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Remittances and Sustainability of Family Livelihoods: Evidence from Zimbabwe

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Abstract: Most developing countries are riddled with socio-economic woes that pose a challenge to livelihoods. These challenges negatively affect income levels of individuals and households, limiting their access to economic opportunities. Households often strategise to sustain their livelihoods, and one of such option is migration of a member, domestically or internationally. Migration can be individual or household strategy for survival therefore remittances have a role to play in adjusting the household income. Making use of ordinary least squares estimation techniques, this article examines how families use migration as a survival technique based on survey data from small mining town of Chegutu located in Mashonaland West Province of Zimbabwe. We found out that remittances go a long way in providing income for basic services like municipal services, food, medical expenses. Furthermore, remittances also tend to influence behavioural change among households- making them consume more status oriented goods and services. The findings have implications to how policy makers view migration and development- migration should not be viewed negatively as in the past since it can help meet developmental needs of the receiving community through sustainability of family livelihoods. Policy should rather necessitate frictionless flow of these funds by reducing costs and unnecessary regulatory requirements.

Keywords: *Consumption; households; international migration; remittances; Economics of labour migration*

1. Introduction and Background

Across literature and the policy arena there is a growing consensus that migrants play a key role in resource mobilisation and therefore development of the country of origin. This is regardless the fact that the reasons of migrating are varied, ranging from own choice to forced movements. Factors such as, economic hardships, natural disasters and conflicts can force people to migrate. Migration, all over, has been viewed as a "brain drain" despite the opportunities it may presents, (Ratha et al., 2011), through resource support to the families left behind by emigrants. An immediate reflection to such belief has been the preclusion of migration issues in policies and where it is recognised the policies seem to have an implicit or explicit aim to curtail it. Resultantly, Samal (2006) notes that, as a result across academic, press and policy arena, migration has been labelled detrimental. This has an adverse effect on the livelihoods of many people further diluting their emancipation, and worsening their plight especially in situations where migration is due to force factors. The deride of remittances in policy circles emanates from some arguments that, migrants often play an active role in the political debate and civil society in countries of origin, (see for example Nyberg-Sorensen et al., 2002 as well as Van Hear, 2004). The case of this assertion is inconclusive according to Guarnizo et al. (2003) who argued that the designs of the case studies were biased towards minority group of transnationally active migrants. This is as a result that empirical literature on the significance of migration as a survival strategy and remittances as key component in sustainability of family livelihoods in many countries is scant. Where it exists the popular approaches has been qualitative and descriptive (for example Hammond, 2013).The generalisations can be reduced by microeconomic analysis of the significance of remittances in improving overall household income. Most studies that modelled remittances did so a macro level (see for example Adenutsi & Ahortor, 2010; Tansel and Pinar, 2010; Mishi and Kapingura 2013). This study further estimates the dominant use of remittances in Zimbabwe. Literature reports three different views on how remittance income are spent, which are: remittances are spent mainly on "status oriented" consumption goods than investment, (Chami, Fullenkamp & Jahjah, 2003); remittance income is fungible therefore it can be spent like any other cent received from labour, sales or transfer payments; and lastly remittances are considered transitory and therefore are spent on investment rather than consumption (Adams Jr and Cuecuecha, 2010).

For Zimbabwe, it has been noted that the 'suspicion' on the actual role of remittances resulted in making remitting very costly and risky due to drastic measures put in place to drain the little that is sent home by emigrants (PASSOP, 2012). Little understanding of the role played by remittances in reducing pressure on government social assistance and more so in sustaining family livelihoods by policy makers is worrisome. Surprisingly, it is evident that for Zimbabwe in 2004, the rise in the volume of foreign currency credited to a greater extent, to the inception of a maiden money transfer system (Homelink) initiated by the government to encourage formal transfers (RBZ, 2005). It therefore appears more of greediness that suspicion on the part of the government. As effort is made to extract significant amounts from individuals the marginal effect of each cent remitted declines sharply as it forms part of national coffers than household income- government spending is not free (it costs government money to tax and spend). Bandow (2012) noted that government spending has zero effect on private-sector job creation and that the private sector is more efficient and responsive that government. International migration has the potential to generate considerable welfare gains for migrants, as well as countries of origin and destination, and alleviate poverty. However, Ratha and Silwal (2012) acknowledge that studies that control for the characteristics of a household with a migrant are very new. This study seeks to analyse the effect of remittances on sustaining family livelihood in Zimbabwe using a case study of Chegutu, a small mining town that had suffered a major economic shock. At the backdrop of the contradiction of theory and practice, Zimbabwe, specifically Chegutu town, provides a natural experiment set-up to assess the effect of remittances on sustainability of family livelihoods.

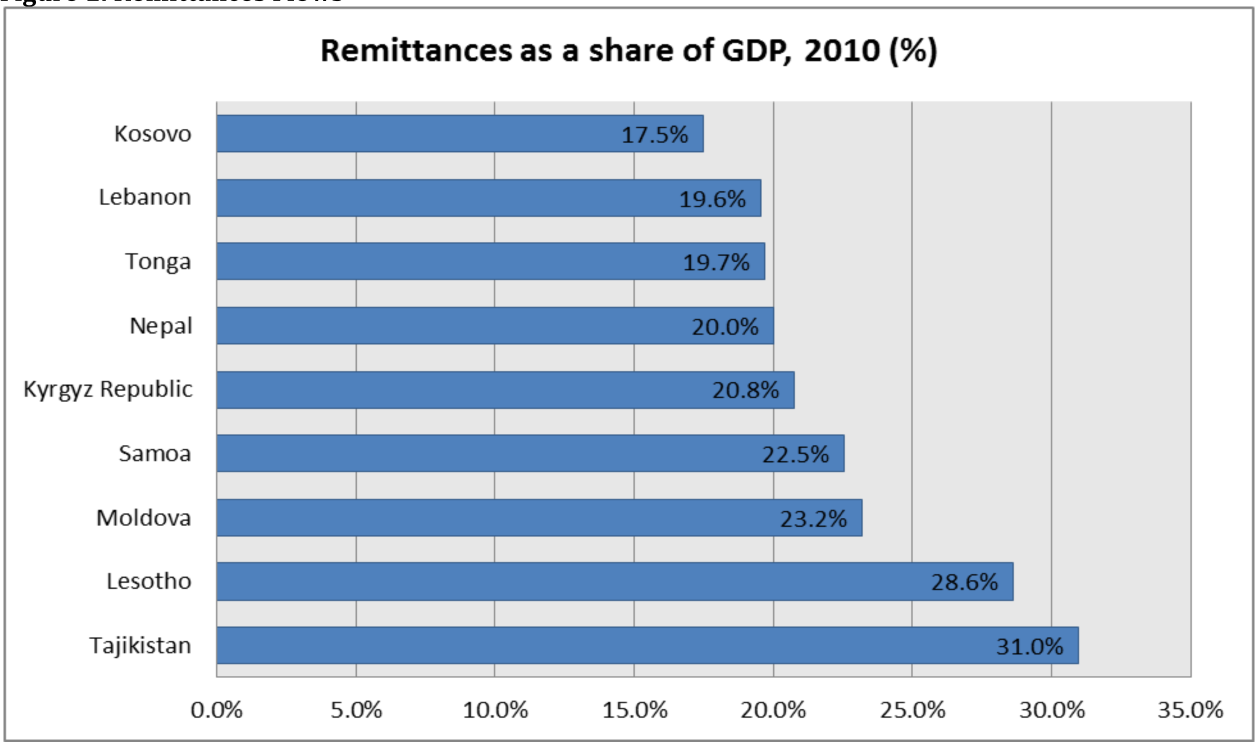
Chegutu town faced a great economic shock of the closure of the giant mining accompany, which was the economic mainstay. Furthermore, Zimbabwe, at a macro scale has been riddled with vast economic challenges pointing to a meltdown. Can remittances make a difference in such a community? To what extent can remittances be used to sustain family livelihood in the face of such constraints? These are the questions the study attempted to answer. Zimbabwe experienced a dramatic turn in economic fortunes since 1999. The reasons to this are varied and many have pointed out international economic sanctions, sabotage and uneconomical policy mix, land acquisition, among many others. According to Ncube and Houggard (2010), the volume of Zimbabwean emigrants has been rising exponentially since year 2000 due to economic misfortunes and political concerns by some citizens. As a result, there are nearly three million Zimbabweans living and working in South Africa alone, (Kerzner, 2009). Could such an exodus have helped to mitigate an ultimate meltdown of the economy through remittances? In line with this, the current study is aimed at articulating the role remittances play at micro level in sustaining family livelihoods, with roles at meso and macro level left for future studies. Following this introduction and background is section 2 on Literature review; section 3 presents the empirical analysis methodology, techniques and results, while section 4 presents conclusions and policy recommendations.

Stylised facts-recent developments: Maphosa (2005) noted that there are no official statistics on the value remitted by migrants mainly because most of the remittances are sent through informal channels. This is a challenging task given the general reluctance by recipients to disclose information on how much they receive in remittances because of the fear to be excluded from assistance from non-governmental organizations and government public assistance programmes. This makes it difficult to understand the significance of remittances without employing survey techniques on household themselves. Pre 1980 independence Zimbabweans migration (mainly to neighbouring South Africa) was mainly due to attraction of the growing mining sector which is in sharp contrast to recent emigration trends which rise as people cite basically same reasons cited by Central Americans of struggling to reconcile deficiencies in wealth, social status, personal security, and poverty (Adams and Cuecuecha, 2010; Hecht et al., 2006; Massey et al., 1993). The post 1980 emigration can be viewed in two waves: firstly predominantly white population soon after the Lancaster House Agreement that ushered in new government and the second being of the black population increasingly since 1990s. It is well known that emigration will result in remittances, however not every emigration has such outcome, the motives and causes of migration have a great bearing on whether remittances will flow to the remaining household members. International remittances to developing economies reached US$ 167 billion in 2005 after a five year period doubling (World Bank, 2005).Figure 1 below show the volume of remittances as a share of the economy, for top receiving countries in the world as of 2010[1]. As a result

[1]Based on the reported figures- imperative to note that reporting in some countries like Zimbabwe is very week due to reasons highlighted under introduction

remittances significantly shape the livelihoods of the recipients especially in countries with economic woes like Zimbabwe. A microeconomic analysis is necessary to understand the actual/direct effects of these flows. The volume of remittances is growing world-wide, but the impact at micro level is little known. Where it is known the conditions and environment differs markedly from those of other regions and countries to the extent that generalisation is not possible.

Figure 1: Remittances Flows



Despite the plausible role of remittances in sustaining family livelihoods well documented in literature, the costs and barriers faced by remitters are still inhibiting propelling the use of informal channels. These informal channels are conveying significant amounts as much as US$900 million dollars annually according to PASSOP (2012). To put this into perspective, about 90% of Zimbabweans in South Africa are estimated to be sending about a third of their incomes regularly making the corridor the busiest in the world and thus underscores the extent to which households in Zimbabwe are relying on remittances. On the other hand, Finmark Trust (2012) found that Zimbabwean migrants are the largest remitters, as measured by the frequency and value of remittances. Furthermore, Democratic Republic of Congo (DRC) was reported to have the fewest remittances by value sent, due to the high transaction costs of remitting funds which also affected the frequency of remittances. The findings highlight also the possible macroeconomic effects of remittances given the volumes and currently it is the most important sources of foreign currency inflows. The economy is running on multicurrency monetary policy setup. The latest figures by PASSOP (2012) reveal possibly the sharp increase in amounts remitted to Zimbabwe in 2010 alone, which the World Bank had put at between US$360 and US$490 million and the Reserve Bank of Zimbabwe at US$263.3 million. The variations may also be explained by growing size of the informal channels. The 2003 Poverty Assessment Study Survey II on Zimbabwe showed a substantial increase in poverty; between 1990 and 2003, from 25 per cent to 63 per cent. Households are relying increasingly on remittances and emergency aid. If the hypothesis of positive impact of remittances on family social and economic wellbeing holds, there is room to leverage development through such resources.

While there is a consensus that remittance flows to Africa are increasing, little attention has been paid to the impact of these transfers on poverty alleviation, primarily because of data deficiencies at the household level. Oucho (1990) noted that remittances to Zimbabwe have increased over the years, albeit through unofficial sources. With Bracking and Sachikonye (2006) reporting that half of the urban households in the two metro provinces of Harare and Bulawayo cater for their everyday needs through remittances. Although to some extent international remittances may fail to reach the poorest directly, usually they contribute significantly to their incomes. The poorest may face financial constraints when deciding to migrate hence fails to send a family member abroad. However, they can provide casual labour to households with members abroad and earn an income. Furthermore the investment by those with family members abroad that included house dwelling extension provide opportunities for employment, albeit piecemeal in most instances.

2. Literature Review

Migration and Remittance flows: Remittances come due to migration and in literature there is a general view that such remittances positively impact economic growth through poverty alleviation in migrant sending countries, (Adams & Page 2005; Bracking and Sachikonye, 2010). On the other hand remittance flows are understood by most contemporary researchers to be counter-cyclical, mitigating the impact of adverse shocks, (Freud & Spatafora, 2005). They are considered exogenous flows that add to pre-existing home earnings (Adams, 1994; Zhu & Luo, 2010). The sudden closure of Broken Hill Proprietary (BHP), as mainstay for the town's economy and surrounding communities was a great adverse shock. Given down-trending economic fortunes at macro level in the economy during that time, majority of the citizens had to leave for other countries and thus making international remittances a possible significant factor in sustainable livelihood in the community. Adams and Page (2005), strongly tie poverty alleviation to remittances. From a household point of view, remittances are expected to curtail the extent of effects from poverty. Migration has become topical in debates for sustainable and viable livelihood option because of the perceived direct injection to the poor's financial and material needs, as compared to aid, and provides a relatively cheap source of funding as compared to loans (Nyberg-Sorenson et al., 2002; Samal, 2006). In the same vein, migration can be viewed as a social security contrivance for poor households who experienced a shock or, as in this case study, a sudden loss of employment in an economy that had dived into a persistent downward trend in all spheres. Thus remittances impact therefore can be instantaneous and usage very cheap making it easier for those facing financial constraints on migrating due to lack of unemployment able to timeously resuscitate household financial wellbeing at minimum costs. As a cheap source of financial resources it can reliably be used for short term needs as well as long term commitments like funding education, purchasing land and construction of new structures.

Considering that migration is due to own choice, the neoclassical micro-economics literature perceives migration as strategy by an individual to maximise own income (individualistic behaviour contrary to altruistic tendencies). Given differences in earnings potentials, as measured by human capital, persons choose to migrate when the net gain for such action is positive, (Todaro, 1969). In such context remittances do not form part of the overall aim of migration, and hence can be assumed to be minimal or near zero. On the other hand, considering that decisions can be made at a household level, the above viewed has been challenged. Garip (2007) notes that household theories of migration posits that the decision to move is household's taking into consideration the household characteristics. The theory, New Economics of Labour Migration (NELM) households often have a reference group with society with regards to wellbeing, and when their wellbeing is below the reference group, a representative is sent to migrate in order to have the income levels improved to restore status, (Stark and Bloom, 1985). It follows then that, when household income levels drop, for example due to loss of employment that occurred in this predominantly mining town, a consensus on who can migrate may be reached at household level- taking into account the consequences of the separation in a cost-benefit analysis framework. In essence, it can be argued that families view migration as a form of portfolio diversification in which remittances thus can be a great positive outcome. The household therefore is prepared to invest in its member to be able to leave with the expectation that there will be positive returns through remittances. Thus, according to the works of Samal (2006), the reason behind migration could be mere income diversification as a survival strategy. Imperative however to note that a number of empirical works for example Lindley (2006, 2007), Young (2006) and Weiss-Fagan (2006) among others have paid attention to economies experiencing or emerging from conflict and crisis as well those affected by environmental. The situation of Chegutu presents an additional opportunity to econometrically (as compared to other qualitative and descriptive studies) test the significance of remittances on sustainability of family livelihoods.

Garip (2007) asserts that moving from individual to household theoretical explanations of migration, the issue of remittances flows in logically. Indisputably, individualistic tendencies may not result in remittances as compare to altruistic basis for migrating. The economic conditions in the community specifically that of Kaguvi Township housing former BHP workers meant that individuals migrate to restore household economic position, implying therefore remittances are crucial as suggested by the latter theory. The NELM has guided empirical works in this field proving that labour migration is a response not only to acute poverty and destitution but can be applied as a livelihood strategy for social groups like households, (Hampshire, 2002).Therefore if migration can be used as a livelihood strategy to diversity risk and secure incomes as argued by Quinn, (2006) it is not farfetched to hypothesise a positive effect of remittances on sustainability of family in this locality.

The NELM has plausible theoretic link with livelihood strategies and hence can assist in understanding the impact of remittances on sustainability of family livelihood. According to Carney (1998), livelihood includes the abilities, belongings (both material and communal means), as well as undertakings necessary to survive. Imperative to note that the undertakings do not entail only income generating ones, but they extend to social structures and intra-household associations (Ellis, 1998). In that context migration can be viewed as a livelihood strategy, which De Hass (2008) defined as a calculated choice of combining activities by households and their individual members to uphold, secure, and advance their incomes through increasing and diversifying the financial assets portfolio. From an empirical stand point, De Hass (2008) further refutes the individualist self-maximizing behaviour of migration and supports the household portfolio diversification, and thus gives insight into the basis of migration in Chegutu on the grounds of economic hardships of the time. Hence, in line with the NELM and livelihood approaches, the central view is that migration is a thoughtful effort households can make to diversify the risk on incomes, to advance their socio-economic status and, hence, to withstand local development restraints. In that vein, Garip (2007) found out that altruism and protection seeking stimulate both migration and probability of remitting, therefore concluding that migration and remittances are related processes. The majority of the existing studies, which focus on the impact of migration on household members left behind, have shown positive impact in both the short run and long run.

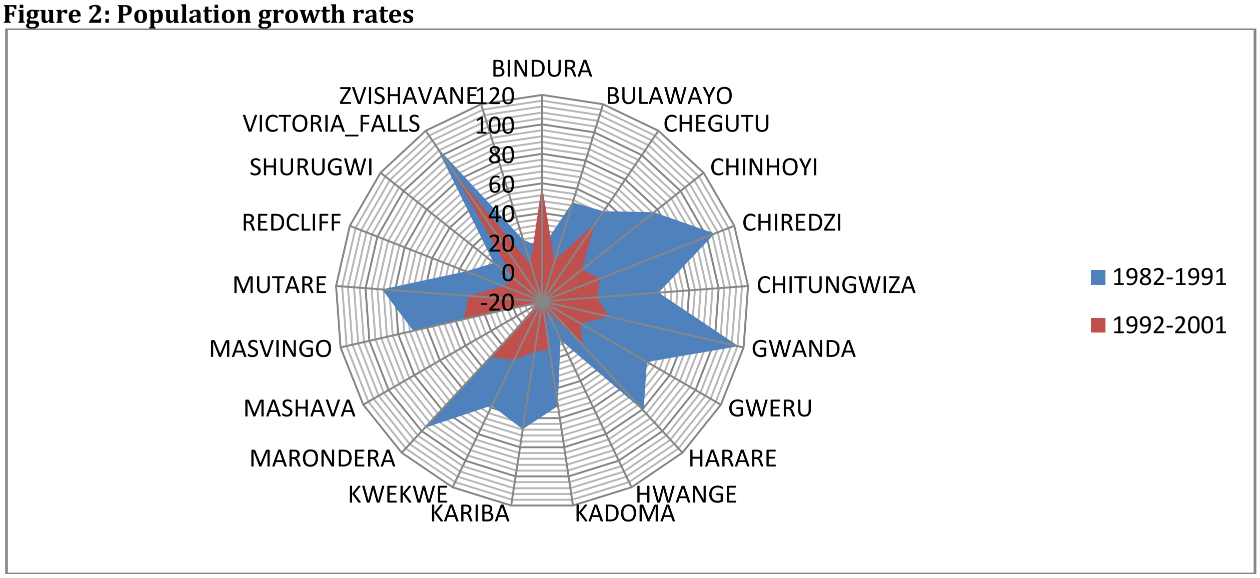
Remittances and Sustainable livelihood: In literature, there has been disagreement about the relationship between poverty and migration, which leads one to assume that the correlation is likely to be context-dependent. However, from preceding discussion migrant remittances can be argued that they give the receivers the ability to smooth consumption and represent insurance on the livelihoods of the household in case of loss of employment. Ratha et al. (2011) noted that there is a great difference in term of access to basic services, such as communication technology, education, health and banking services, by households receiving remittances compared to those not receiving as evidenced in a number of surveys across Africa. This study had a closer look at the impact of remittances on the ability to access a number of basic services, which was evidently none, reachable by the households after the economic quagmire. Furthermore, by directing injecting into the household income coffers, remittances can directly diminish the level of poverty and increase aggregate demand. The latter has the benefit of creating employment opportunities for other poor individuals and households. This is well supported by empirical findings for example studies focusing on single countries as Burkina Faso, Ghana, Lesotho, Nigeria, and Morocco, found a reduction in poor people within the population, (see for example Gustafsson & Makonnen, 1993; Sorensen, 2004; Quartey & Blankson, 2004; Odozia, Awoyemia & Omonona, 2010; Wouterse, 2010). On the other hand, Shroff (2009) asserts that impact of remittances on poverty in a particular year depends on the amount of the remittances. This resonates to the studies Yang and Martinez (2005); by Adams and Page (2005) and Hoti (2009). Such findings would be expected to be accompanied by policies that support remittances, through reducing transaction costs for example, however as noted above it was to the contrary in Zimbabwe.

As money is fungible the share of remittances meeting specific household needs cannot easily be determined, (Taylor 1999). A micro survey will help identify the major expenditure financed from remittances and this study was aimed at contributing on such. From literature it is evident that remittances are spent on a number of household expenditures that include land and housing, improving farms through purchase of agricultural equipment, (Plaza Navarrete & Ratha, 2011), keeping children in school (Calero, Bedi & Sparrow, 2008) as well as compensation in times of natural disasters as earthquake in EL Salvador (Halliday, 2006) in 2001, 2010 in Haiti (Ratha et al., 2011) or 2004 Cyclone Jeane in Haiti (Weiss- Fagan, 2006).Therefore policies should be supporting the flow of remittances by targeting reduction of costs for example, and creating an enabling environment for such flows in general than blocking them as numerous families rely solely on this income for survival, (Loschmann, 2009). Gupta et al. (2009) found a financial development effect from this stable flow of finance. Therefore this supports the argument that remittances have a potential to financially include the excluded and increasing their economic opportunities. On the other hand Kiiru (2010) highlighted that both domestic and international migration are used as poverty and economic crisis coping strategies.

Empirical Analysis: To avoid weaknesses in generalization, this study considered a micro level analysis of the role played by remittances using primary data. This also helped to overcome the measurement problems noted in Bracking and Sachikonye (2006) associated with accounting for remittances as informal transfer channels are now being used significantly. Studying how remittances increase household income, how households expend the remittances received and the effect of the remittances of development at the micro level is peppered with mechanical hitches. From economic modelling perspective it is ideal to measure the effect of remittances on total household income through disintegrating the total to its components. It is possible to take remittances as exogenous transfers that add to pre-existing home earnings other than an alternative choice. Unlike in Kimhi (1994) and Escobal, (2001) in the study area there were no chances of making a choice between migrating and engaging in home production due to non-existence of the latter given the nature of the economy of Chegutu town and nation-wide socio-economic status quo.

The Study Area, Population and Sample: Chegutu is a small predominantly mining and farming town (ranked 13th by population size) in Mashonaland West province of Zimbabwe. It is situated about 100km South West of the capital Harare. According to City Population (2012), the population of Chegutu grew exponentially from 19606 in 1982 to 30191 then 43424 in 1992 and 2002 respectively (see Figure 2 below). Chegutu is one of the towns in Zimbabwe that grew by over 40 percent in the 1992-2001 decade alongside Bindura and Victoria Falls. In Chegutu, a significant increase was experienced during the advent of BHP minerals in 1995. BHP minerals changed the face of Chegutu from different angles: population dynamics; infrastructure (housing, roads, schools, shopping centres); income levels; business activities. Lack of industry diversity makes the population more vulnerable to any economic shock on the town- the closure of BHP, was such a shock. This study selectively focuses on the former BHP employees as the target population who were provided with housing units during their tenure at the platinum mine.

Figure 2: Population growth rates



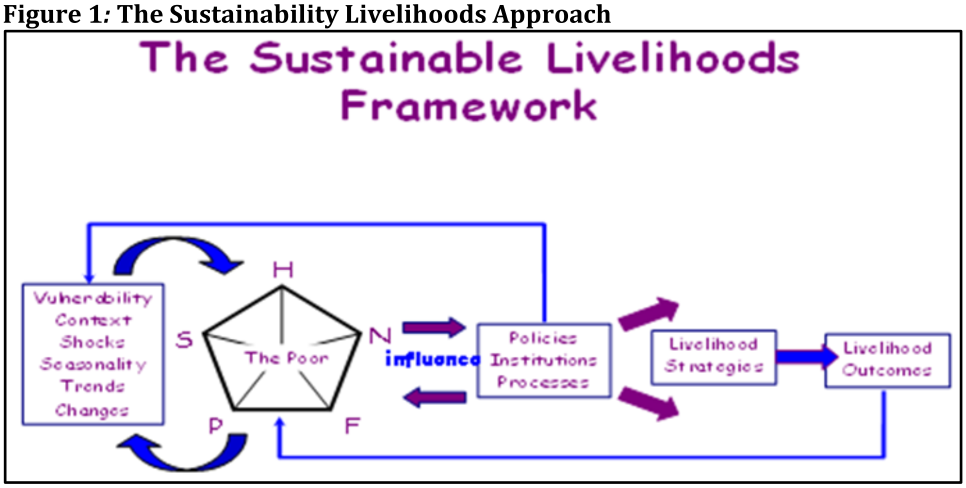
Source: Zimstats- Accessed June 2012

BHP built houses for its workers and therefore it was easy to identify the population: the houses of former BHP employees. However, it was noticed that some change of ownership had transpired over the years and therefore in identifying a sample- a house now owned by a non-former BHP employee was skipped (that is convenience and purposive sampling techniques were applied). The structure of the housing units and clear numbering allowed use of simple random followed by systematic random sampling techniques to identify the household to distribute the questionnaire. Paper pieces with the first 100 dwelling units' house numbers were tossed in a hat and one picked at random. This gave the first household to be visited and thereafter the tenth house from the one picked initially and so on had a questionnaire administered. In this process 200 houses were selected for the study. Taking from McDowell and de Haan (1997) a household take to be a unique and notable social group and hence the one most appealing unit of analysis. Unlike in Adams (1989) where the focus was on asking the emigrants themselves on the uses of remittances, this study considers the remittance uses as informed by the recipients. Self-administered questionnaires were distributed to a conveniently selected sample between November and December 2011. Given the understanding of the rich information in qualitative information, open spaces were provided in the questionnaire to allow room for additional information.

3. Analytical Framework

Analysing the impact on livelihood is not straightforward as the variable depends heavily on context and measurement challenges. This study adopted the framework suggested by International Fund for Agricultural Development (IFAD), as outlined in Figure 1 below.

Figure 1*: The Sustainability Livelihoods Approach*



Source: IFAD, 2012

In the framework, there are a set of five assets, which interplay to provide a sustainable livelihood outcome. The interconnectedness of the assets forms a web that assist in sustaining individual/family livelihood. The variable of interest in this study is remittances, an asset under Financial Capital (F) which can be argued as significant if other forms of financial assets (past savings, credit/debt, pensions and wages) are insignificant or non-existent as in the context of this study. The NELM postulates how migration is used as a strategy to transcend barriers in the financial markets with remittances substituting for absent markets and providing a form of social security. Given the economic status quo of the population it is reasonable to assume that amounts of other forms of financial assets are not different from zero (illiquidity in the financial system, high inflationary challenges; loss of employment among many other restrains to savings). Intuitively, migration is not an alternative but the only option given that there is lack of economic opportunity in the sending community. Financial capital act as the lubricant in accessing all other forms of assets, without which access and usage will be direly limited. It is imperative to also note here, that different households can have different access to livelihood assets and thuslivelihoods are affected by the diversity of assets; amount of assets; balance among asset holdings. The process is however not a sure bet, it is poised to be exposed to forces (vulnerability context) through shocks, seasonality, trends and changes; how to cope with these forces and adapting is the key to sustainable livelihood. In this study, if remittances have the ability to help adapt or resist one of these shocks, then they have role to play in sustaining family livelihood. The target population in this study had no wages, had limited chances of accessing credit given lack of income; pension and savings even if available were exposed to macroeconomic uncertainties that were gripping the whole country.

Faced with such a situation, households have to device strategies of obtaining financial capital that would make their livelihood financially liquid. In the perspective of ensuing debate on the vulnerability of the households in Kaguvi Township, remittances presented themselves as the panacea – however one has to migrate in order to have remittances. Remittances were therefore supposedly absorbing the shocks; resist/ reverse the trends and changes in order to be meaningful in the sustainable livelihood framework. Besides the macroeconomic uncertainties presenting vulnerability threats to sustainable livelihood, policies, institutions and processes also play a significant role in determining the successful impact of all the different kind of assets. In the context of where assets are from abroad (remittances) the institution plays a critical role in enabling or stumble the smooth transfer. Households employ strategies in combining the assets they can access, given the vulnerability faced, the support or lack of it from policies, institutions and processes to get the best outcome- poverty eradication. A good example of institutional frameworks to support remittances in Zimbabwe is the Homelink, which was a vehicle designed to lure diasporans to remit and investing back home. Other possible institutional frameworks may include the flexibility, reliability and affordability of formal financial services to allow easy transfer of remittances across borders. Many Zimbabweans have resorted to informal means due to the institutional rigidities and lack of transparency in the system, (PASSOP, 2012).

Model specification: As in Adams (1991), the dependent variable is expressed in per capita terms to allow household comparisons. A ratio is opted in order to ensure that the slope is free to change with expenditure and allows rising, falling and constancy in marginal propensity to consume over a broad range of expenditure levels (see Koc and Onan (2004) as well as Adams Jr and Cuecuecha (2010). The functional form to meet the above requirements based on Working-Leser model becomes:

$$\frac{C_i}{EXP} = \beta_I + \frac{\alpha_i}{EXP} + \gamma_i(logEXP) \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots . (1)$$

Where: C_i is the proportion of expenditure on the ith item in overall household expenditure EXP, with summation of such expected to equal one.

From equation 1 expenditure behaviours of households would be obtained and effects of remittances on such behaviours established. However, other factors like individual household characteristics need to be controlled for, for example, dwelling size, household size, and number of adults in a household. Considering such controls which introduce greater flexibility in variations of marginal budget shares across households, equation 1 as an Engel function takes the form:

$$C_i = \alpha_i + \beta_i EXP + \gamma_I(EXP)(logEXP) + \sum_j \left[(\mu_{ij})(Z_j) + \theta_i j(EXP)(Z_j)\right] \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots (2)$$

WhereZ_j represents the jth household characteristic with μ_{ij} being constant. The estimations are done based on OLS as in Adam and Page (2005), Acosta (2006). Thus, in light of the Sustainable Livelihood framework, the study analysed the impact of remittances on household income and articulated the first order (marginal) effects of remittance income on household expenditures. Influenced by the works of Adams (1994) and Abdelali-Martini and Hamzain (2014) the economic models of remittances take the form:

$$\boldsymbol{Y} = \boldsymbol{f}\,(Z_j) \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots . . (3)$$

$$\boldsymbol{Y_R} = \boldsymbol{f}\,(Z_j, \boldsymbol{MIG}) \ldots \ldots \ldots \ldots . . (4)$$

According to Chambers and Conway (1991) livelihood is defined as adequate stocks and flows of food and cash to meet basic needs. In the broadest sense of remittances, it is evident that there is accumulation of food and cash by remittances receiving households. Based on the discussion above, sustainable livelihood is attained when households employ strategies in combining the assets they can access, given the vulnerability faced; the support or lack of it from policies, institutions and processes to obtain a positive outcome. Any factor that positively impact access to assets, reduces vulnerabilities or make policies, institutions and processes better support household efforts, have a chance to improve sustainability of livelihoods. For long term benefits, households were also asked if they invest part of the remittances in order to grow the income and have the potential to generate more sustainable alternative sources of income.

Table 1: Variables description

Variable name	Definition and usage in literature
Remittances	Transfers of money, goods and diverse traits by migrants or migrant groups back to their countries of origin or citizenship- all measured in monetary terms (World Bank, 2007). They can be both formal and informal (based on the channelling of remitting) (IMF 2009). See also Gupta, Pattillo and Wagh, 2007; UN (2006); IOM[2]; Adams and Page, 2005
Non-remittance income (Y):	Household income from other sources other than remittances. This is likely to be very low in this case given the economic status quo in Zimbabwe as whole and the particular location of the study as discussed earlier. Household with low income from other sources are likely to receive more remittances (Nilsen, 2014)
Income including remittances (Y_R)	Household income in total including remittance receipts.
Dwelling size (DZ):	This is the size of the house in terms of bedrooms count. This variable is crucial as the variation in dwelling size shows variations in asset holdings post BHP mining company as the firm provided standard four, two and one bedroomed dwellings for its workers in Kaguvi. According to Nilsen (2014) if there is no proper dwelling the household is more likely to receive remittances as remitters would want to come back at some point in time and have better shelter. In this case dwellings with fewer rooms (2 or 1 bedroom) are likely to receive more remittances based on Nilsen argument.
Household size (HZ):	The number of individuals in a household who generally share a meal together for at least the past three weeks. the larger the household size, the lower the per capita income Abdelali-Martini and Hamzain (2014); Nilsen (2014); Adams and Page (2005)
Males over 16 years old (M16):	This variable captures males in a household of working age (as well as school completing age) (adult children). There is a priori expectation of a positive relationship between this variable and income from remittances. Nilsen (2014) noted that children remit as they feel obliged, responsible, indebted as well as to show gratefulness to their parents. Also households with more adult members receive more remittances; Nilsen (2014) (household member aged 16-60); Abdelali-Martini and Hamzain (2014); Adams Jr and Cuecuecha (2010) and Koc and Onan (2004)
Migration dummy (MIG):	Capturing whether the household has a member who migrated or not (1 for Yes, 0 otherwise)
Consumption (C):	The value of consumption by the jth household on a particular item/ good- Lindley, (2006). Maimbo (2006) Households' basic needs as defined by Casimira, (2003) include food, clothing, shelter, education and health care. Acosta (2006)
Expenditure (EXP):	Value of total expenditure for the household (excluding investment expenditures)- Adams (1991); Koc and Onan (2004), Adams Jr and Cuecuecha (2010); Abdelali-Martini and Hamzain (2014)

Sustainable livelihood

4. Results Analysis and Discussion

The dwelling size is on average five rooms which is a great improvement to the average double room per household (BHP provided mainly double rooms and some few single and four roomed houses). From Table 2 comparing income per capita including remittances with one excluding remittances, we observe that, the income including remittances ($508.28) is on average about 255% more than the one excluding remittances ($143.03). This signifies the role of remittances in raising income levels.

Table 2: Basic Statistics

Stats	Dwelling size	Male over 16	Household size	Income per capita incl. remittances	Non-remittance income
Mean	4.225	2.13	5.365	508.275	143.025
Standard dev.	1.440399	0.9527005	1.638658	83.99404	232.3231

Source: Own generated Statistical results using STATA 11 software

[2] *IOM INFO SHEET, Available online: http://www.iom.int/jahia/webdav/site/myjahiasite/shared/shared/mainsite/published_docs/brochures_and_info_sheets/IOM_Remittance_eng_pdf.pdf;*

Focusing on the income variables, there is great variation in income per capita excluding remittances (US$232 compared to US$84 of income including remittances) indicating how remittances help stabilise income flow. Those receiving remittances are likely to have a stable and hence more reliable income which is very crucial in household budgeting (expenditure and savings planning) and hence sustainability of livelihood. Gender was solicited for the individual remitting, that is, the migrant as this metric is more relevant for that angle in this context given that the focus is on remittance flows, as compared to the gender of the respondent. Based on the gender of family member who had migrated, 72 percent are males supporting the notion that males migrate more than females. However one household did not provide the gender for the migrant. In addition, the correlation among the variables was tested and results are presented in table 3 below.

Table 3: Correlation among variables

	migration	Dwelling _size	Male over 16	Household size	Non-remittance Income per capita	Income per capita including _remittance
Migration	1.000					
dwelling size	0.6048	1.0000				
Male over 16	0.5529	0.2569	1.0000			
household size	0.1431	0.0821	0.2398	1.0000		
Non-remittance income per capita	-0.2410	0.1322	-0.0081	-0.0318	1.0000	
Income per capita including _remittances	0.8228	0.5858	0.4687	0.1255	0.0328	1.0000

Source: Own generated Statistical results using STATA 11 software

Table 3: Household level Determinants of Migration and Impact of remittances

Variables	Determinants of Migration Model	Impact of remittances Model
migration	-	*383.3512**** *(31.27966)*
Dwelling size	-	*23.11254**** *(8.12922)*
male over 16	.2506458*** (.0267861)	*8.590093* *(1.97641)*
household size	.0009548 (.0155805)	*.3957102* *(5.822391)*
Non-remittance income per capita	-.001222*** (.0002951)	
constant	.3857838*** (.1027977)	*102.6913*** *(42.02701)*
Number of observations	*200*	*200*
Adj. R-Squared	*0.3518*	*0.6838*

Source: Own generated Statistical results using STATA 11 software
*Key: Significant levels *** (1%); ** (5%). Standard errors in brackets ()*

As revealed in model one on the determinants of migration, migration variable is highly correlated with dwelling size, male over sixteen within a household and the total household income. Having established the determinants of migration and first order effects of migration on income, the study analysed the effects of remittances on basic consumption (that is expenditure that excludes investment spending) and investment to be able to conclude on the significance of remittances in sustaining family livelihood. Furthermore, regression analysis (Table 3) revealed that the presents of economically active males in a household (male-over 16) are positively related to migration. Therefore the presents of an adult male child in the household, (male-over 16), increases the chances of a household having a migrant by over 25%. As in Nilsen (2014) non-remittance income is negatively and significantly related to whether a household has a member who has migrated. As most migrants have been entering new territories where there is no certainty on how quickly they start generating income, leaving behind at least one economically active male behind provides some form of livelihood security. The increase in chances to migrate may also be explained by observation that, males migrate more than women; hence the more males are in a household the greater the chances of having at least one migrant. On the other hand, the lower the income excluding remittances the higher the chances of a household to have at least one migrant, at 1% significant levels. The size of the dwelling could not be used in this regression as envisaged early due to fact that data collected revealed a reverse causation. Household size proved to be insignificant as determinant for migration.

Among those variables significant in the analysis, overall household income is significantly positively determined by whether there is a migrant in the household or not. Migration therefore is central in improving household income, with a household having at least one migrant having the potential to improve income by about US$300 per month. Our results compare favourably with those of Taylor, Rozelle and de Brauw(2003), and Abdelali-Martini and Hamzain (2014) that participation in migration increases the household per capita income for those left behind.Also, the size of the dwelling increases income pool, this may be due to letting out extra rooms as a viable source of income. Interesting bigger dwelling size is highly correlated with migration status of the household (pointing remittances being used to fund extension of households: basically the housing units were provided by BHP minerals as single, double and quad rooms only, with majority being doubles). The average dwelling size has been pushed to five by extensions, which is on another hand an indication of investment. Extending the household unit came top in the kinds of investment through remittances, with 80% of those receiving remittances indicating that their first investment priority is expanding their dwelling given its perceived potential to provide sustainable income. One female respondent noted that *"… you cannot go wrong in investing in a house… people always want to live in towns no matter how hard things are… therefore tenants is never a problem."*

Economic uses of Remittances

Household consumption (excluding expenditure of investment, education, and non-basic goods and services): Sixty-six percent of the respondents rely solely on remittances for their day to day needs. Amongst the family members in Zimbabwe, no one is working or self-employed to provide financial support except only member(s) who have moved to another country. This gives great weight to the value of remittances in these families livelihoods and greater possibility to work as poverty reduction strategy. Quiet disturbing is the result that, only 77% of households relying solely on remittances spend less that 5% of total income on education:- this signifies the dire need for financial support of these households as the little received is spent mainly on health, food and municipal services. When households are faced with income constrains, education is quickly dropped from the priority list viewed as long term investment with returns highly uncertain more so compounded by the economic challenges bedevilling the country. The prioritization by the households is detrimental to their future and those of the children who are failing to access education now. The negative impact of this on the country as a whole needs no emphasis. Households relying solely on remittances spend, on average less on transport as they prefer walking than paying taxi/ bus fare within the locality that one usually needs to take a taxi. To them, transport is not as crucial as food (60% of them), health (85%) and municipal services (93%), (fear of service cut off). Some 31% of the respondents attest that they also use the income from remittances for holiday, entertainment and other social gatherings reflecting how remittances touch all spheres of a household living.

From the econometric assessment the outcome of descriptive analysis is confirmed that having a migrant in the household increased the expenditure on basic goods and services. At 95% confidence levels, a household with a migrant spends about 8% more on basic consumption than the one with no member out of the country. This reflects how migration contributes to household livelihood by increasing access to basic goods and services after increasing household income as reflected in previous section. In effect, migration explains consumption levels more than even the household size, meaning the availability of income is central to consumption decisions than the number of people sharing the meal. As more is spent by the household (total expenditure) less and less amount is attributable to consumption on basic goods and services. Intuitively the excess expenditure amounts could be going towards "status seeking" goods and services, reflective change of behaviours corroborating findings of Airola (2007). Overall, household total consumption is significantly explained by migration variable as well as the household size and total household income. The two tests were conducted to provide an understanding of which use of remittances view hold for the case of Zimbabwe given the three views in literature discussed in Section one. As total household expenditure increases, less is spent on basic goods and services implying a change in behaviour asserted by Chami et al. (2003). However the presents of remittances increase expenditure as any other cent obtained from other sources- remittance income is fungible too because households spend more and more as income rises not only based on the presents or remittances.

Table 5: Consumption behaviours among households

Explanatory variables	Expenditure on basic goods model	Total consumption model
Total household expenditure	-.000821***	-
	(.0000727)	
Migration	.0774067**	124.2445***
	(.0390241)	(23.20892)
household size	.0441694***	26.52686***
	(.0059217)	(3.521824)
Income per capita inc. remittances	-	.3376527***
		(.0432621)
Constant	.9638206	-14.97542***
	(.0372405)	(22.14817)
Number of observations: 200	200	200
Adj. R-Squared: 0.6137	0.6137	0.7487

Source: Own generated Statistical results using STATA 11 software
*Key: Significant levels *** (1%); ** (5%). Standard errors in brackets ()*

Investment considerations: Not surprisingly, households with alternative sources of income consider investing (73% have actually once invested). They invested more than those who solely rely on remittances for survival (90% invest at least 25% of the income as compared to only 12% from the households solely relying on remittances that invest between 5-10% of the remittances income). Therefore failure to invest is not necessary a fact of lack of knowledge and insight, but more of scant resources necessitating a shoe string budget. Over 95 percent of the respondents acknowledge being aware of the need to invest. Despite the usefulness of remittances, the survey identified some challenges impeding easy transfer of remittances to the households.

Challenges with remittances: All the respondents aired their disgruntlement with the costs and delays associated with receiving their incomes from abroad. From the study, over ten percent of the actual amount remitted is paid in remitting costs which is a serious concern given the intended uses of the income and the fact that majority (66%) of the households rely solely on that form of income. The results concur with costs reported by World Bank in 2012 and PASSOP (2012). Whether the costs are borne directly by the recipient or by the sender, the amount available for the households' needs is reduced by such high costs. Ncube and Houggard (2010) asserts great portion of remittances from South Africa to other SADC countries flow via informal channels due to prohibiting financial sector regulations of those countries. Of late the South African banking regulations more specifically Financial Intelligence Centre Act (FICA) has placed onerous requirements for remitters. Such modes of transmission carry great risks. The rates for remitting to SSA are the highest among developing regions and Zimbabwe is no exception.

5. Conclusion and policy implications

Remittances have played a significant role in sustaining daily livelihood of former BHP employers in Chegutu town, a town with limited economic opportunities in a country that was facing major macroeconomic instabilities. The paper sought to investigate the first order effects of remittances on household income and the uses the income is directed towards. Firstly lower levels of initial income and availability of males of working age in the family (not just number of household members) are strong determinants of migration. Secondly, migration and the dwelling size contribute significantly to the household income and thus the potential to improve livelihood as household finances improve. Therefore the first order effects of remittances are raising household income. Thirdly, remittances positively improve consumption by households and a close scrutiny revealed that the consumption is mainly for key basic goods and services like health, municipal services bills, and food. There is a serious concern if education is not prioritized as there is a danger of the families to be trapped into poverty for generations; the government should prioritize education in its pro poor spending given that it is not on the top priority list by households, especially the more economically vulnerable ones. Lastly, investment has not been well considered by those without alternative income sources when using the remittances income. This is more to do with scarce resources than lack of awareness among the community members, which could be improved by reducing the costs associated with remitting, both financial and time. The limited investment projects have been building houses (increasing the dwelling size).

Remittances increase consumption and leisure in the recipient household, indicating that remittances improve welfare and can be effective in poverty reduction. However the cost of remitting is cited as the major stumbling block. Given that remittances increase household consumption and access to varied basic services, policies enabling timely and affordable remitting may create fiscal space for other pro poor projects. Remittances have the potential to increase sustainability of family livelihood; therefore policies to reduce the cost of remitting if implemented can have far reaching benefits. There is need for transparency in the channels so that remitters and their recipients feel comfortable utilizing these channels. If formal channels are used, this may help speedy recovery of the financial sector and allow greater financial inclusion of the population which across literature has the benefit of reducing poverty. In short, the Zimbabwean policymakers and all interested stakeholders should start to view emigration positively and provide the necessarily supporting institutional facilities to allow easy remitting.

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