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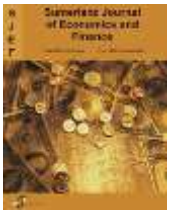

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Prospects for Partner-Agent Model Practice to Enhance Microinsurance Appropriateness in Tanzania

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Abstract

This paper examines the prospects of the Partner-Agent Model (PAM) practice in enhancing micro-insurance appropriateness among microfinance institutions (MFIs)' clients, in Tanzania. The study adopts a quantitative technique based on primary and secondary data sampled randomly from 229 MFIs selected from ten regions, the most prone to disaster risks, in Tanzania. The Hierarchical Regression Analysis was used for the empirical investigation. The results indicate that the collaboration between the agent and the partner during microinsurance product design, sharing business information between the agent and the partner, integration of parties' respective core competencies, transfer of specialized knowledge and parties' compliance to contractual obligations have a positive and significant effect on microinsurance appropriateness. PAM practice and microinsurance appropriateness are nascent phenomenon in Tanzania. Thus, these areas have not yet attracted the attention of many researchers. This foundational study is, therefore, original and most relevant to MFI managers and insurance regulators to enhance microinsurance appropriateness. The Tanzania Cooperative Development Commission (TCDC), Tanzania Association of Microfinance Institutions (TAMFI) and the Tanzania Insurance Regulatory Authority (TIRA) are recommended to coordinate and regulate the PAM practice to enhance the provision of appropriate microinsurance services.

Keywords: Partner-Agent model; Microinsurance; Microfinance; Appropriateness.

1. Introduction

People on low-income in developing countries are the most vulnerable to natural and man-made disasters such as fire, drought, floods, epidemics, loss of agricultural crops and livestock, permanent disability or death (Gertler and Gruber, 2002; Loayza *et al.*, 2012). Natural and man-made disasters push nearly 100 million low-income people below the poverty line annually (Mills, 2014). Globally, the disasters are responsible for about 42% of total economic losses among low-income people (United Nations International Strategy for Disaster Reduction (UNISDR, 2015). In Sub-Saharan Africa, drought and floods alone account for almost 70% of low-income people's economic losses (Shiferaw *et al.*, 2014). In Tanzania, more than 3 million low-income people have been affected by various disasters in the past decade, causing an estimated loss of Tshs 218 billion (Mkama, 2015). The effect of disaster shocks on the economies of low income people is even exacerbated by the current ever increasing climate change (UNISDR, 2015). As such, disaster shocks furthermore hinder the attainment of the first of the seventeen Sustainable Development Goals (SDGs), that is, ending low-income vulnerability to poverty in all its forms everywhere come 2030 (Kilama *et al.*, 2016). Low-income people are the highly vulnerable to disaster risks but they are the least protected by formal insurance and their traditional coping mechanisms (microsavings, sale of land and livestock, borrowing from moneylenders, friends and relatives) (Leach and Kachungwe, 2015; Wipf *et al.*, 2011) offer less protection for significant disasters (Churchill and Cohen, 2006) and ruin them further. However, there have gradually been emerging microinsurance schemes, most of which being embedded in loans offered by microfinance institutions (MFIs) (Dalal and Morduch, 2010; Roth *et al.*, 2007) or provided (to MFIs' clients) in partnership with insurance companies through a Partner-Agent Model (PAM) (Brown and McChord, 2000; Roth *et al.*, 2007).

The PAM is a partnership between an insurance company ("partner") and an "agent", which is typically a microfinance institution company, a non-government organisation, or a cooperative organisation. The "agent" is responsible for delivery and marketing of microinsurance products to clients, but the "partner" retains all responsibilities for designing, pricing and underwriting products so as to expand microinsurance services that are appropriate to low-income people (Heenkenda, 2016; McCord, 2006; Shil, 2013).

Despite that PAM is still a nascent microinsurance delivery model in Tanzania, it has enabled the expansion of PAM microinsurance coverage to low-income people such that 92 percent of those insured are covered by PAM microinsurance (Hougaard *et al.*, 2012; Kamuzora, 2012; MIC, 2015). However, despite the above theoretical underpinning, less is still known about the effect of PAM Practice on microinsurance appropriateness in Tanzania as this area has not yet attracted much researcher's inquiry.

Previous studies (Cohen and Sebstad, 2005; Farooqui, 2013; Giesbert and Sterner, 2011; Matul and Kelly, 2012; McCord, 2006) have explored the prospects of PAM Practice in reducing the loan default risk for microfinance institutions. They further determined the prospects of PAM Practice in creating awareness among low-income people regarding voluntary microinsurance and the effect of PAM Practice on the affordability of voluntary microinsurance (Churchill and Cohen, 2006; Gertler and Gruber, 2002). Nevertheless, they overlook the effect of PAM practice on microinsurance appropriateness which focuses on the relevancy of microinsurance to low-income people. Moreover, those studies' findings face three significant limitations to be generalised in Tanzanian context. First, they were conducted outside Tanzanian. The researcher's intensive literature review found no study conducted in Tanzania on the effect of PAM practice on Microinsurance appropriateness. Consequently, the empirical literature informing this study stems from prior studies conducted in Bolivia (Leftley and Mapfumo, 2006), India (Farooqui, 2013), Kenya (Wairimu and Okebo, 2015), Nicaragua (Thornton *et al.*, 2009), the Philippines (Matul *et al.*, 2011) and Swaziland (Kanyangale and Lukhele, 2018) whose socio-economic factors are substantially different from Tanzania context. Therefore, the objective of this study was to examine the effect of PAM practice on microinsurance appropriateness. This study is important not only because one of the key determinants of microinsurance uptake is the relevance of the product to the clients most risk exposure but also because 92% of insured low income people in Tanzania are covered through PAM. The rest of the paper is divided as follows: Section 2 presents the theoretical and empirical literature review on PAM microinsurance in Tanzania, microinsurance appropriateness and PAM practice. While section 3 deals with the methodology of the study, section 4 discusses the study results and section 5 concludes the paper.

2. Literature Review and Hypothesis

2.1. Conceptualisation of the Study Constructs

2.1.1. Microinsurance Appropriateness

Microinsurance appropriateness is conceptualised as matching the most important risk management need of the targeted population. It is operationalised as product customisation to contextual client's risk exposure, level of benefit to clients measured as the ratio of premium to sum-assured, extent of coverage inclusion (borrower, spouse, children) and the provision of additional non-insurance services such as disaster prevention trainings to clients (Matul *et al.*, 2011; Sahu, 2013). Microinsurance appropriateness is measured on four items, i.e. microinsurance product customisation to clients' most risks exposure, frequency of disaster preventive trainings, range of premium to sum-assured ratio and extent of coverage of microinsurance service or inclusion.

2.1.2. Partner-Agent Model Practice

The conceptual definition of the latent variable 'Partner-Agent Model Practice' was borrowed from Min and Mentzer (2007). They conceptualise the PAM Practice as a set of expected organisational activities to achieve the shared partnership objectives. The PAM Practice is a multidimensional concept which encompasses five facets, namely (i) the collaboration between the agent and the partner during microinsurance product design, (ii) sharing business information between the agent and the partner (Prahalad and Hamel, 1990), (iii) integration of parties' respective core competencies, (iv) transfer of industry-specific knowledge (Hancox and Hackney, 2000) and (v) parties' compliance to contractual obligations. Compliance to contractual obligations consists of the insurance company's cooperation in case of contractual and operational dispute settlements (Ahimbisibwe *et al.*, 2012; Lambe *et al.*, 2002; Williamson, 1979). As such, the PAM Practice has the potential to mitigate the information imbalance between both partner and agent in regard to clients they serve and foster the provision of relevant microinsurance products to the client (Churchill, 2007; Meyer, 2012).

2.2. Theoretical Literature Review

2.2.1. PAM Microinsurance in Tanzania

PAM microinsurance is an emerging phenomenon in the Tanzanian insurance market with 3.9 % coverage, equivalent to 1.99 million of its population (MIC, 2015). Though PAM microinsurance presents a very small portion in the whole insurance sector in Tanzania with a population of 52 million people, it is a fast and steadily growing product in the insurance market (FSDT, 2015); Tanzania Insurance Regulatory Authority (TIRA, 2016). However, despite the steady growth, the coverage rate indicates that the microinsurance penetration in Tanzania is still minimal.

TIRA has been playing a significant prospect to support the PAM microinsurance market development initiatives. Nevertheless, a number of PAM microinsurance products have failed to take off owing to, among other factors, the insignificant investment in market research and inadequate regulation of the available limited distribution channels to reach low-income people (FSDT, 2015). The leading microinsurance distribution channels in Tanzania include microinsurance companies partnering with mobile communication providers (e.g. Tigo Bima offered in partnership with Golden Crescent and MicroInsure insurance companies); and microinsurance companies partnering with banks and MFIs (PAM). The first and most common microinsurance product to be sold through PAM in the microinsurance market in Tanzania was the credit life microinsurance (FSDT, 2015).

The latest phenomena that have provided significant growth to the long-term insurance market are funeral and personal accident products that are embedded in retail MFIs, typically microcredit (FSDT, 2015; Hougaard *et al.*, 2012). To date, the PAM has enabled the embedment of a variety of mandatory microinsurance products in MFIs loans. It bundles more than credit life microinsurance by including saving life, endowment life, health and crops

microinsurance (Brown and McChord, 2000). However, the fundamental concern of microfinance practitioners is whether PAM practice in Tanzania enhances microinsurance appropriateness.

The PAM is still a nascent microinsurance delivery model in Tanzania but it has enabled a significant expansion of PAM microinsurance coverage to low-income people in Tanzania (Hougaard *et al*., 2012; Kamuzora, 2012; MIC, 2015).

2.2.2. Theoretical Perspective of the Study: Partnership and Alliance Theory

The Partnership and Alliance Theory was used to inform this study and to predict the possible effect of PAM Practice on PAM microinsurance appropriateness. The Partnership and Alliance Theory (Lambe *et al*., 2002) holds that alliances engender complementarity of resources and collaborative provision of customer value end products. Complementary resources are either tangible (assets) or intangible (skills). The parties pool together these tangible and intangible resources to complement each other in order to achieve a shared goal that neither party could easily achieve on its own (Wang *et al*., 2004).

Consistent with this study, through PAM, insurance companies (partners) and MFIs (agents) pool together their firm-specific competencies to provide microinsurance appropriateness that either the partner or the agent could not easily achieve single-handedly (Ahimbisibwe *et al*., 2012; Lambe *et al*., 2002). On the one hand, partners have professional and technical skills of designing microinsurance products but have limited understanding of the low-income people market segment. On the other hand, agents have experience of working with low-income people and understand their risk exposure but have limited skills to design a variety of suitable microinsurance products (Rendek, 2012). Therefore, drawing from the Partnership and Alliance Theory, the PAM Practice, particularly the good collaboration between the agent and the partner during PAM microinsurance product design, the transfer and sharing of knowledge and business information among parties's staff, the integration of their business-specific competencies as well as the parties' compliance to contractual obligation, is likely to enhance microinsurance appropriateness.

2.3. Empirical Literature Review

Microinsurance appropriateness is conceptualised as matching the most important risk management need of the targeted population. It is operationalised as product customisation to contextual risk exposure, level of benefit and coverage inclusion and the provision of additional non-insurance services (Matul *et al*., 2011). MFIs most developed product is credit life microinsurance (Leftley, 2011). However, to make mandatory or PAM microinsurance more relevant to existing and potential clients it is important to extend benefits beyond basic credit to include death cover for additional family members and/or other benefits (Banthia *et al*., 2012; Churchill, 2007; Wipf *et al*., 2011). PAM microinsurance appropriateness can be impaired by exclusion of family members from insurance and long feedback waiting periods (Leatherman *et al*., 2010).

Roth *et al*. (2005), conducted a case study to determine the effect of PAM Practice on microinsurance in India. The study involved the Life Insurance Corporation (LIC) and three MFIs, namely Activists for Social Alternatives (ASA) microfinance, SPANDANA and Self Help Promotion for Health and Rural Development (SHEPHERD). Contrary to Banthia *et al*. (2012), the study established that, though the appropriateness of microinsurance is desirable, the increase of benefits like inclusion of non-members, such as a spouse, in the cover increases the probability of occurrence of the insured risk. This increase inflates microinsurance provision costs thus hindering microinsurance service affordability. Instead, preventive trainings are rather encouraged to create clients awareness on the prevention of potential risks before shocks which lead to avoidable perils. From the empirical underpinning above, there are no conclusive empirical evidence on the effect of PAM Practice on microinsurance appropriateness.

Nevertheless, building on the Partnership and Alliance Theory, the collaboration between the partner and the agent enables the negotiation between agents and partners on the design or refinement of microinsurance products which are customised to clients' contextual risk exposure (Lambe *et al*., 2002). Therefore, it can be argued that there is a significant relationship between PAM practice and microinsurance appropriateness. Therefore,

Hypothesis: *The PAM Practice has a positive effect on the appropriateness of PAM microinsurance.*

3. Methodology

3.1. Data Type and Source

Both primary and secondary data were collected. Primary data, which were collected using self-reported questionnaires, consisted of views of 229 MFI managers regarding the effect of PAM Practice on microinsurance appropriateness. Secondary data consisted of reviews of MFIs' documents to ascertain, among other data, the size of the MFIs in terms of loan portfolio, the interest rate charged to clients, the amount of premiums collected from clients and paid to the insurance company, the type and amount of financial benefits paid to the affected client's family, as well as the time it took the insurance companies to settle clients' claims.

3.2. Sample Description

The stratified sampling method was used to determine the sample size of 229 MFIs from ten (10) regions of the study, that is, Dar es Salaam, Arusha, Mwanza, Mbeya, Kilimanjaro, Morogoro, Kagera, Dodoma, Shinyanga and Pwani. These regions were selected because they are prone to disaster risks (URT, 2011) and, together, account for 308 MFIs, an equivalent of 65.25 % of all MFIs involved in PAM for a duration of at least three years which assures the availability of the required relevant data. The MFIs consisted of microfinance cooperatives (MFCs), microfinance NGOs and microfinance companies.

A pilot survey was conducted to refine the instrument. While the unit of analysis consisted of MFIs, the unit of inquiry, which is the subject on which the information is obtained (Benett *et al.*, 1991), comprised one manager from each of the 229 sampled MFIs. MFIs managers were selected for three main reasons: first, managers are borrowers from the MFIs they are employed in, especially the MFCs. Therefore, they are MFIs clients. Second, MFIs managers are involved in the day-to-day management of the PAM. So, they are conversant with the PAM Practice than other clients who are not in managerial positions within the MFI. Third, apart from the fact that they are themselves clients of MFIs, they also handle other clients' complaints and claims. Therefore, MFIs' managers have vast practical experience required to provide reliable data to the study inquiries.

3.3. Operationalization and Measurement of Variables

The dependent and independent variables were measured on a 5-point Likert Scale: *1= "Not at all", 2 = "to a small extent", 3 = "to a moderate extent", 4 = to a great extent, and 5= "To a very great extent"* where respondents were requested to rate, in their opinion, the extent of PAM practice and microinsurance appropriateness in Tanzania based on the 5-point Likert scales above. This measurement approach was previously used by several scholars including Bergam *et al.* (2014); Min and Mentzer (2007), and Njuguna and Arunga (2013), to evaluate the client-value of microinsurance products.

3.3.1. Dependent Variable

This study had one dependent variable, viz, *microinsurance appropriateness (APP).* B*orrowing* from Matul *et al.* (2011) and Sahu (2013), this variable was measured based on product customisation to contextual client's risk exposure, level of benefit to clients measured as the ratio of premium to sum-assured, extents of coverage inclusion (borrower, spouse, children) and the provision of additional non-insurance services such as disaster prevention trainings to clients.

Regarding qualitative measurements, the study used the 5-point Likert scale approach to probe respondents' views on the extent of microinsurance appropriateness. The 5-point Likert scale was: *1= "Not at all", 2 = "to a small extent", 3 = "to a moderate extent", 4 = to a great extent, and 5= "To a very great extent".* Through the questions in the survey questionnaire, respondents were requested to rate, in their opinion, the extent of PAM microinsurance appropriateness, based on each of its observable variable.

The data analysis and presentation involved collapsing respondents' responses into three rating scale categories to get a closer results meaning, as follows: Low (1 and 2), Moderate (3) as a midpoint, and High (4 and 5), consistent with the approach of Jeong and Lee (2016) and Plumpton *et al.* (2016). This approach was made possible by applying the Transform function in SPSS.

3.3.2. Independent Variables

The PAM Practice (PAM) construct consists of five independent variables, namely collaborative product design (PAM1), information sharing (PAM2), integration of core competencies (PAM3), knowledge transfer (PAM4) and compliance to contractual obligations (PAM5).

Lambe *et al.* (2002), define the *collaborative product design (PAM1)* as the collaboration between the partner (insurance company) and the agent (MFI) during microinsurance product design or refinement. This study sought to capture the respondent's opinion on the extent of collaboration between partners and agents during the microinsurance product design. *Information sharing (PAM2)* refers to *b*usiness information sharing between the partner and the agent. This study sought to get respondents' views regarding the extent to which the partner and the agent share business information, skills and experiences concerning attributes of microinsurance services in a timely, accurate, adequate and reliable manner (Prahalad and Hamel, 1990). In regard to the *Integration of core competencies (PAM3),* (Lambe *et al.*, 2002) refer to it as the combination of partner's and agent's respective firm-specific core competencies. The study sought to capture the respondent's opinion on the extent of complementarity of partner's and agent's competencies in their respective business specialisations in order to exploit synergies. *Knowledge transfer (PAM4)* is defined by Hancox and Hackney (2000) as the transfer of microinsurance-related knowledge from the insurance companies' to MFIs' staff who offer microinsurance services to clients. Considering that PAM microinsurance products are sold by MFIs staff who have no expertise in insurance sector, the study aim was to get the respondents' opinion on the extent to which insurance companies (partners) transfer microinsurance-related knowledge to MFIs' staff who sell microinsurance services to clients. *Compliance to contractual obligations (PAM5)* refers to the partner's compliance to the terms and conditions agreed upon in the partnership contract stipulating each party's obligation in PAM (Ahimbisibwe *et al.*, 2012). Based on existing empirical studies (Ahimbisibwe *et al.*, 2012; Williamson, 1979), there are evidences that some partners rather than agents, behave opportunistically by shunning away from their contractual obligations of paying genuine clients' claims. In this regard, through the questions in the survey questionnaire, the study sought to probe respondents' opinion on the extent to which partner's comply to the terms and conditions agreed upon in the PAM contract. The independent variables above were measured on a 5-point Likert Scale: *1= "Not at all", 2 = "to a small extent", 3 = "to a moderate extent", 4 = to a great extent, and 5= "To a very great extent"* where respondents were requested to rate, in their opinion, the extent of PAM practice in Tanzania based on the 5-point Likert scales above. This measurement approach was previously used by several scholars including Bergam *et al.* (2014); Min and Mentzer (2007), and Njuguna and Arunga (2013), to evaluate microinsurance products.

During the data analysis and presentation, with the help of the Transform function in SPSS, the researcher collapsed respondent's responses into three rating scale categories, to get closer insight in the results: Low (1 and 2),

Moderate (3) as a midpoint, and High (4 and 5), consistent with the approach of Jeong and Lee (2016) and Plumpton *et al.* (2016).

3.3.3. Control Variables

In order to examine the specific relationship between PAM practice and microinsurance appropriateness, the effect of *MFI types* (MFCs, NGO, Company) and *MFI Size* (size of loan portfolio) were controlled. According to Ahsan *et al.* (2013) and Dary and Issahaku (2013), the MFI size in terms of size of loan portfolio and its type (MFCs, NGO or company) are likely to influence the commitment of the insurance company in the PAM. The higher the size of loan portfolio, the higher the premium income earned by the insurance company, thus, the wider the variety of risk exposures and the variety of microinsurance products required to meet the varied needs of clients (appropriateness). With regard to the measurement approach, the MFI size portfolio was measured as a natural logarithm of the MFI loan portfolio and the MFI type was measured categorically where: 1 = MFCs, 2= MFI-NGO and 3= MFI company.

3.4. Testing of Data Assumptions: Validity and Reliability Tests

3.4.1. Construct Validity Test

The substantiation of construct validity entails the evaluation of the six validity tests, i.e. face validity, content validity, concurrent validity, predictive validity, convergent validity and discriminant validity. However, of these types of validity, Kline (2011) recommends two validity tests, namely the convergent and discriminant validity tests as they provide reliable results. Convergent validity was evaluated using the Average Variance Extracted (AVE). AVE measures the level of variance captured by a construct versus the level due to the measurement error. According to Gaskin (2012), AVE estimates which are above 0.7 are considered to be very ideal, whereas the value of 0.5 is acceptable. To evaluate the validity of constructs, the AVE values for each construct were compared with composite reliability (CR) whose estimate values which are above 0.7 are good, Maximum Shared Squared Variance (MSV) estimates and Average Shared Square Variance (ASV) for each construct. While the convergent validity is ascertained if CR > AVE > 0.5, the discriminant validity is ascertained if MSV <AVE and ASV < AVE. Results in Table 3.1 indicate that all AVE estimates are greater than the recommended value of 0.5 with all factor loadings greater than 0.5 (Hair *et al.*, 2010). Moreover, with reference to results in Table 3.1, CR > AVE, MSV < AVE and ASV<AVE. The constructs of this study were, therefore, statistically valid.

Table-3.1. Convergent and Discriminant Validity Test

Construct	Items	Standardised Factor Loadings	Cronbach's Alpha values	CR	AVE	MSV	ASV
PAM Practice	PAM1	0.95	0.869	0.982	0.918	0.130	0.081
	PAM2	0.98					
	PAM3	0.92					
	PAM4	0.99					
	PAM5	0.95					
Appropriateness	APP1	0.79	0.840	0.843	0.579	0.068	0.029
	APP2	0.64					
	APP3	0.66					
	APP4	0.92					

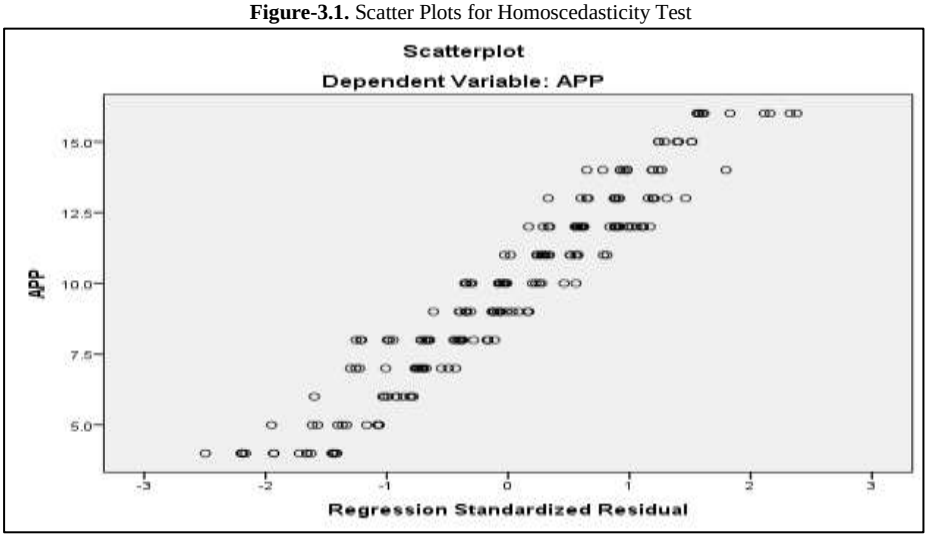
3.4.2. Reliability Tests

The reliability of constructs involved the measurement test of internal consistency of the study instrument, as it has to maintain the congruency between the study constructs and their respective measurement items. The reliability of constructs was evaluated using the Cronbach's Alpha and the Composite Reliability (CR) measures. According to Hair *et al.* (2010) the recommended cut-off point of acceptable value for Cronbach's Alpha and CR are at least 0.7. From Table 3.1, the values of Cronbach's Alpha for construct are 0.869 and 8.840, while those of CR values are 9.982 and 843 which, actually, fall within the recommended threshold of at least 0.7. Therefore, the constructs of this study were statistically proved reliable.

3.4.3. Linearity Test

Statistical methods for data analysis, such as regression analysis, require an assumption of linearity of data, viz, to determine whether the data was collected from a population that relates the variables of interest in a linear mode. The linearity of data was tested by using the Scatter Plot presented in Figure 3.1. A visual examination of the Scatter Plot output indicates that data form a linear straight linear pattern (Figure 3.1). Therefore, from these statistics, the model fit was adequate for further multivariate analyses.

Figure-3.1. Scatter Plots for Homoscedasticity Test



3.4.4. Multicollinearity Test

Multicollinearity is a statistical phenomenon in which two or more explanatory variables in a multiple regression model are highly linearly related. The multicollinearity test can be performed using both common methods, viz the examination of correlation matrix and the Variance Inflation Factor (VIF). Whereas a high correlation coefficient of independent variables in the correlation matrix implies the presence of multicollinearity between two variables, VIF quantifies the severity of multicollinearity in a regression analysis. As a rule of thumb, Hair *et al.* (2010) contend that a correlation coefficient greater than 0.9 signals a multicollinearity problem and Field (2009) holds that a VIF value less than 5.00 indicates a multicollinearity-free independent variable relationship. In this study, the test of multicollinearity was achieved by examination of the correlation matrices, as well as the Variance Inflation Factor (VIF).

The examination of the correlation matrices indicates that the coefficients range between 0.002 and 0.687. These coefficients are less than 0.9 which is recommended by Hair *et al.* (2014) as thresholds. Thus, correlation coefficients demonstrate that the independent variables relationships do not imply a multicollinearity problem. Furthermore, the VIF values were estimated by using the linear regression in order to validate the results from the regression analysis. As indicated in Tables 3.2 all VIF values were less than the recommended threshold of 5.00. Therefore, building on the examination of the correlation coefficients in the correlation matrix and the values of the VIF and tolerance, there was no multicollinearity threat associated with independent variables of this study.

Table 3.2. Partial Correlation and Collinearity Test

N		1	2	3	4	5	6	7	8	9	10	11	12	13	VIF
1	Customisation (APP1)	1.000													
2	Prem/Sum Assur (APP2)	.472**	1.000												
3	Inclusion (APP3)	.139	.519**	1.000											
4	Training (APP4)	.230*	.501*	.541**	1.000										
5	***Appropriateness (APP)***	***.527****	***.618****	***.646****	***.469****	***1.000***									
6	Collaboration(PAM1)	.384**	.353**	.249**	.285*	***.449****	1.000								2.183
7	Integration(PAM2)	.210*	.372**	.213*	.288*	***.279****	.425*	1.000							1.016
8	Information (PAM3)	.369**	.342*	.251*	.313**	***.390****	.624**	.586*	1.000						1.441
9	Knowledge (PAM 4)	.326*	.357**	.240**	.280*	***.316****	.540*	.464*	.607*	1.000					2.200
10	Compliance (PAM5)	.331*	.348*	.229*	.290*	***.401****	.309**	.626*	.487*	.534*	1.000				1.836
11	***PAM Practice (PAM)***	***.449****	***.462****	***.390****	***.379****	***.533****	.561*	.670*	.652*	.481*	663*	1.000			1.000
12	MFI Type	.054	.017	.061	.053	.063	.011	.025	.039	.013	.047	.028	1.000		
13	MFI size	.047	.094	.028	.029	.005	.010	.030	.065	.042	.007	.032	.024	1.000	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

3.4.5. Homogeneity Test

Homogeneity of variance refers to the even spread of scores reflected in the variance, which is simply the standard deviation squared. The errors are assumed spread out consistently between the variables (Keith, 2006). The homogeneity of variances is measured by checking for the homoscedasticity. Homoscedasticity or constant variance is a standard assumption in the regression model (Osborne and Waters, 2002). As heteroscedasticity in linear models can distort the results of inferential analysis, it was therefore worth assessing the adequacy of homoscedasticity assumption. The homoscedasticity which can be checked by visual examination of a plot of the standardised residual by the regression standardised values are proved when the scatter plot is evenly distributed (Osborne and Waters, 2002). In this study, the homoscedasticity was checked by visual examination of a plot of the standardised residual by the regression standardised values. These values are proved when the scatter plot is evenly distributed (Osborne and Waters, 2002). The visual examination of the scatter plots (Figure 3.1) indicates that the variance of data was fairly distributed with an even pattern showing that there was homogeneity of variance.

3.5. Model and Specification

The hierarchical regression analysis model was used to test individual and cumulative contribution of independent variables in explaining the variation in microinsurance appropriateness while controlling for MFI type and size. The two (2) models representing the hypothesised relationships are specified by the following hierarchical regression equations below:

$$Model\ 1: APP_{MI} = \alpha + \beta_1(MFI\ type) + \beta_2(MFI\ size) + \varepsilon \quad (1)$$

$$Model\ 2: APP_{MI} = \alpha + \beta_1(MFI\ type) + \beta_2(MFI\ size) + \beta_3 PAM1 + \beta_4 PAM2 + \beta_5\ PAM3 + \beta_6 PAM4 + \beta_7 PAM5 + \varepsilon \quad (2)$$

Where APP: Microinsurance appropriateness

α: a constant

$\beta 1$: the unstandardised coefficient of MFI type

β_2: the unstandardised coefficient of MFI size

$\beta 3$: the unstandardised coefficient of collaborative product design (PAM1)

β_4: the unstandardised coefficient of integration of core competencies (PAM2)

β_5: the unstandardised coefficient of information sharing (PAM3)

β_6: the unstandardised coefficient of knowledge transfer (PAM4)

β_7: the unstandardised coefficient of compliance to obligations (PAM5)

ε: the error term.

4. Empirical Results

4.1. Sample Characteristics

In this study, the unit of analysis consisted of Microfinance Institutions (MFI) and the unit of inquiry was constituted by MFI Managers. As earlier discussed, the sample size consisted of 229 MFIs. The following section presents the distribution of MFIs survey, by type.

4.1.1. MFIs Distribution by Types

Regarding the MFIs distribution by types, the sample was dominated by MFCs at 83.84%, followed by MFI-companies (10.48%). MFI-NGO constituted 5.68% of the sample. This distribution is unbiased as it emanates from the proportional number of MFCs, MFI-companies and MFIs-NGOs involved in PAM, in Tanzania. Therefore, the sample was representative of the population. Ahsan *et al.* (2013), contend that the type of an MFI in PAM is likely to have an effect on the microinsurance client-value. Thus, basing on the above contention, the inclusion of the two control variables, namely MFI type and size in this study was essential. The distribution of MFIs by types is presented in Table 4.1.

Table-4.1. MFIs Distribution by Types

Type of MFIs	Frequency	Percent
MFCs	192	83.84
MFI-NGO	13	5.68
MFI-Company	24	10.48
Total	**229**	**100.00**

Demographically, the respondents were categorized into managerial positions and educational levels. The former comprised either managers or, alternatively but in few cases, loan officers, in case the latter had more data pertaining to this study compared to the former. As expressed in Table 4.2, of 229 respondents, 225 (98.3%) were MFI managers and 4 (1.7%) were loan officers. In some cases, though, questionnaires were completed by managers in consultation with loan officers in regard to microinsurance premium and claims statistics.

Regarding their level of education, with the help of cross tabulation, it was further observed that 87 (34%) and 65 (29%) of all MFIs managers had a diploma and a bachelor degree, respectively. Only 3 (1.3%) had a master's degree. The four loan officers were distributed as follows: 1 (25%) had a secondary education, 2 (50%) had a diploma and 1 (25%) has a bachelor degree. Therefore, we observe that the majority of MFI leaders (87 managers)

had a diploma level of education. The level of education of managers/loan officers were specifically considered because education may have a confounding effect on both the intellectual ability of MFIs leaders to negotiate mutually beneficial PAM contracts and, consequently, the effect of PAM Practice on microinsurance client value dimensions.

Table-4.2. Respondents Demographic Characteristics

Variable	Measure	Frequency	Percent
Position	Managers	225	98.3
	Loan Officers	4	1.7
	Total	**229**	**100.00**
Education	A-Level Education	34	14.8
	Certificate	31	13.5
	Diploma	89	38.9
	Bachelor's degree	66	28.8
	Postgraduate diploma	6	2.6
	Master's	3	1.3
	Total	**229**	**100.00**

4.2. Summary Descriptive Statistics of the Study Variables

This section presents the descriptive statistics (mean, standard deviation (SD), maximum and minimum values) of dependent, independent and control variables of this study. The dependent and independent variables were measured on a 5-point Likert scale ranging from *1 = not at all (minimum)* to *5= to the great extent (maximum)* over a total of 229 observations (n = 229). The examination of the results in Table 4.4 indicates that the mean values of all the examined variables are below the scale's centre point *(3 = moderate).* Field (2009), expounds that while the mean values represent the respondents' views on a given variable, the values of standard deviation (SD) indicate how well the mean represents the data. It indicates the spread of responses in data.

According to Field (2009), whereas a SD of zero shows that all the scores are the same, the SD above zero and equal or less than one shows that responses are well represented by the mean. In respect of PAM practice, with the mean value of PAM practice variables ranging below 3 (the midi-point), respondents' views are that the independent variables, namely the collaboration between MFIs and insurance companies, the sharing of business information, the integration of firm specific core competencies, the transfer of knowledge among staffs of MFIs and insurers and the compliance to the contractual obligation are low.

With regard to the dependent variables, the mean values – all are less than the scale's centre point- indicate that microinsurance appropriateness still scores low, below the mean. Table 4.3 below presents the summary descriptive statistics of the study variables.

Table-4.3. Descriptive Statistics of Study Variables

Variables	N	Mean	SD	Min.	Max.
Appropriateness (APP)	229	2.45	0.39	1.00	5.00
Collaborative product design (PAM1)	229	2.56	0.12	1.00	5.00
Integration of core competencies (PAM2)	229	2.38	0.17	1.00	5.00
Information sharing (PAM3)	229	2.50	0.09	1.00	5.00
Knowledge transfer (PAM4)	229	2.43	0.22	1.00	5.00
Compliance to obligations (PAM5)	229	2.48	0.39	1.00	5.00
MFI Type	229	1.1	0.05	1.00	3.00
MFI Size (Ln of loan portfolio)	229	8.44	0.08	7.24	9.99

4.3. Multivariate Results

The objective of this study was to examine the effect of PAM Practice (collaborative product design, integration of core competencies, information sharing, knowledge transfer and compliance to the contractual obligations) on the appropriateness (product customisation, premium to sum-assured ratio range, main riders' inclusion and preventive trainings) of PAM microinsurance products. It was hypothesised that PAM Practice has a positive effect on the appropriateness of microinsurance.

In order to examine the hypothesised specific relationship free from spurious influence, two control variables (MFI type and size) were first entered in the regression (Model-1), as presented in Table 4.4. The hierarchical regression analysis results indicate an insignificant effect of control variables on all microinsurance appropriateness indicators, namely product customisation (APP1), at F(2, 226) =2.586, p = .338, where they jointly explained 0.05% (R^2 = 0.005), premium to sum-assured ratio (APP2), at F (2, 226) = 3.043, p = 0.013 where they explained 0.9% (R^2 = 0.009) of the variance in sum-assured in relation to cost of risk (Columns 1 and 2). Likewise, they had a statistically insignificant effect on preventive trainings (APP4) in column 4, F (2,226) = 3.406, p = 0.061, accounting for 0.4% (R^2 = 0.004) of variance in preventive training (column4). In a nutshell, the analysis of control variables' predictive powers exhibits a statistically insignificant effect of control variables, respectively and cumulatively, on microinsurance appropriateness. Thereafter, five PAM Practice observable variables (collaborative product design,

integration of core competencies, information sharing, knowledge transfer and compliance to the contractual obligations) were added to the regression model (in Column 1, Model 2). (Baumeister, 2010; Frink, 2011; Hakan and Jamel, 2012; Kennedy, 2011).

Their addition of the variables exhibited a greater predictive power of 21.3% (R^2 = 0.213) of variance in product customisation (APP2), representing an additional 20.4% (ΔR^2 = 0.204) variance in product customisation. However, they showed a least predictive power of 14.4% of variance in Training (APP4), an additional variance of 14.0% (ΔR^2 = 0.140). These variances were statistically significant at F (9, 221) = 7.478, p = 0.026 and F (7,221) = 5.335, p = 0.003 respectively.

Further examination of results in Table 4.4 reveals that of the five independent observed variables, the collaborative product design (PAM1) had a bigger predictive power of the variance in dependent observed variables (product customisation, premium to sum-assured ratio range, main riders' inclusion and preventive trainings) while the compliance to the contractual obligation had the least predictive power in the variance of the dependent observed variables.

With the help of the Transform function in SPSS 20.0, the summated scales were computed in order to combine the responses to appropriateness measurement items (customization, premium to sum assured ratio, inclusion of main riders, and prevention trainings) (Hair *et al.*, 2014). This combination was to enable the examination of the effect of individual PAM Practice variables on microinsurance appropriateness (APP), as per the objective and hypothesis. This approach is consistent with Joshi *et al.* (2015).

In Table 4.2, it is observed that control variables (in Model-1) had insignificantly contributed 0.4% of the variance in microinsurance appropriateness, significant at F (2,221) = 3.451, p = 0.117. The addition of the five independent observed variables to the regression equation (Model-2) explained 30.6% of the variance in microinsurance appropriateness, an additional 30.2% (ΔR^2 = 0.302) in variance, significant at F (7,221) = 9.585, p = 008. It was further observed that while the collaborative product design (PAM1) had the highest predictive power of the variance in microinsurance appropriateness (β = 0.450, p<0.01), the integration of core competencies (PAM2) exhibited the least but statistically significant effect on the appropriateness of microinsurance products (β = 0.277, p<0.05).

Specifically, the results indicate that the PAM practice (collaborative product design, integration of core competencies, information sharing, knowledge transfer and compliance to the contractual obligations) predictive power of 30.2% (ΔR^2 = 0.302), significant at F (7,221) = 9.585, p = 008, implies that one unit change in PAM Practice will result in 30.2% change in PAM microinsurance appropriateness. Thus, the improvement in PAM Practice is likely to improve the PAM microinsurance appropriateness.

As such, the hierarchical regression analysis results presented in Table 4.4 corroborate the hypothesised relationship that the PAM Practices, particularly the MFIs and insurance companies' collaborative product design (PAM1), the compliance to contractual obligations (PAM5), business information sharing (PAM3), and knowledge transfer (PAM4) exhibit a more positive effect on microinsurance appropriateness. Table 4.4 presents the detailed hierarchical regression statistics, for more substantiation of the hypothesised relationships.

Table-4.4. Results of the Hypothesis Testing using the Hierarchical Regression Analysis

Variables		(1) Customisation(APP 1)		(2) Prem/Sum-assured(APP2)		(3) Inclusion(APP3)		(4) Trainings (APP4)		Appropriateness(APP)	
		Model-1	Model-2	Model-1	Model-2	Model-1	Model-2	Model-1	Model-2	Model-1	Model-2
	Constant	2.147	1.140	3.484	2.499	2.367	1.790	2.343	1.493	10.341	6.922
	MFI Type	.053 (.792)	.051 (.710)	.019 (.293)	.014 (.131)	.060 (.910)	.059 (.890)	.052 (.788)	.050 (.585)	.063 (.946)	.050 (.829)
	MFI Size	.046 (.695)	.049 (.855)	.094 (1.421)	.091 (1.320)	.026 (.397)	.027 (.418)	.028 (.401)	.028 (.527)	.040 (.057)	.012 (.101)
PAM Practice	Collaboration (PAM)		381*** (5.269)		.349** (2.361)		.247** (3.021)		.282** (4.407)		.450** (2.782)
	Integration (PAM2)		.217** (2.162)		.374** (2.453)		.218* (1.497)		.286** (4.603)		.277* (3.877)
	Information (PAM3)		.358** (2.075)		.339* (1.433)		.253* (3.486)		.317* (4.100)		.388** (2.958)
	Knowledge (PAM4)		.322* (1.002)		.360* (3.114)		.240** (2.027)		.283* (1.704)		.318* (2.736)
	Compliance (PAM5)		.334* (2.072)		.346* (1.811)		.225* (1.074)		.289** (2.117)		.403* (2.301)
	R	.071	.449	.096	.462	.067	.390	.061	.379	.063	.553
	R^2	.005	.202	.009	.213	.004	.152	.004	.144	.004	.306
	ΔR^2 (F-value)	.005 (2.586)	.197 (9.066)	.009 (3.043)	.204 (7.478)	.004 (3.502)	.148 (4.328)	.004 (3.406)	.140 (5.335)	.004 (3.451)	.302 (9.585)
	Sig.F change	.338	.020	.113	.026	.244	.011	.151	.003	.117	.008

Level of Significance: *p< .05; **p <.01; ***p < .001.

5. Discussion of Results

The findings of this study corroborate those of Armendariz and Morduch (2010); Matin *et al.* (2002) and Radhawa *et al.* (2006) who posit that the collaboration between the partner and the agent during the product development, refinement and delivery process, sharing of information and transfer of operational knowledge between staffs of the two parties and their commitment to their obligations in serving MFIs clients are likely to influence the design of microinsurance products which are tailored to clients needs. Microinsurance appropriateness observed variables were the customisation of loan-embedded microinsurance products to the borrower's most risk exposure, the ratio of microinsurance premium to sum-assured, loan-embedded microinsurance inclusion, and frequency of disaster risks preventive trainings to clients. According to Matul and Kelly (2012), a premium to sum-assured ratio of at most 10 percent is an indication of a microinsurance product which provides standard benefits to the client. This threshold was used to operationalise the appropriateness of microinsurance in terms of benefits derived from the service.

While MFIs are competent in providing and managing financial services to the low-income earners, insurance companies are competent in designing microinsurance products. Therefore, the findings provide empirical evidence that the integration of MFIs and insurance companies' respective core competencies, business information sharing between MFIs and insurance companies and transfer of microinsurance-related knowledge between MFIs and insurance companies' staff lead to designing microinsurance products which are appropriately relevant to MFIs clients risk exposure. Despite that this study and the previous ones were conducted in different contexts, the results of this study also validate Lambe *et al.* (2002) and Akerlof (1970) assertion that the collaboration between MFIs and insurance companies mitigates enhance positive synergy which lead to the provision of microinsuranceproducts which adequately match the low-income people's most risk exposure.

The collaboration between the partner and the agent enables the identification of MFI client needs, such as training in disaster risk prevention, more family members' inclusion in microinsurance cover and increased scope of microinsurance risk coverage and benefits. Microinsurance benefits include reduced premium with increased sum-assured. The findings have further revealed that the collaboration and sharing of business information between the partner and the agent enhance the adequacy of microinsurance products. These potential outcomes, however, depend on the level of insurance companies' compliance with PAM contract terms and conditions.

6. Conclusion and Policy Implications

The conclusion is grounded on the findings based on the study objective and hypothesis. Having satisfied the preliminary validity and reliability tests to validate the study models, the conclusions emanate from the Hierarchical Regression Analysis results. The PAM Practice is a nascent phenomenon in Tanzania and little is known about its effect on microinsurance appropriateness. The objective of this study was, therefore, to examine the effect of PAM Practice on the appropriateness of PAM microinsurance. Based on the theoretical and empirical literature review, it was hypothesised that the PAM Practice has a positive effect on the appropriateness of PAM microinsurance. The results show that there is a statistically significant positive relationship between PAM Practice and the appropriateness of PAM microinsurance. Based on these findings, it can be concluded that if MFIs are involved by insurance companies in microinsurance product development and if suggestions of the former are incorporated in microinsurance product design, it is expected that insurance companies will design microinsurance products which match the protection needs of MFI clients.

The findings, discussion and conclusion of this study have established one main managerial implication, viz; improving the PAM Practice.

The study findings revealed that the collaboration and knowledge integration between MFIs management and insurance companies during the designing or refinement of microinsurance products are still unsatidfactory. Moreover, the study revealed that insurance companies (partners) accord less cooperation to MFIs (agents) in case of disaster shock to a client, consistent with the findings of Okoampah (2009) in Ghana. The communication between MFIs and insurance companies as well as insurers' compliance to partnership contract terms and conditions has not been that smooth in several cases. Besides, in several cases, the communication between the client and the insurer is channelled through two intermediaries, viz, the MFI and the bank). The existence of many intermediaries hinders the promptness in attending clients or MFIs queries.

Considering that the findings exhibit a positive relationship between PAM practice and microinsurance client value dimensions, this study recommends that Tanzania Insurance Authority (TIRA), Tanzania Association of Microfinance Institutions (TAMFI) and Tanzania Cooperative Development Commission (TCDC) organise periodic meetings between MFIs (MFCs, MFI-NGOs and MFI -companies) and insurance companies managements to promote a good collaboration between MFIs and insurance companies in the process of developing or refining PAM microinsurance products, sharing business information, integrating their respective core competencies, transfer of industry knowledge and compliance to PAM contracts terms and conditions in order to provide relevant PAM microinsurance to MFIs' clients.

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