
	Received Internal Remittance	.382***	.000	1.465
	Paid External Remittance	.370	.310	1.448
	Paid Internal Remittance	.727***	.000	2.069
	HHSize	-.104***	.000	.901
	MalesAbove18	-.061	.161	.940
	FemalesAbove18	.082***	.000	1.086
	MembersSHS	.108*	.017	1.114
	MembersTer	.478***	.000	1.613

	Salaries	.304**	.001	1.996
	Constant	-2.295	.000	.101
Pseudo R ²	Cox & Snell R Square	0.18		
	Nagelkerke R Square	0.36		
Omnibus Test		256.301***	.000	
Hosmer and Lemshow Test		34.929	.061	

Households that receive internal remittances are seen to significantly influence loan acquisition. The result shows an odds ratio of 1.465 and coefficient of 0.382 ($Exp(B) = 1.465, p < 0.001$) supporting the view of Fajnzylber and Lopez (2008) that financial institutions are willing to give loans to households that they have enough information on as a result of frequent receipt of remittances. Households that paid out remittances to people within Ghana also have a significant impact on the acquisition of loans with an odds ratio 2.069 more than households that do not receive internal remittances supporting previous studies (Anzoategui, 2014). Household size, though significant, negatively influences the probability of households receiving loans from financial institutions with odds ratio of less than 1 ($Exp(B) = 0.901$) indicating that the larger the household size, the less likely that the household will have their loans granted.

Certain household characteristics such as number of households that have female members who are 18 years and above have significant impact on the probability that a household will receive a loan. This means that financial institutions are willing to grant loans to females than males. Again, the number of households with members having attained tertiary education has the highest odds ratio indicating a strong positively significant impact on loans acquisition. This confirms Mincer's (1974) assertion that education increases financial inclusion, specifically loan acquisition. Lastly, the result found a significant and positive relationship between loan grant and salaries. Households that have members who receive monthly salaries are almost twice likely to be granted loans than households whose members do not receive monthly salaries.

Table VII: Logistic Regression results showing how remittances actually received influence Loan Granted

		Loan Granted		
		Coefficient	Sig.	Exp(B)
	Received Internal Remittance	0.08	0.732	1.083
	Paid External Remittance	-1.492	0.163	0.225
	Paid Internal Remittance	0.772**	0.001	2.164
	HHSize	-0.003	0.951	0.997
	MalesAbove18	0.03	0.75	1.031
	FemalesAbove18	0.071	0.106	1.074
	MembersSHS	-0.144	0.173	0.866
	MembersTer	0.313**	0.004	1.368
	Salaries	0.53**	0.003	2.452
	Constant	-1.439	0.000	0.237
Pseudo R ²	Cox & Snell R Square	0.26		
	Nagelkerke R Square	0.39		
Omnibus Test		43.491***	.000	
Hosmer and Lemshow Test		14.325	.074	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table VII shows the factors that interplayed in influencing financial institutions' decision to grant loans to some 1,954 households out of the 16,772 households that actually made a request for loans with financial institutions. The focus of this test is to find out how remittances influenced the probability that financial institutions will grant loans to applicant households when loan application was indeed made. It is observed that only households that pay internal remittances ($Exp(B) = 2.164, p = 0.001$), households that have members with tertiary education ($Exp(B) = 1.368, p = 0.004$) and salaries ($Exp(B) = 2.452, p = 0.003$) are the factors that are significant and positively influence applicants' loans to be granted.

A household that sent remittances within the country had 2.164 times likelihood to receive a loan from a bank than households that did not send remittances to others. Again, households that have members with tertiary education also had 1.368 chances of receiving loans from financial than households that do not have members with tertiary education. The result affirms some of the earlier finding in table 6 that financial institutions are willing to grant loans to applicant with tertiary level of education because

of the minimum risk of default among such members. Households that have members who receive monthly salaries actually were twice more than households that do not receive any monthly salaries in terms of loans grants.

Remittances and Bank Account Opening

In this sub-section, direct logistic regression was performed to examine how remittances influence the chances of households opening a bank account with financial institutions, the third objective of this paper, on the part of households that engage in remittances. For simplicity purpose, and as done in the previous sub-sections, the coefficients (B), the p-values (Sig.) and the odds ratio (Exp(B)) are reported in table 8.

Table VIII: Logistic Regression results showing how remittances influence opening of Bank Account

		Bank Account		
		coefficient	Sig.	Exp(B)
	Received External Remittance	-.713	.376	.490
	Received Internal Remittance	.345***	.000	1.413
	Paid External Remittance	1.044**	.007	2.841
	Paid Internal Remittance	.106	.341	1.112
	HHSIZE	-.036*	.014	.965
	MalesAbove18	.015	.648	1.015
	FemalesAbove18	-.086***	.000	.917
	MembersSHS	.964***	.000	2.622
	MembersTer	2.129***	.000	8.407
	Salaries	2.014***	.000	2.986
	Constant	.000	.996	1.000
Pseudo R ²	Cox & Snell R Square	.199		
	Nagelkerke R Square	.266		
Omnibus Test		3090.310***	.000	
Hosmer and Lemshow Test		35.766***	.063	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The result shows that households that received internal remittances have a high chance of opening accounts with financial institutions. The odds ratio of 1.413 indicates that households that received remittances from Ghana are over 1.4 times more likely to open an account than households that do not receive internal remittances. This is so because many of the internal transfers are often done with financial institutions.

Again, the result shows that households that sent remittances to others living outside Ghana are 2.841 times likely to open a bank account than other households that do not send remittances abroad. This explains that households that send remittances abroad will need to have an account with financial institutions in order to enjoy certain benefits like ATM transaction, online banking that may facilitate smooth transfer of remittances to people living outside Ghana.

Certain household characteristics in the model such household size, number of households that have female members who are 18years and above significantly but negatively influence the probability that a household will have an official bank account. As expected, the paper found that households with members who are salaried workers are likely to have an official account with financial institutions. This is the case because most monthly salaries are paid through financial institutions and hence the likely tendency that such members will have an official account.

On education, the paper found that as members of households graduate from one level of education to the other (From SHS to tertiary institutions) the probability of the household opening an account increases accordingly. The paper found that number of households with members having tertiary education, which is the strongest predictor, is 8 times more likely to open an account than households that do not have members with tertiary level education. This indicates that, in the model and among the variables used, households with more educated members are more likely to have a bank account, most especially tertiary education.

Control for Collateral

The paper further takes into consideration assets that are owned by households which can serve as collateral for loans request and loans grant. Assets that serve as collateral in this paper include home appliances, lands and buildings and vehicles that are owned by the 16772 households.

Table IX: Logistic Regression results showing how remittances influence Loan Application when Collateral is considered

Loan Application		coefficient	Sig.	Exp(B)
	ExtRemitRec	19.53	0.999	30.901
	InterRemitRec	-0.232	0.139	0.793
	ExtRemitGiv	-0.516	0.15	0.597
	InterRemitGiv	0.586	0.510	0.557
	HHSize	-0.113***	0.000	0.893
	MalesAbove18	-0.024	0.59	0.977
	FemaleAbove18	0.031	0.135	1.031
	MembersSHS	-0.014	0.763	0.986
	MembersTer	0.081*	0.022	1.085
	Salaries	0.001	0.613	1.001
	Land & Building	0.675*	0.019	1.200
	Vehicle	17.081	1	26.33
	Appliances	-17.657	0.999	0.000
Pseudo R ²	Cox & Snell R Square	0.06		
	Nagelkerke R Square	0.12		
Omnibus Test		83.27***	0.000	
Hosmer and Lemeshow Test		14.134	0.078	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table IX presents the coefficients (B), the p-values (Sig.) and the odds ratio (Exp(B)). The paper found that land and building owned by households is positively significant to loan application with odds ratio and P-Value of $Exp(B) = 1.200$ and $p = 0.009$ respectively. In essence, households that possess land and building are 1.2 times more likely to request for loans than households that do not own land and building. Household size has odds ratio of $Exp(B) = 0.113$ and P-Value of $p = 0.000$ indicating that household size is significant but negatively related to loan request. Households with members that have attained tertiary education are also more likely to apply for loans with odds ratio and P-Values of ($Exp(B) = 1.085$, $p = 0.022$).

Table X Logistic Regression results showing how remittances influence Loan Grant when Collateral is considered

Loan Grant		coefficient	Sig.	Exp(B)
Step 1a	ExtRemitRec	0.941	0.377	2.564
	InterRemitRec	-0.381	0.343	0.684
	ExtRemitGiv	-0.369	0.312	0.691
	InterRemitGiv	0.726	0.411	1.484
	HHSize	-0.104***	0.000	0.901
	MalesAbove18	-0.061	0.163	0.941
	FemalesAbove18	0.082***	0.000	1.085
	MembersSHS	0.108**	0.017	1.114
	MembersTer	0.479***	0.000	1.614
	Salaries	-0.004	0.062	0.996
	Land& Building	0.585*	0.043	1.324
	Vehicle	16.573	0.786	1.5763
	Appliances	-17.226	0.999	0.543

Pseudo R ²	Cox & Snell R Square	0.018	
	Nagelkerke R Square	0.036	
Omnibus Test		259.41***	0.000
Hosmer and Lemeshow Test		33.59	0.062

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table X shows the results of how remittances influence the probability that a household will be granted loan by financial institutions. The table reports the coefficients (B), the p-values (Sig.) and the odds ratio Exp (B). From Table X, land and building is significant and positively correlated with loan grant with odds ratio and P-Value of $Exp(B) = 1.324$ and $p = 0.043$ respectively. Households that own land and building are 1.324 times more likely to be granted loans than households that do not have land and building. Other variables that are significant and positively impact the chances of a household being granted a loan are households with female members who are 18 years and above. Again, households whose members have attained SHS and tertiary education are likely to be granted loans with odds ratio and P-Values of ($Exp(B) = 1.114$, $p = 0.017$) and ($Exp(B) = 1.614$, $p = 0.000$) respectively. Household size, however, reduces the chances that a household will be granted loans. This may be due to the high dependency ratio that exists in households in Ghana specifically the 16772 households under consideration.

Table XI: Logistic Regression results showing how remittances influence Bank Account Opening when Collateral is considered

	Bank Account		
	coefficient	Sig.	Exp(B)
ExtRemitRec	0.714	0.375	2.041
InterRemitRec	0.346*	0.031	1.707
ExtRemitGiv	1.045*	0.023	1.352
InterRemitGiv	-0.106	0.338	0.899
HHSize	-0.035*	0.015	0.966
MalesAbove18	0.015	0.653	1.015
FemalesAbove18	-0.086***	0.000	0.917
MembersSHS	0.965***	0.000	2.624
MembersTer	2.129***	0.000	8.409
Salaries	-0.014	0.210	0.986
Land & Building	0.385**	0.002	1.996
Furniture	21.224	1	1.65
Appliances	-0.049	0.977	0.952
Pseudo R ²	Cox & Snell R Square	0.2	
	Nagelkerke R Square	0.266	
Omnibus Test		3095.193	0.000
Hosmer and Lemeshow Test		35.96	0.710

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table XI shows the extent to which remittances influence households' decision to have an official account with formal financial institution after considering assets that can serve as collateral. The table shows that households that receive internal remittances and pay external remittances have positive probability of opening a bank account with odds ratio and P-Values of $Exp(B) = 1.707$, $p = 0.031$ and $Exp(B) = 1.352$, $p = 0.023$ respectively. From table XI, households that receive internal remittances are 1.7 times more likely to have an account with financial institutions than households that do not receive remittances with P-Value of 0.031. Again, households are 1.352 times more likely to open an account to enhance the transactions than households that do not send remittances abroad. In essence a unit increase in the number of households that sends remittances abroad increases the probability that households will open an account with formal financial institutions by 1.045.

Human capital used in the model in the form of formal education shows that education has a higher tendency on improving bank account opening among households as found in the results in table 11 when collateral was not factored. Again, variables in the model that represent households' characteristics (age in years of household heads, number of female members in a household who are 18 years and above and household size) is significant but negatively influence the probability of a household opening account with financial institutions. Households that have land and buildings have a positive probability of opening an account

with an odds ratio and P-Value of $Exp(B) = 1.996$ and $p = 0.002$ respectively. These households are likely to have an account with financial institutions, among other reasons, to increase their chances of acquiring loans when the need arises.

Conclusion and Recommendations

This paper empirically investigated the extent to which remittances influence financial inclusion in Ghana. The paper took into consideration external remittances and internal remittances.

On internal remittances, the paper concludes that internal remittance significantly influences financial inclusion in Ghana. Internal remittances positively and significantly influence financial inclusion in all the three objectives (loan request, loan grant and bank account).

On external remittances, the paper concludes that external remittances do not significantly influence financial inclusion in Ghana. Specifically, external remittances do not have any significant impact on loan application and loan grant but have a positive and a significant impact on bank account opening.

On ownership of assets, the paper concludes that a household with land and building increases the probability of applying for loan from financial institutions. Also financial institutions are also likely to grant loans to households that have some form of assets. The implication is that, in situations where collateral is considered, financial institutions do not mind whether a household receives or send remittances.

From the paper, the only instance where remittances impact financial inclusion when collateral is factored in the model is the probability that a household will have accounts with financial institutions. Households that receive internal remittances and households that send external remittances will need to have accounts with financial institutions to facilitate the transfers and hence the reason for the positive impact

All in all, the study concludes that remittances, to a large extent, improve financial inclusion in Ghana. Internal remittances have a higher potential to improve upon financial inclusion in Ghana than external remittances. Again, remittances will have a very little impact on financial inclusion when financial institutions demand collateral security upon loan application and as a basis for loan grant.

Recommendations and future research

It has been established from the paper that remittances have a significant impact on financial inclusion but have a little impact when banks require collateral from loan applicants. To make remittances more effective in improving upon financial inclusion, the government of Ghana, as part of its financial inclusion strategy, should incorporate factors that financial institutions could rely on in granting loans rather than assets. These factors can be the frequency with which customers use financial services, the number of months or years of loyalty, the viability of the purpose of the loan and many others.

Again, there is the need for stakeholders and policy makers to educate the general populace on the microeconomic and macroeconomic benefits of financial inclusion. This will motivate Ghanaians to embrace financial service rather than the orthodox and informal means of saving money and transferring money.

There are a lot of avenues for future research. It would be very interesting to embark on a research to examine the extent to which respondents who open bank account with financial institutions actively use the account they open for daily transactions. Again, it would useful to make deeper analysis on the reasons why respondent households hardly engage in external remittances and the reasons why external remittances do not have any significant impact on loan request and loan grant.

Contribution of the Study

The paper contributes to knowledge by revealing that internal remittances result in financial inclusion (loan request, loan grant and bank account opening). Again, external remittances (remittances to and from abroad) only influenced the probability of opening a bank account, not loan request and loan grant to households that engage in remittances. The study contribute to policy and practices by revealing that when financial institutions demand collateral, loan request and loan grant does not have any relationship with remittances. Lastly, remittances, both internal and international have an influence on a household opening a bank account even when financial institutions demand collateral.

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