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The impact of giving and receiving remittances on life insurance purchases

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ABSTRACT
Remittance arrangements, or inter-household transfers in cash or kind, have been identified as an influential factor in funeral insurance purchase decisions of South African households. On the one hand, remittances can alter income and higher levels of income are associated with more insurance purchases. On the other hand, remittances can act as an informal insurance arrangement reducing formal insurance purchases. It was found using data from the fifth wave of the National Income Dynamics Study that remittances did not have a strong effect on life insurance purchases generally although for young, low-income, unbanked African and other households, receiving remittances may have discouraged life insurance purchases.

KEYWORDS
Remittances given; remittances received; life insurance purchase behaviour

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1. INTRODUCTION

1.1 The insurance and remittance landscape in South Africa

1.1.1 Insurance mitigates the financial consequences of risks that could lead to financial ruin (Kirby & Kaneda, 2010). Life insurance is particularly important as it provides people with protection against personal risks in their lives (Mahdzan & Victorian, 2013). A pertinent South African example of this is that a household may not have enough money to meet high funeral costs, which are 15 times the monthly income for an average household (Roth, 2001). In 2017, more than 40% of South Africans did not have a formal life insurance policy.[1]

1.1.2 Another common aspect of South African financial life is that of remittances (Mangoma & Wilson-Prangley, 2019). Remittance behaviour in South Africa emanated from colonialism and apartheid and involves mainly domestic transfers (Posel, unpublished). This study, as well as others focused on insurance demand, define remittances as inter-household transfers in cash or kind (Van Doorn, 2002). However, remittances can be more broadly defined to include inter-household transfers of social (Zhou & Li, 2018; Kshetri et al., 2015), cultural (Zhou & Li, 2018), technological (Kshetri et al., 2015) and political (Zhou & Li, 2018; Kshetri et al., 2015) knowledge.

1.1.3 The literature suggests that remittances can affect insurance purchase behaviours in complex ways. Remittances received increase income in the receiving household and decrease income in the donating household (Crayen et al., 2013), which may increase and decrease the demand for formal insurance respectively. In addition, remittances can be viewed as a migrant-based risk-reducing strategy by households (Lucas & Stark, 1985) which may thus affect decisions about other risk mitigation techniques like purchasing formal insurance (Lucas & Stark, 1988).

1.2 Aims

1.2.1 The aim of this research is to establish how the giving and receiving of remittances impact life insurance purchase behaviour in South Africa.

1.2.2 In order to explore the impact of remittances on insurance purchase behaviour, this paper aims to address the following research questions:

— What factors, apart from remittances, affect insurance purchase behaviour?
— How could remittances influence life insurance purchase behaviour?
— Based on the National Income Dynamic Study (NIDS) data, how does giving and receiving remittances affect life insurance purchase behaviour?

1.3 Plan of development

Section 2 sets out the literature on the influence of remittances and other factors on insurance purchases. Section 3 sets out the methodology and data. Section 4 sets out the results and discussion and section 5 concludes.

1 Life Insurance Facts. Available: http://www.hippo.co.za/blog/insurance/Life-Insurance-Facts/, 05/08/2021

2. LITERATURE REVIEW

2.1 Factors that influence the demand and purchase of life insurance

The literature identifies the following key factors, other than remittances, that influence the demand and purchase of life insurance:

— stage of life, age and family structure;
— income level;
— formal insurance deterrents and use of alternatives to formal insurance and lending;
— sex and precautionary motives;
— level of education; and
— race and religion.

These factors are expanded upon below. It should be noted that the definition of life insurance can differ over time and geography and the precise definitions used in the literature were not always clear. This may have led to significant factors not being identified.

2.1.1 Stage of life, age and family structure

2.1.1.1 Modigliani (1986) described the life-cycle hypothesis as the spending and consumption habits of people over the course of their lifetime. Assuming that people plan their spending by considering their future income, individuals will level out their consumption and save for future events and expenses that could occur at different stages of their life (Modigliani, 1986).

2.1.1.2 Age is often a proxy for stages of the life-cycle in literature, but Neurgarten (1979) and Settersten & Mayer (1997) argued that timing of life events is becoming more irregular and age is losing its traditional association with life-stage at an individual level.

2.1.1.3 Life insurance has been seen as a priority purchase for young, married couples (Anderson & Nevin, 1975). Previous studies have shown that a larger number of dependants corresponds to an increase in future consumption, thereby increasing the demand for life insurance (Browne & Kim, 1993; Li et al., 2007). More recent findings show that single individuals had the greatest demand for life insurance as opposed to married or divorced individuals because of fewer financial commitments and hence greater disposable income (Mahdzan & Victorian, 2013).

2.1.1.4 Showers & Shotick (1994) indicated that single income-earner households felt less financially secure than households with more than one income-earner. Hence, it was more likely that single income-earner households purchase insurance than households with more than one income-earner (Showers & Shotick, 1994).

2.1.2 Income level

Higher incomes can increase the demand for life insurance (Hwang & Gao, 2003). This is primarily because individuals with higher incomes can afford insurance and feel the need to safeguard their potential income for dependants in the case of premature death (Dragos, 2014). Kirigia et al. (2005) confirmed that it is more likely that individuals employed in white-collar occupations with a regular higher income own insurance.

2.1.3 Formal insurance deterrents and use of alternatives to formal insurance and lending

2.1.3.1 Low-income households often have poor access to formal insurance (Ardington et al., unpublished). This can be due to lack of supply of appropriate formal insurance products (Ardington et al., unpublished), access barriers or usage barriers (Hougaard et al., unpublished).

2.1.3.2 According to Crayen et al. (2013), South African insurers have shifted focus from high-income to low-income households which should ease the supply side constraints.

2.1.3.3 Access barriers are defined as external factors that prevent individuals from using insurance, even if they had a desire to use it (Hougaard et al., unpublished). The FinScope Tanzanian survey respondents identified the main barriers as physical access, affordability and availability (Hougaard et al., unpublished). In addition, lack of access to a bank account can decrease demand for formal insurance products, particularly funeral cover (Crayen et al., 2013). Where lack of access is due to physical access, Hwang & Gao (2003) have found that urbanisation has positively influenced life insurance purchases. Urbanisation leads to lower distribution costs for insurers (Beck & Webb, 2003). This consequently decreases the cost of insurance and thus increases the supply and demand of insurance products (Beck & Webb, 2003).

2.1.3.4 Usage barriers, or internal barriers that discourage individuals from using insurance, include lack of knowledge about insurance, poor perceptions about insurance and negative word of mouth (Hougaard et al., unpublished).

2.1.3.5 Consequently, poorer households manage risk through informal family and community mechanisms including loans and remittances (Ardington et al., unpublished; Thomson & Posel, 2002) as well as informal insurance like burial societies and self-insurance (Ardington et al., unpublished).

2.1.3.6 Thomson & Posel (2002) found that many households prefer informal schemes over formal insurance due to the additional non-financial support. In the case of burial societies, this can be emotional support as well as assistance with funeral arrangements (Thomson & Posel, 2002). In comparison, formal insurance only provides financial aid (Thomson & Posel, 2002).

2.1.3.7 Formal loans are often sold with credit life assurance (Shand & Angove, unpublished). The use of informal personal loans would logically be associated with lower take-up of credit life assurance.

2.1.3.8 Hence the availability of informal financial services may discourage the use of formal products. There is debate over whether social security may also act as a substitute good. Beck & Webb (2003) explained that life insurance ownership was higher in countries that spent more on social security benefits and have a greater degree of income equality. In contrast, Li et al. (2007) and Browne & Kim (1993) highlighted that increased social security spending served as mandatory life insurance and thus reduced the need for private life insurance.

2.1.4 Sex And precautionary motives

Based on an Italian population, women are less likely to own annuities, endowment products and term assurances than men (Luciano et al., 2016). Luciano et al. (2016) suggested this may be due to household earning patterns. This contradicts Jianakoplos & Bernasek (unpublished) who found that women are more concerned about the impact of risks than men. Mahdzan & Victorian (2013) affirmed that precautionary motives impact life insurance demand as people want to be protected against personal risks such as disability and ill health. However, Inkmann & Michaelides (2012) argued that precautionary saving may often crowd out life insurance purchases.

2.1.5 Level of education

Hwang & Gao (2003) and Mahdzan & Victorian (2013) identified that education level was positively associated with life insurance ownership as education promoted a greater understanding of the need for life insurance. Mahdzan & Victorian (2013) further suggested that more educated individuals may have better access to financial services than those with lower levels of education, while Ćurak (2013) suggested that education level and risk aversion are positively correlated.

2.1.6 Race and religion

Gutter & Hatcher (2008) suggested that there is no difference in the number of black and white people who own life insurance, however, there may be a significant difference in the monetary value of life insurance purchased by the different racial groups. Of course, race may be acting as a proxy for a number of other factors that may influence insurance purchase behaviour such as occupation (Hiltz, 1971), family structure (Hiltz, 1971), values (Hiltz, 1971; Beck & Webb, 2003) and religion (Beck & Webb, 2003). For example, it was also found that life insurance ownership was lower in Islamic countries compared to non-Islamic countries due to religious opposition towards life insurance (Beck & Webb, 2003).

2.2 The impact of remittances on formal insurance demand

2.2.1 Remittances as informal insurance

As discussed in section 2.1.3, informal insurance arrangements can act as a substitute for formal insurance. Lu & Treiman (2011) and Crayen et al. (2013) suggested that the remittances received are used to enable the family to cope with risk, including risk from natural disasters (Mohapatra & Ratha, 2011). Stark & Levhari (1982), Rosenzweig (1988), Maphosa (2007) and Carling (2008) explained that remittances protect the remitter and the receiving household against external shocks due to potential reciprocity and hence also act as informal insurance. Lucas & Stark (1988) explained that the migration of a family member acts as a replacement for formal insurance by diversifying income generation. It thus follows that remittances would reduce demand for formal insurance via the substitution effect.

2.2.2 Remittances and household income and consumption

2.2.2.1 Remittances received increase the household income of the recipient (World Bank, unpublished a). The higher the remitter's income, excluding remittances received, the higher the remittances sent (Miller & Paulson, unpublished; Biyase & Tregenna, unpublished). Miller & Paulson (unpublished) suggested that older, urban remitters tend to send larger remittances, which obviously reduces their household income.

2.2.2.2 Cash remittances give households flexibility as to how the remittance is used (Torero & Viceisza, 2015) but can result in the remittance being used for a different purpose than what was intended (World Bank, unpublished b). Uses of remittances change with time as priorities of households alter with financial ability and capacity (Zewdu, 2019). Poorer households often use remittances to cover basic expenses such as healthcare (International Fund for Agricultural Development & World Bank, unpublished) and food (Babatunde & Martinetti, unpublished; Thow et al., 2016; International Fund for Agricultural Development & World Bank, unpublished). In less vulnerable households, remittances can be used as an investment resource to invest in education, capital and financial assets (International Fund for Agricultural Development & World Bank, unpublished). Hence one would only expect a remittance received to be used to purchase insurance in a wealthier household and this can be termed the income effect.

2.2.3 Empirical evidence

2.2.3.1 Crayen et al. (2013) found a negative correlation between formal funeral insurance and remittances received. This substitution effect is more pronounced in rural households which have access barriers to formal insurance products (World Bank, unpublished a), as explored in ¶2.1.3.3.

2.2.3.2 Hwang & Gao (2003) found that in Chinese culture, adult children are expected to provide economic support to their parents in old age, through remittances. However, as a result of China's one-child policy, the number of children per couple decreased and couples could no longer solely rely on family remittance support (Hwang & Gao, 2003). This increases the need for financial protection through insurance purchases (Hwang & Gao, 2003). This again illustrates the substitution effect.

2.2.3.3 Kirigia et al. (2005) found that the proportion of people who have insurance, particularly health insurance, increases significantly when their household income increases. Impact Insurance noted that larger amounts of remittance received was linked to purchasing microinsurance because remittances acted as additional resources to cover premium costs,[2] providing further evidence for the income effect. One reason why the income effect may not be strong is that research suggests that sending money home for the purpose of insurance was one of the least popular reasons why remitters sent money home (Smit et al., unpublished).

2 Enhancing access to microinsurance among remittance recipients—Seguros Futuro. Available: http://www.impactinsurance.org/projects/lessons/enhancing-access-microinsurance-among-remittance-recipients, 05/08/2021

3. METHODOLOGY

3.1 Data

3.1.1 NIDS data were used to test the effect of remittances on insurance purchases empirically. This is a study by the Southern Africa Labour and Development Research Unit at the School of Economics based at the University of Cape Town.[3] The data are publicly accessible on the DataFirst website.

3.1.2 The NIDS is a longitudinal survey that is conducted for individuals and households. There are five waves of data. The study began in 2008 and is repeated approximately every two years. Wave 5, the most recent wave at time of writing, which consists of data collected from February to December 2017, was used (Brophy et al., unpublished).

3.1.3 The NIDS data cover fields relevant to social, economic and demographic changes in the surveyed population.[4] The NIDS data consist of four questionnaires but only the individual questionnaire, filled out by every household member, aged 15 years and older, was used. For the purposes of this research, this is termed the adult questionnaire.

3.1.4 The adult questionnaires include variables relating to contributions of remittances given and received and life insurance ownership. Variables relating to the value of remittances given or received are often limited in literature (Carling, 2008), however the NIDS data records the frequency and amounts of remittances given or received.

3.2 Data variables

3.2.1 Table 1 displays the high-level summary of the variables included in the CHAID analysis as well as their justification in the literature.

TABLE 1. Summary of variables

Variable details	Description from questionnaire	Number of variables	Justification in literature
Dependent variable			
life_insurance	Does the respondent personally have life insurance?	1	Section 2.2
Independent variables			
Age	Age of the respondent based on date of birth	1	¶2.1.1.2
Dependant-type variables	Questions regarding number of biological children residing with the respondent or away	3	¶2.1.1.3
Income variables	Details of income received in the household	8	¶2.1.2
Access variables	Information about use of bank accounts and stokvels	2	¶2.1.3.3
Loan variables	Whether the respondent has formal or informal loans	5	¶2.1.3.7
Grant variables	Details of grant amounts received for the Child Support Grant and Old Age Grant	4	¶2.1.3.8

3 What is NIDS? Available: http://www.nids.uct.ac.za/about/what-is-nids, 05/08/2021

4 NIDS Wave 5 Overview (2008–2019). Available: http://www.nids.uct.ac.za/images/documents/201901-NIDS-W5Overview-V1.0.pdf, 05/08/2021

Variable details	Description from questionnaire	Number of variables	Justification in literature
Sex	Self-reported sex of the respondent	1	¶2.1.4
Education	Self-reported tertiary education	1	¶2.1.5
Race	Self-reported race of the respondent	1	¶2.1.6
Religion	Self-reported religion of the respondent	1	¶2.1.6
Remittance variables	Details of remittances received or given	10	Section 2.2

Table A.1 in Appendix A displays a summary of variables taken directly from the questionnaire and full variable definitions. The table provides the variable codes used, the description of the variables as per the questionnaire and their possible values.

3.2.2 It is important to note that only these variables were considered for analysis. This was because these variables were identified as having an influence on the demand for life insurance in the literature review. The results of the analysis may thus be influenced by factors that influence life insurance purchase behaviour that were not identified in the literature review. Identification of such other factors was beyond the scope of this research and the ethics clearance obtained.

3.3 Data limitations

3.3.1 Although the adult questionnaire provided useful data, it also had its limitations, which are outlined below.

3.3.2 'Life insurance' was not defined in the NIDS questionnaire. This means the definition may have been inconsistent between households, possibly differing by income or financial sophistication. It is unclear whether it includes or excludes funeral cover. No data were collected on the type of insurance owned. Approximately 11% of the South African population holds insurance other than funeral cover[5] and 9% of the total cleaned sample indicated that they have life insurance. It is possible that households interpreted the question to include funeral cover but no firm conclusions can be drawn. 'Personally have' is also a vague term that could be interpreted to mean being a policyholder or being an insured life.

3.3.3 The NIDS data recorded if insurance was purchased but the amount and percentage of household income spent on life insurance purchases is not available in the data. The NIDS data can thus be used to ascertain if giving and receiving remittances would change the likelihood of purchasing insurance, but it cannot be used to determine the effect of remittances on the amount of insurance purchased.

3.3.4 Certain variables could not be observed from the data:

— Household income split within the household, as discussed in ¶2.1.1.4 and ¶2.1.4;
— Physical access to insurance, as discussed in ¶2.1.3.3;

5 Own calculations based on: Statistics South Africa's midyear population estimate for 2020. Available: http://www.statssa.gov.za and insurance coverage information from https://mayaonmoney.co.za/2020/01/the-real-cost-of-death/#:~:text=Insurance%20companies%20have%20found%20a,insurance%20other%20than%20funeral%20cover.

— Usage barriers, as discussed in ¶2.1.3.4; and
— Precautionary motives, as discussed in ¶2.1.4.

3.3.5 Dependant-type variables were only gathered for female respondents. Furthermore, these dependants were limited to biological children residing with or away from the female; however, their ages were not provided in the questionnaire in order to determine if they were legally dependants. The effect of other dependants such as elderly parents and other family members could not be examined as these data were not available. It would have also been ideal to consider the effect of dependants on male respondents.

3.3.6 Annual figures were not available for each component of the income variables. However, since there were monthly figures for each component, income was analysed on a monthly basis. Annual income variables could have allowed for a greater amount of net remittances to be received and, thus, might have been a better indicator of the relationship between remittances and insurance purchase behaviour.

3.3.7 The data were thoroughly inspected and observations that were encoded 'Missing', 'Not Applicable', 'Refused' and 'Don't know' were excluded from the dataset. Impossible values, e.g. nonsensical birth years, were also excluded. Further data checks were done based on follow-up questions, e.g. 'Do you earn a regular income?' and if the respondent replied 'Yes', the observation was verified by checking that an amount was indeed provided. After cleaning, of the 30 110 respondents in the NIDS data, only 7 711 remained for whom the data were clean and dependant-type information were available. If dependant-type variables were ignored, there were 17 689 observations.

3.3.8 Of the 17 689 observations, illustrated in Figure 1, 94.9% stated that they neither gave nor received remittances. It is possible that the respondents might not know or necessarily consider differences between remittances, stokvels, and informal loans from

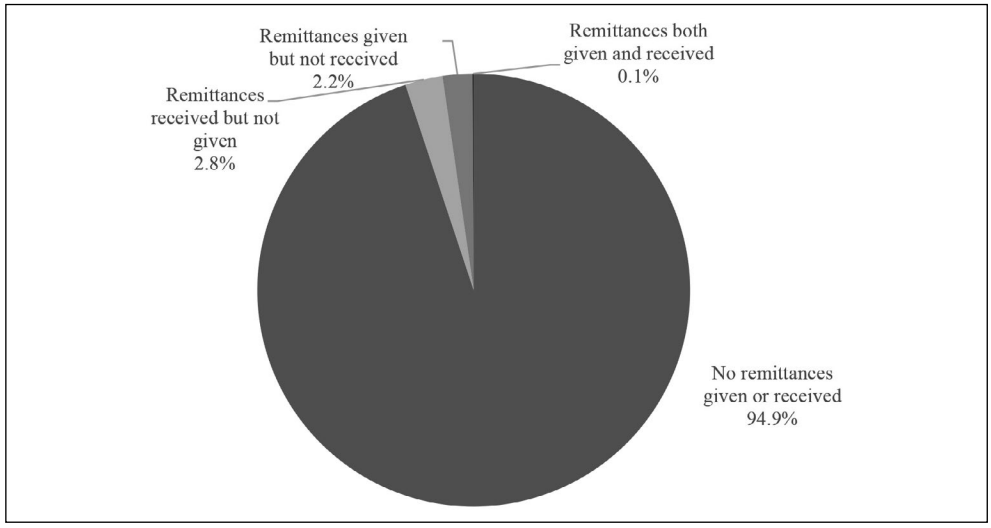

FIGURE 1. Analysis of remittance behaviour by respondent

family or friends, which may have influenced this statistic. This left just 903 people who gave or received remittances.

3.3.9 Respectively, 89.8% and 85.4% of remittance givers and receivers were African. Data on remittance behaviour for other race groups were scanty. This is supported by Phangaphanga (unpublished) who states that remittance behaviour is more popular among Africans in comparison with other racial groups.

3.4 Statistical methodology

3.4.1 STATISTICAL THEORY APPLIED IN PAST STUDIES

3.4.1.1 Two statistical techniques were used in the literature on insurance purchase behaviour: logit models and chi-squared tests of independence.

3.4.1.2 Crayen et al. (2013) and Kirigia et al. (2005) used the logit model. Logit regression models are used to model binary dependent variables.[6] The following assumptions are required to use a logit regression model:[7]

— The dependent variable must be binary.
— There should not be high levels of correlation between variables to prevent multicollinearity.
— A large sample is required.

3.4.1.3 Managing multicollinearity in a logit regression can be assisted by using chi-square tests of independence to narrow down the choice of independent variables. This is a non-parametric statistical technique that identifies significant relationships between categorical variables(McHugh, 2013). The following assumptions are required (McHugh, 2013):

— The categories are mutually exclusive.
— No cell count should have an expected value of less than one.

3.4.1.4 Crayen et al. (2013) analysed whether individuals were less likely to own formal funeral cover if they received remittances and used household income per capita, banking status, risk management and risk awareness, and remittances as independent variables in a logit model (Crayen et al., 2013).

3.4.1.5 When Kirigia et al. (2005) considered factors likely to influence health insurance purchase behaviour, the authors first performed multiple chi-square tests of independence followed by a logit regression model. Independent variables included health rating, environment rating, residence, income, education, age, age-squared, race, household size, occupation, employment, smoking, alcohol use, contraceptive use and marital status (Kirigia et al., 2005). It should be noted that remittances were not considered in this model.

6 What is logistic regression? Available: http://www.statisticssolutions.com/what-is-logistic-regression/, 05/08/2021

7 Assumptions of logistic regression. Available: http://www.statisticssolutions.com/assumptions-of-logistic-regression/, 05/08/2021

3.4.2 THEORY BEHIND CHI-SQUARE AUTOMATIC INTERACTION DETECTION (CHAID)

3.4.2.1 CHAID analysis is a useful non-parametric technique to partition data into more homogeneous groups (Kass, 1980). The CHAID algorithm requires that the dependent variable be categorical (Kass, 1980). The data are divided into mutually exclusive and exhaustive subclasses that most appropriately explain the dependent variable (Kass,1980).

3.4.2.2 The CHAID algorithm is described by Hill & Lewicki (2006):

— The dependent variable, either continuous or categorical is identified. If the dependent variable is continuous, it would need to be converted to a categorical variable. This may reduce the statistical power of the result.
— For each independent variable, pairs of categories within each independent variable are compared with a chi-square test. Non-statistically significant pairs are merged. Bonferroni adjusted p-values are calculated for statistically significant differences. The Bonferroni adjustment alters the significance level to account for the number of significance tests conducted.
— Observations are then divided into statistically significant categories using the most significant independent variables identified.
— The process is iterative and continues until no more significant differences are identified.

This is a statistically robust equivalent to the repeated chi-square tests performed by Kirigia et al. (2005).

3.4.2.3 The CHAID algorithm is often represented by a dendrogram (Huang et al., 1993). In this research, the entire population is termed the root node and divisions thereof are termed sub-nodes. Terminal or leaf nodes are the final nodes that can no longer be split.

3.4.3 IMPLEMENTATION OF CHAID

The CHAID analysis was conducted using IBM SPSS Statistics and used a 5% level of significance for the splitting and merging of nodes. Each parent node had a minimum sample size of 100 and each child node had a minimum size of 20.

4. RESULTS AND DISCUSSION

4.1 Preliminary analysis

4.1.1 The purpose of this research paper is to consider whether remittance behaviour affects life insurance purchases. However, due to the fact that dependant-type information was missing for most of the cleaned data sample, a CHAID analysis was performed on the sample for whom dependant-type information was available. The rationale was that if the dependant-type information were missing at random and it did not affect the propensity to purchase insurance where it was available then the dependant-type variables were not required to test whether remittances affected insurance-purchase behaviour.

4.1.2 When this analysis was performed, it was found that children did not affect the propensity to purchase life insurance at the 5% level of significance. Hence the full CHAID analysis was performed on the full clean data sample and dependant-type variables were ignored.

4.1.3 This could contradict the findings of Browne & Kim (1993) and Li et al. (2007) who suggested that dependants increase the demand for life insurance, in ¶2.3.2.2. However, since dependants were limited to children, this result may not be a true reflection of the effect of dependants on remittances and life insurance.

4.2 Remittance analysis

4.2.1 The CHAID analysis was performed to ascertain factors that influenced life insurance purchases. The appearance of total income including remittances (total_income) or any of the ten remittance variables in the CHAID trees will indicate that there is a significant relationship between life insurance purchases and remittances.

4.2.2 Overall, 9% of the sample indicated that they owned life insurance. The dendrogram identified total income excluding remittances (total_income_excl.R) as the most significant variable in explaining life insurance purchase behaviour with an adjusted p-value of less than 0.05%. This method categorised the rand amount of the income variable into five suitable income bands to analyse the data further. The result is shown in Table 2.

TABLE 2. Monthly income excluding remittances split into five income bands

Node	Income band (rands)	Life insurance			
		Yes	%	No	%
1	≤ 350	421	4.8	8 306	95.2
2	(350, 750]	51	2.8	1 791	97.2
3	(750, 2 499]	158	4.5	3 384	95.5
4	(2499, 4 870]	177	9.8	1 632	90.2
5	> 4 870	782	44.2	987	55.8

The results in Table 2 show that a greater proportion of higher income-earning individuals owned life insurance which corresponds with the literature by Hwang & Gao (2003) in ¶2.1.2 This is further supported by Thomson & Posel (2002) and Ardington et al. (unpublished), in ¶¶2.1.3.5-6, that poorer households are more likely to use informal insurance.

4.2.3 A remittance variable, namely remittances received, only appeared once in the entire CHAID analysis. It appeared significant at the terminal node for the lowest-income, African and Other (population group), youngest and unbanked individuals and this branch of the dendrogam is shown in Figure 2. There were only 92 observations in this node, representing 0.52% of the entire sample. The fact that remittances were only found to be significant in the African population group may be due to the majority of the remittances given and received in the sample involving Africans.

4.2.4 Table 3 shows that there was only one individual who received a remittance that had life insurance. This might be a result of low-income earning individuals spending their remittances on more immediate and essential needs as indicated in ¶2.2.2 by Babatunde & Martinetti (unpublished). Given that this group has poor access to financial services, they may use remittances as a substitute good as discussed in ¶2.2.1.

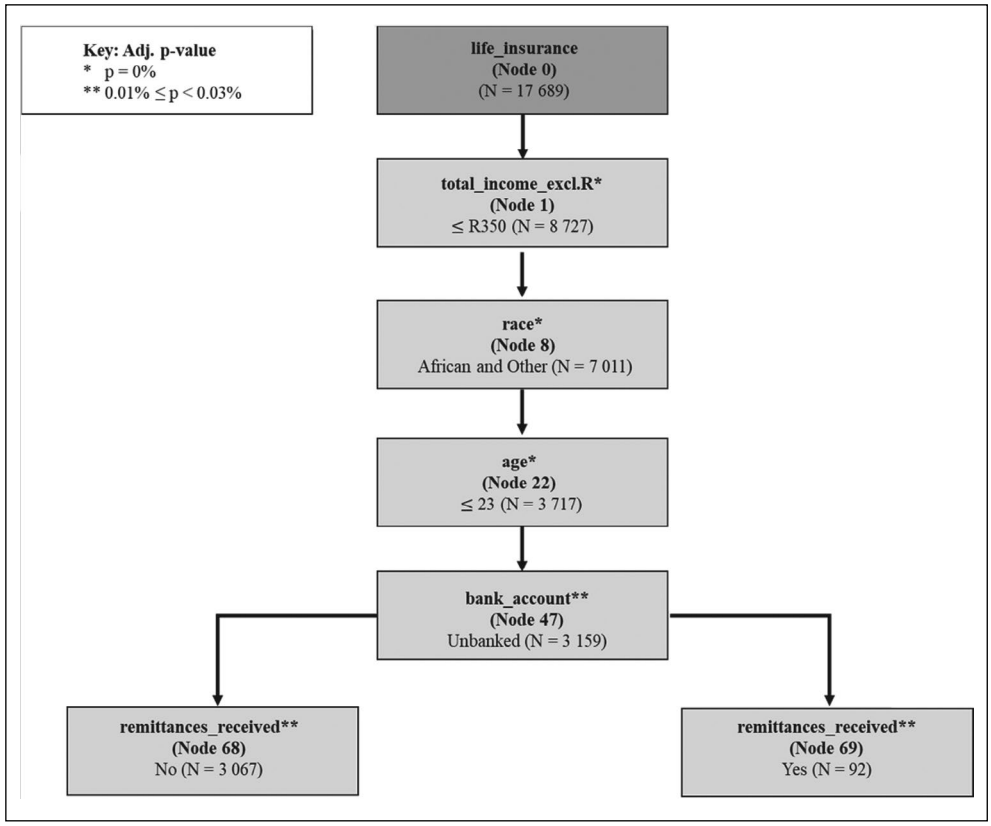

FIGURE 2. Branch where remittances were significant

TABLE 3. Distribution of life insurance for individuals with total income excluding remittances less than or equal to R350 p.m., African or Other, 23 years old or younger

Node	Characteristics	Life insurance			
		Yes	%	No	%
68	No remittances received	4	0.1	3 063	99.9
69	Received remittances	1	1.1	91	98.9

4.2.5 It is important to recognise that this result could be spurious in that only one person who received a remittance held life insurance. In addition, the remittances received variable could represent a cash or in-kind transfer and the latter would not give an individual the ability to purchase life insurance.

4.2.6 Giving remittances was not associated with a significant difference in life insurance ownership. A possible explanation might be that there was a very small number of remitters in higher income bands and therefore it did not appear significant. Alternatively, it is possible that giving remittances may be associated with purchasing more life insurance as life

insurance is purchased for a broader group than for someone who does not give remittances. It was not possible to test this hypothesis from the data.

4.2.7 While Crayen et al. (2013), in ¶2.2.3.1, found a negative correlation between remittances and funeral cover, this was only true in relation to life insurance for a very small sub-sample in this study.

5. CONCLUSION AND AREAS FOR FURTHER RESEARCH

5.1 Conclusion

5.1.1 The aim of this research was to establish how the giving and receiving of remittances impact life insurance purchase behaviour in South Africa. To achieve this aim, research surrounding remittances, life insurance and models exploring insurance behaviour was analysed.

5.1.2 The literature indicated that the following factors were expected to influence insurance purchase behaviour:

— Remittances
— Stage of life, age and family structure;
— Income level;
— Formal insurance deterrents and use of alternatives to formal insurance and lending;
— Sex and precautionary motives;
— Level of education; and
— Race and religion.

Remittances given or received could decrease the purchase of formal insurance via the substitution effect, as discussed in ¶2.2.1. Alternatively, the changes in income for the giving and receiving households could decrease and increase insurance purchases respectively via the income effect as discussed in ¶2.2.2.

5.1.3 A CHAID analysis was used to test the effect of giving and receiving remittances on the decision to purchase life insurance or not. Remittances received (cash or in kind) by individuals categorised as the lowest income, African or Other, youngest and unbanked decreased the propensity to purchase life insurance. For all other groups, giving or receiving remittances did not significantly affect the purchase of life assurance.

5.1.4 It is difficult to draw firm implications for life insurers due to the limitations of the data. However, it is possible that the opportunities for life insurers lie in increasing the number of lives covered on policies owned by people who already own insurance. This would require further research on whether remittance behaviour changes the amount of insurance purchased and whether the insurance covers the policyholders own life or the lives of dependants.

5.1.5 Alternatively, there could be opportunities to make it easier and cheaper for remittance givers to purchase insurance for family members who they support. One such opportunity could be to offer life insurance packaged with money-transfer facilities, for example, via bancassurance or mobile money transfers.

5.2 Areas for further research

5.2.1 A data sample with higher rates of giving or receiving remittances may be helpful. This is particularly important outside of the African population group where only 3.2% and 5.5% of the sample gave or received remittances respectively. Similarly, there may be a credibility issue due to low life insurance penetration in certain groups.

5.2.2 The data could incorporate NIDS data from other waves for the purpose of comparing how the relationship between remittances and life insurance ownership has evolved. Also, using data from multiple waves may resolve some of the credibility issues discussed in ¶5.2.1 as well as smoothing out economic factors that could distort the result. Using longitudinal data will highlight possible trends over time as well as allowing for additional variables to be created. For example, income from savings products may indicate growing financial literacy.

5.2.3 Future work should address the data limitations discussed in section 3.3. In addition, the unclear definition of life insurance used in the literature may have resulted in significant factors affecting life insurance behaviour not being identified and this would need to be addressed.

5.2.4 An additional limitation is that the education measure used was fairly crude and the split between those with tertiary education and those without was fairly arbitrary. An alternative definition for education may have yielded different results.

5.2.5 As discussed in section 2.1.3, it is possible that life insurance is not purchased because of alternative ways of meeting needs such as the use of accumulated savings, government grants, borrowing and informal insurance arrangements. The use of these alternatives merits further investigation and the results would be of interest to the life insurance industry.

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APPENDIX A
Data

Table A.1 displays a summary of variables used in the CHAID analysis.

Table A.1. Variables used in the CHAID analysis

Variable coding	Description from questionnaire[8]	Possible values
Dependent variable		
life_insurance	'Do you personally have life insurance?'	yes; no
Independent variables		
Grant variables		
state_oldage_grant	'Did you receive income or assistance from a state old age grant in the last month?'	yes; no
state_oldage_grant_value	'How much did you receive last month from the state old age grant in rands?'	rand amount
child_support_grant	'Did you receive income or assistance from a child support grant in the last month?'	yes; no
child_support_grant_value	'How much did you receive last month from the child support grant in rands?'	rand amount
Remittance variables		
remittances_received	'In the past 12 months, did you receive money, food, or any other kind of contribution from people who do not usually sleep under the roof for four nights a week? If you receive maintenance for you or your child, please include it here.'	yes; no
no._cash_remittances_received	'In the past 12 months, how many times did the main remitter send you money?'	integer value
cash_remittances_received	'In the past 30 days, how much money in total did the main remitter send to you?'	rand amount
no._kind_remittances_received	'In the past 12 months, how many times did the main remitter make a contribution in kind to you?'	integer value
kind_remittances_received	'In the past 30 days, what was the total monetary value of in-kind contributions to you by the main remitter?'	rand amount
remittances_given	'In the past 12 months, did you send money, food, or any other kind of contribution to people who do not usually sleep under the roof for four nights a week? If you send maintenance or child support payments, please include it here.'	yes; no
no._cash_remittances_given	'In the past 12 months, how many times did you send money to the main receiver?'	integer value
cash_remittances_given	'In the past 30 days, how much money in total did you send to the main receiver?'	rand amount
no._kind_remittances_given	'In the past 12 months, how many times did you make a contribution in-kind to the main receiver?'	integer value
kind_remittances_given	'In the past 30 days, what was the total monetary value of your in-kind contributions to the main receiver'	rand amount

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Income variables		
regular_income	'Are you currently being paid a wage or salary to work on a regular basis for an employer whether full time or part time?'	yes; no
regular_income_value	'How much was your take-home pay last month?'	rand amount
interest_income	'Did you receive income or assistance from interest earnings including dividends, interest from savings, loans in the last month?'	yes; no
interest_income_value	'How much did you receive last month from interest income in rands?'	rand amount
other_income	'Did you receive income or assistance from other [sources] in the last month?'	yes; no
other_income_value	'How much did you receive last month from other [sources] in rands?'	rand amount
total_income	regular_income_value + interest_income_value + other_income_value + cash_remittances_received – cash_remittances_given + state_oldage_grant_value + child_support_grant_value	rand amount
total_income_excl.R	regular_income_value + interest_income_value + other_income_value + state_oldage_grant_value + child_support_grant_value	rand amount
Loan variables		
bank_loan	'Do you personally have a personal loan from a bank?'	yes; no
micro_loan	'Do you personally have a personal loan from a micro-lender?'	yes; no
family_loan	'Do you personally have loan from a family member?'	yes; no
friend_loan	'Do you personally have loan from friends?'	yes; no
mashonisa_loan	'Do you personally have loan with a Mashonisa/ informal money lender?'	yes; no
General variables		
age	'What is your date of birth? (year)'	integer value
gender	'What is your gender?'	male; female
religion	'What religion are you?'	not religious; Christian; Jewish; Muslim; Hindu; African Traditional Spiritual Beliefs
race	'What population group do you belong to?'	African; Coloured; Asian/Indian; White; Other
tertiary_education	'Have you successfully completed any diplomas, certificates or degrees outside of school?'	yes; no
stokvel	'Do you belong to a stokvel or savings club?'	yes; no
bank_account	'Do you personally have a bank account?'	yes; no
Dependant-type variables		
children_reside	'Do you have any biological children to whom you have given birth who are currently living with you?'	yes; no
children_away	'Do you have any biological children who are still alive, but are not living with you?'	yes; no
dependants	children_reside + children_away	integer value