Remittance and Household Expenditures in Kenya

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Abstract

Remittances constitute an important source of income for majority of Kenyan households. The World Bank reports a steady increase in inward remittance flows to Kenya. In addition, the evolution of mobile-money services has led to an increase in domestic remittances received by Kenyan households, especially those in the rural areas. This paper endeavors to answer the question of how these increased remittance receipts are used in Kenya focusing on Education, Health, Food and "Other" household expenditure, using a panel survey of 295 households from Rift Valley and Nyanza provinces of Kenya. The Fixed Effects (FE) model is applied on the data, and the analytical results provide evidence that remittances are mainly used on immediate consumption needs such as payment of utility bills and transportation costs.

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1. Introduction

Remittances refer to money and goods that are transmitted to households by migrant workers working outside of their origin community (Adams and Cuecuecha 2010). Remittances have become a crucial element in modern socio-economic life of Kenya. The World Bank reports the steady increase in inward remittance flows to Kenya to have reached US $1.7 billion in 2009, representing a 5.4 percent of Kenya's gross domestic product (GDP), which is significantly higher than official aid-related flows into the country (World bank 2011).[1] Regarding domestic remittances in Kenya, the evolution of mobile-money transfer systems such as M-PESA, Zap, Orange money and YuCash [2], have enabled users to send money to their families and friends cheaply and frequently, and hence a marked increase has been observed in domestic remittances received by households especially those in rural homes. For instance, M-PESA users are reported to have transferred more than KSH 727.8 billion (approximately US $8 billion) in 2010 according to Central Bank of Kenya (CBK) statistics (CBK 2010). These remittances provide vital source of income for rural households in Kenya (Evans and Ngau 1991). Indeed, Kabbucho, Sander and Mukhwana (2003) found that, 30 percent of Kenyan households depend on remittances for their survival.

The increased remittance flows to Kenya have attracted attention of the Kenyan government, International agencies (e.g. the World Bank) and Non-governmental organizations, who are engaged in designing policies for better management of remittances in order to maximize the benefits of these remittances for the Kenyan people and the country as a whole. However, there is little information about the potential use and hence impacts of the increased remittance receipts to Kenyans, especially at the household level. The question of how remittances are spent by remittance recipient households has not been studied empirically. The existing studies such as Future for African Remittances (FAR) (2010) adopted a direct approach based on the use of household surveys which ask how remittances are spent but do not ask how much is spent. However, it is acknowledged that using this method to draw inferences about the use of remittances offers only a partial answer and it can generate misconceptions and sometimes lead to

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[1] These figures for official aid related flows do not include the large and unknown amount of international remittances which return to Kenya through unrecorded, informal channels.

[2] Pesa is a Swahili word, a national language in Kenya, meaning money. Hence M-PESA means Mobile-money. M-PESA operates an electronic float (e-float) and the M-PESA agents are required to buy a certain amount of e-float when they join the network, usually a minimum of about $640. The e-money purchased by a registered user can be sent to other registered or non-registered users, and withdrawn at any M-PESA agent. There are other mobile-money transfer services on Kenyan markets such as Zap, Orange-Money, and YuCash, but M-PESA is the most wide spread and commonly used mobile-money service.

incorrect conclusions (Taylor and Mora 2006). The present study, therefore, seek to empirically examine the impacts of remittances on several household expenditure categories which include: Education, Health, Food and "Other" expenditures, and make an inference on how remittances are spent in Kenya. It is acknowledged however that, international remittances can influence household expenditures differently from internal remittances (Castaldo and Reilly 2007). Although the present study considers the total amount of remittances received in a household, and does not distinguish between international and internal remittances, it is to the best of my knowledge the first attempt to study empirically the impacts of remittances on household expenditures in Kenya.

The results in the study are drawn from a two-wave (2007 and 2009) panel data set of households from Rift Valley and Nyanza provinces of Kenya. In the year 2007, about 800 rural households in central and western regions of Kenya were interviewed twice in a panel survey (Yamano et al 2011). Then in March 2009, the research conducted a sub-sample survey of the sample households who were originally located in Rift Valley province and the adjacent Nyanza province[3]. The econometric analysis applied on this data is situated within the Fixed Effects (FE) model. A set of budget share equations for different components of consumption aggregate are estimated, and a remittance variable is added as a regressor in each equation. This approach has the advantage of overcoming the problem of the fungibility of remittances, as well as allowing the simultaneous analysis of the effect of remittances on expenditure on different types of goods while controlling for endogeneity of remittance. Recent studies that adopted this methodology include Maitra and Ray (2003) in the context of South Africa, Zarate-Hoyos (2004) in Mexico, Taylor and Mora (2006) in Mexico, Castaldo and Reilly (2007) in Albania, and Nagarajan (2009) in South Africa.

The analytical results from this study provided evidence that remittances are mainly used on immediate consumption needs such as payment of utility bills and transportation costs of the remittance recipient households. The balance of the paper is organized as follows: section 2 describes the data and presents descriptive statistics; section 3 presents the model and empirical specifications; section 4 discusses the econometric results; and section 5 concludes with policy implications.

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[3] Due to new constitution in Kenya, provinces are no longer used as the provincial administration and demarcations. They were replaced with counties.

2. Data and Descriptive Statistics

2.1 Source of Data

The study used pooled data of 295 households from Rift Valley and Nyanza provinces of Kenya interviewed in 2007 and followed up in 2009. The households are sub-samples of 800 households that participated in 2004 surveys as part of the Research on Poverty, Environment, and Agricultural Technology Project (R*e*PEAT)[4]. The RePEAT survey was jointly conducted by Tegemeo Institute,[5] the Foundation for Advanced Studies on International Development (FASID), and the National Graduate Institute for Policy Studies (GRIPS). The original 2004 survey collected detailed information on agricultural production and poverty in Kenya. In addition, data on a wide range of topics including the demographic characteristics of households, education, household expenditures, and remittance receipts were also collected. In March 2009, all sampled households in the 2004 survey were surveyed in Rift Valley province and the adjacent Nyanza province.

Since the focus of this study is on remittances, it is important to clarify how these income transfers are measured and defined. Each household that is recorded as receiving remittances is assumed to be receiving exactly the amount of remittances measured by the survey in each year. Since no data are available on remitters, each household that is recorded as being remittance recipient household is assumed to be receiving from one remitter. Because of data limitations, the focus throughout this study is on remittance recipient households rather than the type of persons sending remittances. Finally, all remittances in this study are "cash" remittances in Kenya shillings (KSH). Remittances in kind (food and non-food items) are not included in the calculations. To the extent that remittances in kind are important in Kenya, this later point may lead to an under-counting of the actual flow of remittances to households in Kenya, particularly in the sampled regions.

2.2 Descriptive statistics

Table 1 presents the descriptive statistics based on the remittance receiving status. The results shows that, in the RePEAT survey, 44.4 percent of the sampled households reported to have received remittances while 55.6 percent reported to have not received remittances.[6] The

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[4] R*e*PEAT is funded by GRIP's 21st century Center of Excellence (COE) and Global COE projects (Yamano et al 2005). Questionnaires and other detailed information can be obtained from http://www3.grips.ac.jp/~21coe/j/index.html.

[5] Tegemeo a research institute managed by Egerton University in Kenya.

[6] Out of 262 households who reported to have received remittances 119 (40.3 percent of sampled households) received in 2007 while 143 (48.8 percent of sampled households) received in 2009. For those

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summary statistics also show that households receiving remittances are significantly different from non-remittance receiving households in many socio-economic characteristics. For instance, remittance recipient households, on average, have older household heads. In addition, the remittance receiving households are smaller than non-remittance receiving households. This result suggests that, remittance senders are household members who are away currently living in the city or abroad. Indeed, the number of household members absent to find a job is about 45.5 percent in remittance receiving households and only 20.1 percent in non-remittance receiving households.

Table 1: Descriptive Statistics of households based on Remittance Receipt status

Variable	All		With Remittances		Without Remittances		
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	t-test
Total *per capita* household expenditures in KSH	13720.07	12802.26	13198.55	11176.31	14136.64	13968.75	**0.884**
Age of household head	56.66441	13.76849	60.61832	13.804	53.5061	12.91657	**6.445***
Household size	6.813559	3.153	6.137405	3.264258	7.353659	2.956864	**4.739***
Number of absent household members out to find a job	0.313559	0.688237	0.454199	0.846336	0.20122	0.502956	**4.508***
Household head age is below 40 years (=1)	0.133898	0.340832	0.08397	0.277873	0.173781	0.3795	**3.205***
Household head age is between 41 - 50 years (=1)	0.220339	0.414827	0.133588	0.34086	0.289634	0.454286	**4.617***
Household head age is between 51 - 60 years (=1)	0.261017	0.439562	0.225191	0.418507	0.289634	0.454286	**1.772***
Household head age is between 61 - 70 years (=1)	0.216949	0.412517	0.316794	0.466117	0.137195	0.344579	**5.377***
Household head age is over 70 years (=1)	0.166102	0.372488	0.236641	0.425834	0.109756	0.313063	**4.167***
Household head has primary education (=1)	0.50339	0.500413	0.553435	0.498088	0.463415	0.499422	**2.178****
Household head has secondary education (=1)	0.261017	0.439562	0.198473	0.399614	0.310976	0.4636	**3.111***
Household head has college education (=1)	0.054237	0.226678	0.019084	0.137082	0.082317	0.275267	**3.396***
Sample size	590		262		328		

Source: Estimates based on RePEAT survey, 2007 & 2009 in Western Kenya. *** indicates significant at 1%. ** indicates significant at 5%. * indicates significant at 10%.

Regarding education levels of the household head, the summary data show that low educated household heads are found more often in remittance recipient households while household heads with secondary or college levels of education are found in non-remittance recipient households. Since education levels are a signal for labor income levels, this result suggests that remittance

not receiving 176 (60.0 percent of sampled households) did not receive in 2007 while 152 (51.5 percent of sampled households) in 2009.

receiving households have relatively low income levels. The result is reinforced by the finding of low per capita household expenditure in remittance recipient households, although the difference is insignificant.

Next, the type of expenditure data in RePEAT survey is presented. Table 2 shows that the RePEAT survey in Kenya collected detailed information on four main categories of expenditures, and several subdivisions within each category. While the time base for these expenditure outlays varied from the last one week for some food items to last 12 months for most of non-food items, all expenditures were aggregated to obtain yearly values.

Table 2: Expenditure categories in RePEAT Survey, 2007 and 2009 in Western Kenya

Category	Description	Examples
Food	Purchased food	Bread, milk, meat, fruits, vegetables
	Non-purchased food	Food from own production, gifts, donations, social programs
Education	Educational expenses	Books, school uniform, school supplies, registration fees
Health	Health expenses	Medicine, doctor fees, tests, X-rays
"Other"	Household services	Electricity, gas, kerosene
	Transportation	Transport costs
	Contributions	Church offerings, ROSCAs, remittances to relatives

Source: RePEAT Survey, 2007 & 2009 in Western Kenya.

Table 3: Average budget shares by household remittance receiving status

Category	Average Budget Shares						Percentage difference of Remittance Vs. Non-Remittance Receiving Households		
	Remittance Receiving			Non-remittance receiving					
	2007 (N=119)	2009 (N=143)	All (N=262)	2007 (N=176)	2009 (N=152)	All (N=328)	2007	2009	All
	%	%	%	%	%	%	%	%	%
Food	50.62	51.60	51.16	46.24	49.21	47.61	9.47	4.86	7.45
Education	10.69	13.43	12.18	18.14	15.90	17.10	-41.07	-15.54	-28.77*
Health	6.21	3.89	4.94	4.05	4.80	4.40	53.33	-18.96	12.27
"Other"	25.27	25.35	25.31	23.68	22.64	23.19	6.71	11.97	9.14
	Average absolute amounts in Kenya shillings						Percentage difference		
Food	23253.71	39180.84	31946.76	30343.98	41679.24	35596.9	-23.37	-6.00	-10.25
Education	8099.412	14349.69	11510.82	18517.93	21010.79	19673.16	-56.26	-31.70	-41.49

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Health	5515.546	3438.252	4381.756	3815.114	4935.559	4334.345	44.57	-30.34	1.09
"Other"	12769.75	19551.75	16471.38	18674.76	22191.42	20304.43	-31.62	-11.90	-18.88

*Source: Estimates based on RePEAT survey, 2007 & 2009 in Western Kenya. * indicates significant at 10%.*

Table 3 above shows the average budget shares devoted to each of the four categories of goods by household remittance status. The results show that, on average, remittance receiving households spend more on food and "other" expenditures, which are clearly consumption goods; than non-remittance receiving households (although the percentage difference is not significant). In addition, the descriptive statistics show that education expenditures are significantly lower in remittance receiving households. Non-remittance receiving households spend 28.7 percent more on education expenditures relative to remittance receiving households, and about 41.4 percent more in absolute amounts. These result suggests that, the sampled households are not using remittances to invest in education. Looking at health expenditures, remittance receiving spend more on health compared to non-remittance receiving households.

These descriptive findings indicate that remittance receiving households use remittance receipts on consumption goods such as food and other expenditures other than investing in education. However, these findings are suggestive but not rigorous tests. For instance, they do not control for household differences. To clearly identify the impacts, and hence the main uses of remittances on household expenditures; the study applies detailed econometric analysis as described in the following sections.

3. Model and Empirical Specifications

Migration is a household investment that involves both costs and benefits. The costs of migration include, *inter alia*, the transportation costs of moving to new cities, the educational costs of the migrant or costs accrued while looking for a new job. While there are non-monetary benefits to migration in terms of exposure and dissemination of new technologies, this study focus on monetary returns in the form of remittances received by households.

The main focus of the study is the impact of remittances on the vector of outcomes, Y, consisting of consumption outcomes. The level of per capita consumption depends on remittances R and error term ε. Thus:

$$Y = f(R) + \varepsilon \qquad\qquad (1)$$

where remittances are defined as the amount of transfers (in cash) received by households from outside the community of origin. Since remittances are an outcome of behavioral decision by households, there is a problem of self selection and endogeneity. Therefore, failure to take in the account of endogeneity would lead to biased estimates to their impacts on household outcomes. A solution to address the endogeneity problem is by use of panel data. The study use a two waves (2007 and 2009) data set from Western Kenya in the RePEAT survey. With repeated observation it is possible to control for community and household fixed effects that are unobservable but constant over time that might be correlated with both remittances receipt and the outcome of interest. Hence, panel data analysis helps control for omitted variable bias created by time-invariant unobservable characteristics.

The paper use household fixed effects estimation to exploit the fact that panel data allows us to control for time-invariant household heterogeneity, which may bias cross-sectional results. The regression is the form:

$$Y_{it} = \beta_0 + \beta_1 R_{it} + \beta_2 T_{2009} + \mu_i + \varepsilon_{it} \qquad (2)$$

where Y_{it} is the outcome variable of household i at time t (t=2007 and t=2009), R_{it} is the amount of remittances received by household i at time t, T_{2009} is the year dummy for 2009, μ_i is the household fixed effects and ε_{it} is the error term. The RePEAT data allow the study to examine various consumption outcomes. Per capita consumption expenditures are disaggregated into expenditures on food, education, health and "other" expenditure which include payment of utility bills and transportation costs as shown in Table 2.

4. Econometric Results

The results on the impacts of remittances on household education and other expenditures are discussed based on equation 2 in section 4. From Table 4, the study find that remittance receipts have a negative impact on education expenditure category as a share of total household expenditure, but positive impacts on Food, Health and "Other" household expenditure categories (which are household's basic needs). A further analysis of the data revealed that, the amounts[7] of remittances received by remittance receiving households are relatively small amounts in Kenya Shillings. The educational expenses in Kenya are high compared to the amount of remittances received by households on average (approximately USD 160 per year, using current exchange rate). Hence, the small amounts received by remittance receiving households as extra income are

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[7] *Further analysis of the data shows that the amounts of remittances received are as little as KSH 400 with yearly average of KSH 13,610.*

spent on daily household consumption needs such as food, medicine, payment of utilities and other consumption categories.

Indeed, the results are reinforced by finding that remittances has positive impact on these households consumption categories, especially on "other" household expenditures such payment of utilities bills and transportation costs (as shown in Table 4). This result is consistent with other countrywide household surveys (e.g. FAR 2010) which found that remittances in Kenya are mainly used on purchase of food and meeting basic necessities such as clothing, medical expenses and payment of utility bills.

Table 4: Impact of remittances on per capita household budget shares

	EDUCATION		FOOD		HEALTH		"OTHER"	
	(I)	(II)	(III)	(IV)	(V)	(VI)	(VII)	(VIII)
Year=2009	-0.00265	-0.00482**	0.0154***	0.00857*	-0.000561	-0.00310	0.00556	-0.000238
	(0.00215)	(0.00194)	(0.00508)	(0.00484)	(0.00172)	(0.00216)	(0.00384)	(0.00405)
Log (remits +1)	-0.000896**	-0.000797**	0.000456	0.000547	0.000365	0.000399	0.000967**	0.00104**
	(0.000445)	(0.000388)	(0.000926)	(0.000910)	(0.000293)	(0.000281)	(0.000768)	(0.000762)
Log(EXP)		0.0205***		0.0188*		0.00697**		0.0159**
		(0.00369)		(0.00987)		(0.00280)		(0.00751)
Constant	0.0248***	-0.161***	0.0920***	-0.0789	0.00843***	-0.0549**	0.0460***	-0.0987
	(0.00193)	(0.0334)	(0.00485)	(0.0908)	(0.00140)	(0.0252)	(0.00378)	(0.0687)
# of observations	590	590	590	590	590	590	590	590
R-squared	0.024	0.197	0.033	0.057	0.005	0.037	0.016	0.047

*Notes: Numbers in parentheses are standard errors robust to clustering within households. *** indicates significance level of 1%. ** indicates significance level of 5%. * indicates significance level of 10%.*

5. Conclusion

How are remittances used in Kenya? The aim of this study is to make a contribution in answering this question by analyzing the impact of remittances on household expenditures by use of two waves (2007 and 2009) panel data from Rift Valley and Nyanza provinces of Kenya. The Fixed Effects model was applied on the data, and the analytical results showed that remittances received by households in Western part of Kenya are mainly spent on daily household consumption needs.

This phenomenon can be explained in the context of the amounts of remittance received by the remittance recipient households, who receive small amounts of remittances (approximately USD 160, on average, per year). These small amounts of additional income are left spent on household's daily consumption needs other than education expenditures which are relatively high in Kenya compared to daily basic necessities. Therefore, for developmental impacts of remittances to be achieved, Kenyan government must develop legal and regulatory frameworks that help providers of remittances to move beyond simple handouts which are mainly consumed. There is need to design and deploy innovative and functional financial products and services that facilitate savings, loans and mortgages.

The present study, however, does not distinguish between international and internal remittances. International remittances may have different impacts on education and other household expenditures from internal remittances. Investigating the impacts of international remittances distinguished from internal remittances in Kenya and in other African countries will be the next research topic.

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