Demand for Micro Life Insurance in Sri Lanka:

Impact of Social Capital and Religion

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Abstract

Micro-life insurance provides protection against small premiums to low-income people in developing countries. Demand, however, is very moderate. The aim of this empirical work is to explain how social capital and religion affect life insurance demand in developing countries by the example of Sri Lanka. Social networks allow for access to information, money, or innovation in an environment where infrastructure is not well functioning or less developed. Thus, social networks shape both, the consumption and the risk management behavior of individuals. In addition, cross-country studies show that the religion of Islam has a negative impact on life insurance consumption. This research follows a mixed-method research approach to study the role of social capital and religion on micro life insurance demand. The qualitative focus group discussions and the quantitative household surveys were conducted in the Eastern province of Sri Lanka in 2013.

This work identifies three mechanisms through which social capital influences the demand for micro-life insurance: imitation, information exchange, informal risk sharing. People buy a micro-life insurance if they know an insured person. Informal risk management practices crowd out formal micro-life insurance, and the exchange between friends, family members or neighbors can reduce consumption if prior negative experiences weaken the confidence in the insurance promise. Regarding religion, the qualitative study shows that Muslims are reluctant to buy conventional insurance as they perceived it as a financial product contradicting with their religion. This study confirms that the financial situation contributes significantly to the purchase decision. It further found that people are motivated to sign-up for micro life insurance by the perception to support other people in need with their purchase.

Key words: Microinsurance, life insurance, demand, developing countries, Sri Lanka

Zusammenfassung

Mikrolebensversicherungen bieten einkommensschwachen Menschen in Entwicklungsländern einen privaten Versicherungsschutz gegen kleine Prämien. Die Nachfrage nach diesen Produkten ist jedoch verhalten. Daher ist es Ziel dieser empirischen Arbeit, am Beispiel Sri Lankas zu erklären, wie Sozialkapital und Religion den Konsum von Mikrolebensversicherungen beeinflussen. Bei einer nicht gut funktionierenden oder wenig ausgebauten Infrastruktur ermöglichen soziale Netzwerke den Zugang zu Informationen, Geld oder Innovationen und prägen damit das Konsumverhalten genauso wie den Umgang mit Risiken. Ländervergleichende Studien belegen außerdem, dass die Religion des Islam den Lebensversicherungskonsum hemmt. Zur Untersuchung der beiden Nachfragefaktoren, Sozialkapital und Religion, wendet diese Arbeit einen Mixed-Methods Forschungsansatz an. Die qualitativen Fokusgruppendiskussionen und die quantitativen Haushaltsbefragungen wurden 2013 in der Ostprovinz Sri Lankas durchgeführt.

Die Arbeit identifiziert drei Wirkungsmechanismen, wie Sozialkapital die Nachfrage nach Mikrolebensversicherungen beeinflussen kann: Konsumnachahmung, informelle Risikoteilung, Informationsaustausch. Menschen kaufen eine Mikrolebensversicherung, wenn sie eine versicherte Person kennen. Informelle Risikomanagementansätze verdrängen formale Versicherungsprodukte und auch der Austausch zwischen Freunden, Familienmitgliedern oder Nachbarn kann mit negativen Effekten verbunden sein, wenn vorherige negative Erfahrungen das Vertrauen in das Leistungsversprechen schwächen. In Bezug auf Religion weist die qualitative Studie nach, dass Muslime konventionellen Versicherungspraktiken ablehnend gegenüberstehen, da diese nicht mit den Normen ihrer Religion vereinbar scheinen. Die Arbeit bestätigt zudem, dass die Vermögenssituation wesentlich zur Kaufentscheidung beiträgt, ebenso sowie die Wahrnehmung, mit dem Kauf einer Mikrolebensversicherung andere Menschen in Not zu unterstützen.

Schlagwörter: Mikroversicherung, Lebensversicherung, Nachfrage, Entwicklungsländer, Sri Lanka

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List of Abbreviations

CRRA	Constant Relative Risk Aversion
EUR	Currency: Euro
FGD	Focus Group Discussion
GDP	Gross Domestic Product
HIES	Household Income and Expenditure Survey
IAIS	International Association of Insurance Supervisors
IBSL	Insurance Board of Sri Lanka
LKR	Currency: Sri Lanka Rupia (1 LKR = 0.00557 EUR, Sept. 15 2013)
NGO	Non-Governmental Organization
OSCE	Organization for Security and Co-operation in Europe
SAARC	South Asian Association for Regional Cooperation
SEEDS	Sarvodaya Economic Enterprise Development Services
USD	Currency: United States Dollars

1 Introduction

1.1 Motivation: Problem Statement and Relevance

When insurance coverage is offered at small premiums to low-income people in developing countries through so-called micro insurance, uptake of such products is often very low, leaving large populations in developing countries without formal insurance protection (Cole et al., 2013; Ito and Kono, 2010; Giné and Yang, 2007). About 170.4 million people are covered by micro insurance in Asia, 61.8 million in Africa, and 48.6 million in Latin America (Mukherjee et al., 2014; McCord and Biese, 2016 and 2015). This leads to an estimated micro insurance penetration of less than 5 percent in Africa and up to 7.8 percent in Latin America, whereby most people are covered by the low value products of credit-life insurance or personal accident. The reasons for this low uptake of micro insurance are not yet fully understood, neither by practitioners nor by academia.

This research aims to understand why low-income household purchase or do not purchase micro life insurance. Micro insurance, in general, is understood as insurance for low-income households provided by the insurance industry based on risk-adequate premiums paid by the insured (IAIS, 2012:11). The author decided to focus on micro life insurance as people named life risks as their most severe risk when asked during focus group discussions or surveys and have a preference to transfer these risks as losses arising from life risks often exceed their personal or their social networks' financial capacity. However, academic research on the demand of micro life insurance is still nascent (Eling et al., 2014). Existing micro insurance demand studies focus on agricultural index insurance and health coverage. The author identified seven peer reviewed studies on the demand of micro life insurance, along with three additional reviews on micro insurance demand literature which incorporate some of these studies. So far, existing research unarguably provides first insights into the demand drivers and barriers of micro life insurance, however it cannot fully explain their underlying cause-effect mechanisms. Empirical studies on micro life insurance demand are solely based on two distinct populations; one from Ghana and the other from Sri Lanka, focusing on term life cover. The quantitative research based on these samples investigates the socio-economic determinants of demand, the interplay of insurance and other financial

services, risk aversion, and adverse selection (Giesbert et al., 2011; Bendig and Arun, 2011; Arun et al., 2012). These studies identify wealth (Giesbert et al., 2011; Bendig and Arun, 2011), education (Giesbert et al., 2011; Arun et al., 2012), risk aversion (Giesbert et al., 2011), and the usage of other financial or insurance services (Giesbert et al., 2011; Bendig and Arun, 2011; Bendig and Arun, 2016) as main explanatory factors for micro life insurance demand. Moreover, indicative evidence is provided for a life-cycle effect (Giesbert et al., 2011) and a bequest motive (Arun et al., 2012). Additionally, in their qualitative research, Giesbert and Steiner (2015) focus on the value of micro life insurance as perceived by customers and non-customers. By identifying basic demand factors, these studies lay the foundation for a more in-depth research that tries to understand why and through which mechanisms these factors influence micro life insurance uptake. They also raise additional questions about the demand behavior of low-income households. The target group seems to differ from traditional retail market segments and their behavior is not fully explainable by standard expected utility theory. For example, contrary to predictions by standard expected utility theory, it seems that risk averse households are less likely to purchase insurance (Cole et al., 2013; Ito and Kono, 2010; Gine and Yang, 2009). In addition, the role of trust seems to be more relevant than predicted (Morsink, 2012).

The development of micro life insurance serves the interests of various actors. On the supply side, micro insurance allows commercial insurers to enter a new retail market segment in growth-market environments, to increase their business portfolios, to experiment with innovations, and to strengthen their reputation (Swiss Re, 2010; Lloyds, 2009). On the demand side, micro insurance reduces the vulnerability of low-income households and increases their economic performance. These demand and supply side opportunities are further explained in Section 1.4.3. Because of the value-addition that micro insurance offers for low-income households, its development is also part of the agenda of policymakers and regulators in developing countries, aiming to increase micro insurance penetration as a complementary instrument to social security measures. Their efforts are usually subsumed under the headline of financial inclusion which in general seeks to improve access to and usage of market-based financial services to every adult and is anchored in international development agendas as well. The rationale for a micro insurance market development is further discussed in Section

1.4.3. To allow micro insurance to fulfill its promise of economic and social development, it is crucial to understand the barriers to its demand. A sound understanding of the demand of micro life insurance enables relevant stakeholders to support the development of this market segment. The author is aware of a strong dependency between micro life insurance demand and supply as a low uptake could also be caused by a limited outreach of existing micro life insurance services. However, the demand side challenges are currently much more complex and less well-understood than supply side reservations, which are partly related to demand constraints and presented in Section 1.4.4. Therefore, the goal of this research is to contribute towards the creation of an in-depth understanding of micro life insurance demand.

A detailed literature review to be presented in Chapter 2 identifies the following six demand factors which have not been studied extensively, although they might have a significant effect on micro life insurance consumption as explained in the following. In the context of this study, micro life insurance usually refers to term life micro insurance. As presented in section 1.6.3., around 80% of the participants are insured with Amana Takaful or Ceylinco which offer term life insurance but no endowment products. Hence, results are comparable to previous micro life insurance demand studies.

1. **Peers, social networks** and the different mechanisms through which they influence demand: So far, only the research on agricultural and health micro insurance has tested for an effect of peers and social networks quantitatively (e.g. Cole et al., 2014; Giné et al., 2008; Jowett, 2003). However, the results are not conclusive. In the context of weather index insurance for small-scale farmers in India, Giné et al. (2008) find that the effect of membership in an informal or formal organization as well as a peer's insurance status is positively significant. Cai et al. (2015) further analyze three possible roles of social networks: (i) diffusion of information which leads to an increased awareness of insurance, (ii) imitation of consumption behavior, and (iii) learning from a peer's insurance experience which also creates trust. In their field experiments on weather index insurance uptake, they find that among small-scale farmers in China a social network effect is driven by the diffusion of insurance information, rather than by a peer's purchase decisions. It is questionable if the results from these two studies are applicable to micro life insurance as life insurance products are much less complex than index insurance

products. Uptake of micro life insurance could be significantly influenced by information sharing among peers, which might be a major source for creating awareness, understanding, and trust because of the very low micro life insurance penetration and familiarity with insurance in developing countries. In general, research on social networks proved their relative importance in developing countries. Social networks are both more necessary and frequently used because infrastructure providing information, financial services or social protection is less well developed. It is evidenced that social networks provide access to information and to financial resources (Chuang and Schechter, 2015:1-2). A sub-topic concerning social networks is the question how informal insurance mechanisms interact with the decision to formally insure.

2. **Interdependence of formal and informal insurance mechanisms**: Jowett (2013) has investigated the relationship in the context of health micro insurance, whereas Mobarak and Rosenzweig (2012) studied this area for weather index insurance in the agricultural sector in India. Similarly, Landmann et al. (2012) explored this topic in the abstract setting of a laboratory experiment in the Philippines. Overall, their results are not conclusive and are not transferable to micro life insurance. For example, in the case of agricultural insurance, results are based on the assumption of covariate shocks and basis risks. In micro life insurance demand research Giesbert et al. (2011) provide first evidence that informal Rotating and Savings Associations and formal micro life insurance coverage complement each other as households face multiple risks which are not covered by life insurance.

3. **Effect of religion**: In Muslim-majority countries a comparably low insurance penetration can be observed. For example, existing cross-country studies on life insurance demand indicate that the relationship between a country's share of Muslim population and life insurance penetration is significantly negative (Beck and Webb, 2003; Outreville, 1996; Browne and Kim, 1993). The authors of these studies hypothesize that Muslims abstain from purchasing life insurance because of their religious norms and fatalistic beliefs (Zelizer, 1979; Beck and Webb, 2003; Park et al., 2002). Further, they suggest that people in predominantly Islamic countries might have a different risk attitude or level of risk aversion (Wasaw, 1986; Browne and Kim, 1993; Beck and Webb, 2003). However, these hypotheses have not been tested at a household-level and an understanding of the effects of

religious denomination on micro life insurance demand is still lacking. Therefore, this area has also been identified as a potential topic for research, especially the "effects of religion on risk attitudes and insurance demand" (Eling et al., 2014: 242). An understanding about the relationship between religion and micro life insurance demand seems necessary as one third of developing countries are majority Muslim.

4. **Role of contract non-performance**: Previous research shows an effect of contract non-performance on insurance demand among low-income households in low-income to lower-middle income countries, using theoretical modelling (Liu and Myers, 2014) and experimental testing in the field (Biener et al., 2014). However, these results have not been applied to micro life insurance or tested in a field study.

5. **Effect of pricing** on micro life insurance demand (Eling et al., 2014).

6. **Risk-aversion** and understanding its inverse effect (Eling et al., 2014).

Overall, the literature on micro life insurance demand shows significant gaps, and first studies indicate that key demand determinants of traditional life insurance, such as risk aversion, are not applicable to micro insurance. Very few empirical research studies have specifically addressed potential variables that influence micro life insurance demand in developing countries. Main factors identified as the demand drivers for agricultural and health products have not been tested for their applicability to micro life insurance, even though the limited product complexity of life insurance allows for testing basic demand barriers. If the problem of low uptake for micro insurance demand under these rather simple circumstances cannot be solved, it might be even more challenging to develop a market for more complex products, such as agricultural or health micro insurance. Understanding the demand for micro life insurance could lay the foundations for further investigations on complex products and their product specific barriers, such as basis risk. At last, micro life insurance demand research has not yet provided adequate answers to the question: how or why do the identified factors influence life insurance consumption among low-income households in developing countries? If micro insurance is to fulfill its growth potential and developmental impact as further elaborated in Section 1.4.3, more research on this topic is needed to improve uptake and outreach.

1.2   Research Objective and Development of Research Questions

The objective of this thesis is to generate an in-depth understanding about two out of the six identified potential demand factors: social capital and religion. Using household-level data from Sri Lanka, this study focuses on the following two research questions:

- **RQ 1:** What is the effect of social capital on micro life insurance demand and which mechanisms explain this effect?
- **RQ 2:** What is the effect of religious denomination on micro life insurance uptake and what are the sources of this effect?

The author decided to focus on the social and religious dimension explaining for micro life insurance uptake because both factors are found to be of relative importance in developing countries. In an environment with a poor infrastructure social networks are a main source of information, e.g. on the benefits of insurance, and a mean to access financial resources in times of need. In this context, the researcher further decided to apply the broader sociological concept of social capital, instead of referring to the concept of peers and social networks separately. This approach also enables the author to include an analysis of the interdependencies between formal and informal risk sharing strategies. The applied definition of social capital follows the work of Putnam (1993) and Coleman (1990) which allows to differentiate between an effect of formal organizations, for example a village association, generalized trust and various functions of social capital. On the role of religion, one third of all developing countries are majority Muslim while life insurance penetration in these countries is less than in non-majority ones (Swiss Re, 2016). Overall, the two research questions allow for testing so far untested hypotheses and for applying previous academic results to a new field of research which opens new explanatory approaches for the demand of micro life insurance.

To answer her research questions, the author uses a mixed method research approach (Creswell, 2013). She collected quantitative data using a household survey and a risk aversion lottery with 464 participants. At the same time, the demand for micro life insurance is explored using qualitative data from focus group discussions, involving 71 participants living in the Eastern Province of Sri Lanka. This research location was particularly suitable because of its religious diversity and the supply of conventional

and *Takaful* micro life insurance products, the latter being a form of insurance in accordance with Islamic principles[1]. The reason for combining both quantitative and qualitative data is to gain a deeper understanding of the research problem and results. By the mixed method approach, the author converges reliable and generalizable findings from numerical analysis (Bryman and Bell, 2003: 657) and explorative, detailed views from focus group discussions. The latter facilitates the interpretation and understanding of relationships between the variables (Bryman and Bell, 2003: 653). Moreover, as current research is still in a nascent stage and applicability of theoretical results is in question, the qualitative research places the results of the statistical analysis in context and taps below the numerical surface.

This work differs from previous studies in three principle aspects. First, it explains the different channels through which social capital influences micro life insurance uptake. Second, it tests and explains for an effect of religion on micro life insurance consumption on a household level instead of using cross-country datasets. Third, it combines findings from qualitative and quantitative research and uses the methodology of a lottery to measure for risk aversion.

1.3   Organization of the Study

The aim of this empirical study is to explain the limited micro life insurance consumption in developing countries. Within this context, it investigates the impact of social capital and religion by using empirical evidence from the Eastern Province of Sri Lanka. The empirical study is mainly of explanatory nature, testing for the hypotheses deduced from a theoretical framework introduced in Chapter 2. The study collects and analyzes primary data from the field: qualitative data from focus group discussions in Chapter 3 and quantitative data from a household survey and risk aversion lottery in Chapter 4. As the current research status on the topic of micro life insurance demand is nascent, the author chose a mixed method approach as explained in the previous section.

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[1] The concept of *Takaful* is further explained in section 2.6.2.

Chapter 5 integrates the main findings of the qualitative and quantitative study, presents the conclusions of this work, and its implications for future research and for practitioners.

The remaining part of Chapter 1 presents introductory information on the topic of micro life insurance, provides background information on the country-specific context of the empirical study and introduces the mixed method approach of this research.

In detail, Chapter 2 maps the research topic and research questions into the current state of academic literature and develops the research model. It first reviews theoretical models of life insurance consumption and provides an overview of the findings from previous empirical work on life insurance demand. The results from these two well-established arms of literature are complemented by the findings from peer reviewed studies on micro life insurance consumption. The author decided to base her field study on all three arms of literature, as academic research on micro life insurance alone is limited to seven studies by two groups of researchers using two main quantitative data sets. Also, the empirical literature on life insurance consumption provides an academically well-established analytical framework for structuring life insurance demand factors. The research model of this study is an extension of the analytical framework established by Outreville (2013). It summarizes potential demand factors and points out current research gaps in the micro life insurance literature. The analytical framework and the identified research gaps further encourage the author's interest to study the two demand determinants of social capital and religion from an academic point of view. The author considered academic literature on social capital and religion while developing her nine hypotheses, possibly explaining for effects of social capital and religion on micro life insurance consumption. The hypotheses are the foundation of the following qualitative and quantitative studies.

The qualitative study of Chapter 3 confirms the relevance of the two demand determinants of social capital and religion and the previously developed hypotheses. It provides first evidence for a relation between social capital, religion and micro life insurance consumption and creates a basic understanding of the relationships. To this end, the author uses the methodologies of focus group discussions for data collection

and a structured content analysis for the data evaluation. Both qualitative methodologies and their application are described in detail in Chapter 3.

In Chapter 4, the theoretically deduced hypotheses are tested in a quantitative study and the qualitative findings are subsequently validated. The design and implementation of the household survey and risk aversion lottery is described in detail, before presenting the statistical analysis.

The findings from Chapter 3 and 4 allow the author to draw a conclusion on the importance of the two demand factors of social capital and religion on the consumption of micro life insurance in Chapter 5.

1.4 Introduction to Micro Insurance

1.4.1 Definition of Micro Insurance

Across all product lines, micro insurance is most commonly defined as the "protection of low-income people against specific perils in exchange for regular premium payments proportionate to the likelihood and cost of the risk involved" (Churchill, 2006: 12). The International Association of Insurance Supervisors (IAIS) explains it more broadly "insurance that is accessed by low-income populations, provided by a variety of different entities but run in accordance with the generally accepted insurance practices" (IAIS, 2012: 11). Thus, micro insurance is a form of retail insurance where risks are systematically transferred and transformed from an individual to a collective for a risk-based fee or premium payment based on laws and methods in stochastics. Compared to general retail insurance, the distinctive characteristic of micro insurance is its target group: the low-income people. These are characterized as people living above the poverty line, usually working in the informal or agricultural sector (Wiedmaier-Pfister et al., 2009) in emerging or developing countries. Due to their employment status, they are usually not part of the social security system and have not been recognized as insurable by market-based insurance companies until the beginning of the nineteen-nineties (Churchill, 2006; IAIS and CGAP Working Group on Microinsurance, 2007: 11). Risk carriers of micro insurance vary in their size and legal status. They range from pure mutual insurers to public insurers or private (multinational) insurance companies as well as from conventional insurers to *Takaful* operators, that offer insurance services

based on Islamic principles. Major risks covered by micro insurance policies are comparable to the traditional retail-sector insurance: There is micro insurance for health, death, accident, education, housing, or agricultural risks (crop and livestock). In most cases, however, micro insurance customers have term life insurance which is linked to their credit or personal accident coverage (see Section 1.4.2 for further details). In contrast to traditional retail insurance, benefit packages are small to keep premiums affordable. Premium amounts and payments should be adapted to the irregular cash-flows of the customers. To keep the product affordable group pricing is usually applied. Policy application and claims processes are reduced to a minimum in terms of documentation, eligibility requirements and processing time. If there are screening requirements, they are many times limited to a statement of good health. The time of premium payment ideally corresponds with a period when a household receives (surplus) income. Premium collection is often linked to an existing financial service, such as microcredit or savings, to create efficiency and to minimize costs . Claim processes require simple and easy to handle documentation. Claims are to be settled promptly. Like in traditional retail insurance, micro insurance is distributed by financial institutions. Generally, distributors, are very close to the target group, have a good reputation and enjoy the trust of the target group. In addition, the promotion and servicing of micro insurance via mobile phones is gaining importance, especially in Africa (McCord and Biese, 2016). Insurers monitor their agents and support them by trainings. In micro insurance, there is limited control for adverse selection, moral hazard and fraud as traditional control measures are too cost-intensive. Usually these risks are included in the premiums, or minimized by either linking the insurance product to another transaction or offering group policies (Erlbeck, 2010; Churchill, 2006; McCord, 2006; Wipf et al., 2006). A summary of the characteristics of traditional retail insurance and micro insurance is presented in Table 1. More specific product details on micro life insurance available in Sri Lanka are presented in Section 1.6.3.

Table 1: Main characteristics of traditional retail insurance and micro insurance

	Traditional retail insurance	**Micro insurance**
Target group	Wealthy to middle class people	Low-income people
	Established insurance culture	Weak or no insurance culture and awareness
	Financial literate	Financial illiterate
Product design	Large sums insured and extensive benefit packages	Small sums insured and benefit package covering major insurable risks; short-term insurance without savings component
	Complex policy conditions with many exclusions	Simple, comprehensible policy conditions; few or no exclusions
	Individual policies	(Mandatory) group policies
	Limited eligibility, risk assessment	Few eligibility criteria
Premium	Monthly to yearly payments	Relatively small and frequent premium payments adapted to the irregular cash-flows of policyholders
	Collection in cash but mostly from deductions in bank account	Collection in cash or linked to existing (financial) products
Pricing	Based on individual risk as reliable statistical data available	Group pricing
Processing	Complex policy and claim documentation; extensive verification documents	Simple documentation
		Prompt claims processing
Distribution	Sold directly or by licensed intermediaries of the financial sector	Sold by partners close to the target market, who have good reputation and enjoy trust of target group

Source: Adapted from Erlbeck (2010: 42)

1.4.2 Global Outreach of Micro Insurance

The product spectrum of micro life insurance usually covers the following product types: term life, savings, endowment, pensions, credit life and funeral. The product types are usually aggregated into two categories: credit life and life insurance (Mukherjee et al., 2014: 23). Globally, micro life and credit life insurance are the most sold micro insurance product categories as presented in Table 2. In Latin America and the Caribbean nearly 32.9 million people are covered by life insurance and an additional 16.4 million by credit life insurance (McCord and Biese, 2015). In Africa, almost 46.4 million people are protected by micro life and another 16.4 million people by credit-life (McCord and Biese, 2016). In Asian and Oceania, about 83.9 million people are micro

life and credit life insured (Mukherjee et al., 2014). In terms of number of people insured, accident insurance is the second largest product category purchased: 20.8 million people in Latin America and the Caribbean (McCord and Biese, 2015), 13.1 million in Africa (McCord and Biese, 2016) and 77.8 million in Asia and Oceania (Mukherjee et al., 2014).

Table 2: People covered by micro insurance worldwide

	Asia and Oceania (2013)	Latin America and Caribbean (2014)	Africa (2015)
Percentage of the population covered	4.3%	7.9%	5.4%
People insured (total)	170.4 million	48.6 million	61.8 million
Life	83.9 million	32.9 million	46.4 million
Credit Life	n/a	19.7 million	16.4 million
Accident	77.8 million	20.8 million	13.1 million
Health	29.2 million	7.6 million	8.4 million
Agriculture	23.8 million	2.2 million	1.1 million
Property	7.7 million	2.7 million	4.5 million

Source: McCord and Biese (2016, 2015), Mukherjee et al. (2014)

Even though the growth rates of 30 percent for Asia and Oceania between 2010 and 2012 (Mukherjee et al., 2014), 14 percent for Latin America and the Caribbean between 2005 and 2011, and 31 percent for Africa between 2012 and 2014 are impressive large shares of the population still remain uninsured. As micro life insurance "products are comparatively easy to introduce, price and manage, remain easy for clients to understand", demanded by the target group and can be combined with other services or products (Mukherjee et al., 2014: 21), life insurance is the most promising product to increase insurance penetration for low-income households in developing countries.

The next section provides the rationale why it is desirable to further develop inclusive insurance markets. These are insurance markets that are effectively accessible to all working age adults where products and services are affordable, sustainable, convenient, and delivered by licensed and supervised insurers and intermediaries (IAIS, 2012: 7).

1.4.3 Objective of Micro Insurance

Due to their economic situation, risk exposure of low-income households is comparatively high and above a countries' population average. Low-income earners are more frequently affected by risks like illness, accidents or natural disasters (Eling et al., 2014: 224). For example, diseases are more likely because of the quality and availability of drinking water, and disabilities are more frequent due to work-related accidents. Recent studies suggest that micro insurance enables poor households to reduce their vulnerability, to manage shocks effectively, to secure and to build up their wealth (Beck et al., 2007; Cohen and Sebstad, 2006: 26; Wiedmaier-Pfister et al., 2009: 4). The studies agree that micro insurance first allows for a transfer of individual risks. This ex-ante risk transfer increases planning security and provides financial stability in case the insured event occurs. In the absence of insurance services, low-income people must rely on ex-post risk management strategies, like out-of-pocket payments, lending, dissaving or selling of assets. These reactive strategies are less efficient and effective and heavily affect the possession and accumulation of assets as well as future income flows. Savings, if any, are often not sufficient to cover the financial consequences of these risks, access to credits is limited or comes at high costs, and compensation from social protection schemes is not available. In most cases, people rely on their social network, their extended family members, friends or neighbors. These informal risk management strategies can partly smooth financial shocks with the consequence of people remaining in poverty or slipping into it (Townsend, 1994; Murdoch, 1993). With the help of insurance, these risks can be efficiently transferred and transformed (Townsend, 1983). First, people can overcome the adverse consequences of unexpected life events, health shocks or natural catastrophes, which are considered the main hindrance for many low-income people to escape the cycle of poverty. Second, micro insurance, might lead to a decreasing risk exposure of the individual if she becomes aware of her risk exposure and takes risk mitigation actions. Third, insurance protection enables economic activities and investments: savings for a rainy day can be reduced and additional funds are available for investments or economic transactions. In addition, micro life insurance supports access to credit. In the agricultural sector, it is evidenced that crop insurance allows the cultivation of more profitable crops at higher risk of crop failure (Dercon and Christiansen, 2011; Morduch, 1995). These microeconomic effects accumulate to increased economic performance on the macro-level (Arena, 2008). Despite these

positive effects, uptake of micro life insurance is still low. This low demand is also related to the commercial insurers reluctance to enter this market segment which is elaborated in more detail in the next section.

1.4.4 Challenges and Opportunities for Commercial Insurers

The business case for microinsurance is often a medium to long-term prospect for commercial insurers and associated opportunity costs of investments are often high in growth markets. As the overall insurance penetration is still low in developing countries compared to the industrialized part of the world, the market potential for commercial insurance in terms of premium growth and profitability remains very lucrative in the traditional retail and corporate market segments. However, most commercial insurers' lack of knowledge or familiarity with the low-income populations, expectations of relatively low premium volume per policy against comparatively high fixed operational costs (if traditional business models are applied), make upper management ignore this business line.

To successfully serve the low-income market segment, commercial insurers need to find innovative ways to (i) reduce operational costs, (ii) optimize claim settlement processes, (iii) cooperate with adequate distribution channels and (iv) design appropriate commission systems. Further, they need to (v) engage with the target group to understand their needs and (vi) gain access to information about their customer's risk exposure. At last, insurers need to (vii) invest in marketing or financial education activities as too often the low-income population is not familiar with the idea of insurance. In sum, commercial insurers are challenged to engage in new cooperation and develop process which are faster, more cost-efficient and slim-lined.

Microinsurance customers often are not part of the formal banking system which inhibits a cost-efficient premium collection or payouts by bank transfers (i). However, claims need to be paid as soon as possible for the insurance to be of value (ii), because of the financial situation of the target group. Selling products through conventional agents or direct sales systems serving individual households usually does not work (iii). Commissions for microinsurance are too low to sufficiently incentivize agents (iv). Microinsurance usually succeeds if it strengthens the core business of its distribution partner. For example, credit life insurance is of interest to micro finance institutions

because it reduces their number of non-performing loans. Mobile phone operators view micro insurance as customer loyalty instrument. To choose on appropriate distribution channels that are not only familiar to and trusted by the target group, but also able to reach out to the clients in rural areas, commercial insurers need to be informed about the socio-economic background, living conditions and needs of the low-income households (v). Unfortunately, this information is often lacking. More importantly historical and current statistical data on the target segments is insufficient to reliably estimate risk profiles (vi). For example, life insurers use mortality table from South Africa for Ghana as no such information is available for the country. Product development is also challenged by the irregular income flows of the low-income households which means that traditional products cannot simply be downscaled. Another difficulty for commercial insurers is the unfamiliarity of the low-income population with the idea of insurance (vii). For many of them, insurance is a new concept. This circumstance usually requires establishment of a trustful relationship and an in-depth but easy to understand explanation of the idea of insurance. These educational or marketing activities imply additional costs to be covered by the insurer.

Next to these supply side inherent challenges, regulatory rules (such as unproportionable large capital requirements and taxes) do not support the provision of microinsurance in many countries. In other cases, requirements set out for the assignment of distribution partners are not in line with the specific circumstances of microinsurance. Under some regulatory frameworks, for example, microfinance institutions that in many countries are the main delivery channel are not allowed to sell or service microinsurance policies. (e.g. IAIS, 2007: 31-34; German Federal Ministry for Economic Cooperation and Development, 2009: 10-12)

As a benefit to commercial insurers, micro insurance supports in building a strong reputation, widening the companies' customer base, and in increasing sales of today and tomorrow. In a growth environment, micro insurance is an opportunity to tap early into emerging markets and to establish a strong brand name with emerging customers. Commercial insurers can gain in-depth experiences with the local markets at relatively low risk exposure. They can experiment with new products and delivery channels in different settings and transfer successes to their traditional retail business sectors. At

last, micro insurance can help to improve the relationship between the insurer and the national regulator (Erlbeck, 2010; Lloyd's, 2009).

1.5 Methodological Approach: Mixed Methods

1.5.1 Introduction to Mixed Methods Research

The objective of this section is to explain the mixed methods approach and why this methodology and research design suits this study best.

The mixed methods approach is one of the three methods distinguished between in the philosophy of science, next to quantitative and qualitative research. It combines the qualitative and quantitative methods and its instruments for data collection and analysis. Quantitative research aims at the deductive definition and measurement of theoretical constructs. Theoretically derived hypotheses are tested in a structured manner by collecting data from sufficiently large samples. The collected data is analyzed and interpreted statistically. In contrast, the objective of qualitative research is the inductive formation of theoretical concepts or the further development of methods. Open research questions are examined in detail based on a relatively small number of cases by means of unstructured or semi-structured data collection methods like interviews, observations or documents. The rich and non-numerical data is analyzed by qualitative instruments such as content analysis to identify reoccurring themes and patterns (Döring and Bortz, 2016: 223; Creswell, 2009: 15).

Mixed methods research originates from 1959, from the psychological research of Campbell and Fisk. It further developed in the late seventies and is frequently applied in social sciences and business research, but also in the field of medicine or psychology (Creswell et al., 2006: 14, 17). It is rooted in both the quantitative and qualitative method and "focuses on collecting, analyzing, and mixing both quantitative and qualitative data in a single study or series of studies" (Creswell et al., 2006: 5). In combining quantitative and qualitative approaches, mixed methods research "provides strengths that offset the weaknesses of both quantitative and qualitative research" (Creswell et al., 2006: 9) and "is useful when either the quantitative or qualitative approach by itself is inadequate to understand a research problem" (Creswell, 2009: 18). In combining both approaches and their methods, a research study can, for example,

explore a new phenomenon and generalize its findings to a large population, or it can provide a detailed understanding of underlying mechanisms in large sample analyses (Creswell, 2009: 18-19). In a mixed methods approach, knowledge, understanding and insights are more comprehensive, multi-perspective and therewith complete (Kuckartz, 2014: 54).

In this study, the deductive, quantitative research design dominates. Based on a theoretical framework, hypotheses are developed and tested. However, in the process of data collection, analysis and interpretation, the quantitative and qualitative approaches are of equal importance. Considering the research problem and current state of micro life insurance demand research, the author opted for the mixed methods research design of triangulation which is further explained in the following. The next paragraphs describe the different mixed method research designs and explain why the triangulation design is most appropriate for this study.

The mixed methods approach can be clustered into four main categories of designs even though the number of designs is increasing with the continued application of the methods. Usually three criteria are applied to distinguish between the different mixed methods research designs (Creswell et al., 2006: 80):

i.   Timing or implementation of the quantitative and qualitative study,
ii. Weighting of the quantitative and qualitative methods in the research,
iii. Mix of methods or integration of the quantitative and qualitative methods

The criterion of timing refers to the sequencing of implementation of the quantitative and qualitative study. Overall, there are three options: a. the quantitative study is conducted first, b. the qualitative study is implemented first, c. both the qualitative and quantitative research are done at the same time.

The second criterion of weighting implies the importance of the two research methods. Again, there are three choices: a. the quantitative study outweighs the qualitative study, b. the qualitative study is prioritized over the quantitative study, c. both studies are of equal importance.

The third criterion, 'mix of methods' or integration, clarifies when the quantitative and qualitative research approaches are combined: a. in the research design, b. during data collection, c. during data analysis, or d. in the interpretation of results (Creswell et al., 2006).

Applying these three criteria, four main design categories are discussed in literature as presented in the following Table 3 and further explained below.

Table 3: Classification of mixed method designs

Criteria		Triangulation	Embedded	Explanatory	Exploratory
Timing	Parallel	X	X		
	Sequential			Quan → Qual	Qual → Quan
Weighting	Equal	X			
	Priority		X	Quan	Qual
Mix of methods (Integration)	Design	X	X	X	X
	Data collection		Qual → Quan		
	Data analysis		or	Quan → Qual	Qual → Quan
	Interpretation	X	Quan → Qual		

Source: Adapted from Creswell et al. (2006: 85)

Within a mixed method triangulation design, two separate studies, a quantitative and a qualitative study, are carried out in parallel whereby both methods are of equal importance. Both studies are driven by and based on a common research design whereby data collection and analysis is conducted separately. Data is merged during the data interpretation process when results are compared, contrasted and interpreted jointly. If findings of the quantitative and qualitative studies are consistent, external validity of results is improved (Creswell et al., 2006: 62).

In an embedded design, quantitative research either supports qualitative research or vice versa. Quantitative and qualitative methods are mixed at the design and data collection level. In most applications, qualitative and quantitative data is collected simultaneously with one method clearly dominating the other in data collection, analysis and interpretation (Creswell et al., 2006: 67).

In an explanatory mixed method design, qualitative data helps to explain or build upon quantitative research finding. Quantitative data is superior and collected first. Then, qualitative research improves the quantitative results by generating an in-depth understanding of statistical correlations. They put statistical results into context and can explain for underlying reasons of correlations (Creswell et al., 2006: 71).

An exploratory design either aims at further developing data collection instruments, or serves for the identification of new hypotheses to be tested quantitatively. Starting with qualitative methods of data collection, analysis and interpretation, an exploratory design allows for the investigation of a new phenomenon, if a guiding theory or framework does not exist. Quantitative methods can then be used to generalize the qualitative findings to a larger population. The qualitative method and its instruments dominate the quantitative ones (Creswell et al., 2006: 75; Bryman, 2001: 449-50).

Overall, this study follows the triangulation design. While in its research design, the quantitative method dominates the qualitative approach, both methods are of equal importance in data collection, analyses and interpretation. The research design is mainly of an explanatory nature testing for theoretically deduced hypotheses. Contrary to previous micro life insurance demand research, the author decided to supplement the quantitative study – the main research method in economics and business administration – with a qualitative study, as theoretical and practical knowledge on the demand of micro life insurance is nascent. In addition, previous research shows that existing theories are not always applicable to the target group. The qualitative approach allows to identify key demand determinants in an open, exploratory manner and to confirm the relevance of the hypotheses. It further provides an in-depth understanding and puts the quantitative results into context. Still, the parallel sequencing, equal weighting and mix of qualitative focus group discussions with a quantitative household survey and risk aversion lottery as well as their joint interpretation, justify a triangulation design.

1.5.2 Quality Criteria in Mixed Methods Research

This section sets out the quality criteria of mixed methods research, which guide the design and implementation of the present study. These quality criteria draw from the quantitative and qualitative methodology.

In most quantitative research, the validity typology of Campbell (1957) is applied, which is concerned with the methodological rigor of scientific work, supplemented by test theoretical quality criteria (Döring and Bortz, 2016: 109-110). Overall, three main criteria and three sub-categories can be defined:

    i.   internal validity (*credibility*) and its sub-categories of:
        a. statistical inference validity,
        b. external validity (*transferability*),
        c. construct validity,
    ii.   reliability (*dependability*), and
   iii.   objectivity (*confirmability*).

Qualitative research frequently uses a set of quality criteria developed by Lincoln and Guba (1985). They established four quality criteria: (i) credibility and (ii) transferability, (iii) dependability, and (iv) confirmability. As indicated by the previous list of quality criteria, the four criteria are closely linked to the above described quantitative criteria (Döring and Bortz, 2016: 109-110; Teddlie and Tashakkori, 2009: 296). Due to the identity of the quality criteria in quantitative and qualitative research, and the primary application of the quantitative research paradigm in this work, this study uses the terminology of the quantitative quality criteria. It further applies two quality criteria specific to the mixed methods approach:

    iv.   design quality, and
    v.   interpretative rigor.

The following paragraphs describe each quality criterion and explain their relevance for this research.

(i) Internal validity (*credibility*) refers to the fact that results and interpretations are credible. It relates first to the validity of a causal relationship of an observed covariation between two variables, and second to the degree to which alternative explanations of the results can be ruled out. Internal validity mainly relates to the research design. For example, (quasi-)experimental studies are internally valid because their findings on the examined relationships can be interpreted as cause-effect relations. On the contrary, non-experimental studies can only show correlations between variables, without

clarifying the underlying causalities. Accordingly, the internal validity of causal interpretations is lower (Döring and Bortz, 2016: 94-95).

A special case of internal validity is statistical (inference) validity. A quantitative study can claim a high degree of statistical validity if descriptive and inferential analysis are performed correctly and appropriate statistical methods are used. In addition, statistical validity is limited if the inferential data analysis is not based on hypothesis, but statistical significances are searched for without a theoretical background (Döring and Bortz, 2016: 96). In this study, statistical inference validity is considered in the deductive development of hypotheses from previous research and in the process of data analysis.

External validity (*transferability*) captures the degree to which the inference made from the results are consistent across variations in settings, timing, measurements, or persons. External validity is high if the results and conclusions are transferable or generalizable to other contexts. It largely depends on the research design and on the sampling procedure. For example, results of a field study are more generalizable than from a laboratory study, and a longitudinal study performs better in terms of external validity than cross-sectional studies. In addition, probabilistic samples are superior to the non-probabilistic ones because of their higher degree of representativeness (Döring and Bortz: 2016: 95, 102; Teddlie and Tashakkori, 2009: 296). The degree of external validity is a weakness of this research. To be able to answer her research questions, the author decided for non-probabilistic sampling strategies and her resources allowed for a cross-sectional but not a longitudinal study. However, she could conduct her research in the field and adapted her sample by statistical weighting to the population under study.

A third aspect of external validity is construct validity, which refers to the ability of the respective measurements to capture the theoretical constructs of interest. To achieve construct validity, theoretical concepts are defined precisely and based on the current state of research. In the process of operationalization, it must be specified through which observable characteristics (indicators) the respective theoretical concepts are measured, and which standardized measurement instruments are used (Döring and Bortz: 2016: 95; Teddlie and Tashakkori, 2009: 296). In this study, the author defined

concepts in a clear and transparent manner and used academic standards in their operationalization.

(ii) Reliability (*dependability*) refers to the consistency of results and accuracy of measurement instruments. Reliability is high if findings are replicable and instruments return the same results in a repeated measurement activity with the same (or similar participants) in the same (or similar) context (Döring and Bortz: 2016: 109, 442-445). Reliability is a precondition for construct validity, and was considered in the design of the measurement instruments and in undergoing a transparent data collection, analysis and interpretation process.

(iii) Objectivity (*confirmability*) is present if subjective elements or influences are eliminated. Results are independent of the researchers participating and their motivation, interests and perspectives (Döring and Bortz: 2016: 109, 442). In the processes of data collection, analysis and interpretation the author took measures to exclude subjective influences. Details are presented in the respective chapters.

(iv) Design quality is achieved if the stated research question necessitates a mixed methods research approach. The rationale for a mixed methods study is discussed and clearly expressed (Döring and Bortz: 2016: 114-115). In this study, the introductory chapter states the research questions and rationale of the research design as well as the previous section.

(vi) Interpretative rigor refers to the need for integrating mixed methods findings. Results of the quantitative and qualitative studies are integrated and discussed in an overall interpretation to ensure the additional value of pursuing both methods (Döring and Bortz: 2016: 115; Teddlie and Tashakkori, 2009: 301; Bryman et al. 2008: 269-275, 284). Interpretative rigor is best reflected in the conclusive chapter of the study, Chapter 5.

In its mixed method approach, this study applies six quality criteria to ensure methodological rigor, validity and reliability of results. The six quality criteria are discussed in the respective chapters and the quality of this research is evaluated against the defined criteria in the concluding Chapter 5.

1.6 Empirical Setting: Sri Lanka's Country Profile and Micro Insurance Market

This section introduces the general Sri Lankan context in which micro insurance operates and it describes the current micro insurance market. The data used in the first part to summarize the political, economic and socio-economic conditions is mainly from the Household Income and Expenditure Survey (HIES) under the National Household Survey Programme conducted between June 2012 and July 2013 by the Sri Lankan Department of Census and Statistics. The survey takes place every three years and lasts 12 months to capture seasonal variations in income and expenditure. It further provides detailed data on provincial and district-level and differentiates between urban and rural environments. As the field research took place in August and September 2013 in the Eastern province the data are from about the same time. Additional information is collected from the Socio-Economic Data of Sri Lanka (2013) published by the Sri Lankan Central Bank in 2014. For the reason of interpreting the statistics, the author makes references to other member states of the South Asian Association for Regional Cooperation (SAARC) if necessary. This regional intergovernmental organization and geopolitical union of nations includes the member states of Afghanistan, Bangladesh, Bhutan, India, Nepal, the Maldives, Pakistan and Sri Lanka. It was founded in 1985 to promote economic development and regional integration.

The second part describes the current state of the micro insurance market, and is mainly drawn from the recent report "The Landscape of Microinsurance in Sri Lanka in 2016" published by the Microinsurance Network and the Munich Re Foundation. The landscape study provides the most comprehensive and recent overview of the micro insurance sector and was prepared for the 12th International Microinsurance Conference that took place in the capital of Sri Lanka in November 2016.

1.6.1 Sri Lankan Political System and Economic Context

Sri Lanka was founded in February 1948 after its independence from the United Kingdom under the name of Ceylon, and later named the Democratic Socialist Republic of Sri Lanka. With its capital, Colombo, the country is divided into nine administrative provinces. Sri Lanka is a presidential republic. The current president, Maithripal Sirisena, was elected in January 2015 for a six-year term. He is both chief of state and

head of government. For 26 years, the political and economic situation of Sri Lanka was influenced by the armed conflict between the Tamil separatists and the Sinhalese majority which ended in 2009. Since the end of the armed conflict the government has invested in economic development projects, especially in the country's infrastructure. Investments are mainly financed by foreign loans from China and the Asian Development Bank. Further, Sri Lanka was heavily affected by the Tsunami in 2004, most severely the coastal areas in the Northern, Eastern and Southern Province.

In 2013 gross domestic product (GDP) amounted to 67.2 billion USD. Since the end of the armed-conflict in 2009 GDP is constantly growing with real GDP growth rates between 8.2 percent in 2011 and 6.3 percent in 2012. Majority of GDP is generated from the service sector with 58.1 percent, 31.1 percent from the industry and 10.8 percent from agriculture. The service sector is driven by the tourist industry and its related businesses. Main industries in Sri Lanka are food, beverage, tobacco and textiles. The agricultural sector benefits from exports of tea and rubber and in addition produces rice and coconut as major crops. Over the last 15 years, the share of agriculture has been declining to the benefits of the industry sector, a trend representing the ongoing structural transformation of the economy (Central Bank of Sri Lanka, 2014).

As presented in Table 4 monthly household income was LKR 45,878 (approx. EUR 255.74 EUR) in 2012/2013 in Sri Lanka and LKR 30,676 (approx. EUR 170.82) for the Eastern Province as per the HIES. Average monthly income consists of monetary and non-monetary income sources whereby 86 percent of the total household income is from monetary sources. The latter is income from wages or salaries (35 percent), agricultural (11 percent) and nonagricultural activities (17 percent), other cash income (11 percent) and windfall income, e.g. from lotteries (10 percent). In the Eastern province, relatively more people receive income from wages or salaries and less from agricultural activities.

Table 4: Average monthly household income in Sri Lanka by main source

	Sri Lanka		Eastern Province	
	Mean in LKR	Share of income	Mean in LKR	Share of income
Total Income	**45,878**	**100%**	**30,676**	**100%**
Monetary Income	**39,300**	**85.7%**	**27,477**	**89.6%**
Wages / Salaries	16,134	35.2%	12,851	41.9%
Agricultural activities	5,213	11.4%	1,602	5.2%
Nonagricultural activities	7,990	17.4%	4,325	14.1%
Other cash income	5,230	11.4%	4,141	13.5%
Income by chance	4,733	10.3%	4,557	14.9%
Non-monetary Income	**6,578**	**14.3%**	**3,199**	**10.4%**
Income in kind	2,381	5.2%	1,236	4.0%
Estimated rent value of own house	4,197	9.1%	1,963	6.4%

Source: Adapted from Department of Census and Statistics (2015)

Unemployment of labor force is rather low with 4.4 percent. Most of the 8.4 million formally employment people work in the service sector (42.9 percent) where the tourist sector largely contributes to, followed by the agricultural sector (31.0 percent) and industry (16.1 percent). Public employment is modest at 1.5 percent of total employment and the financial sector still small with 1.8 percent of total employment. However, these figures do not include the informal sector[2] which represents almost 60 percent of employment in Sri Lanka. Out of the five million informally employed 2.2 million work in the agricultural sector and 2.8 million in the non-agricultural sector (Department of Census and Statistics, 2015; 2014).

[2] Per the Department of Census and Statistics, the informal sector is defined as an institution that is (i) not registered in Employment Provident Fund or in Department of Inland Revenue, or (ii) not keeping formal accounts, or (iii) the number of regular employers is less than 10 (Department of Census and Statistics 2014: 30).

To better understand the living standard, income per capita is an appropriate measure, whereby average household size is 3.9 nationwide and 4.0 for the Eastern Province. In 2012/2013, the average per capita income was LKR 7,622 per month (approx. EUR 42.44) in Eastern Sri Lanka compared to the national average of LKR 11,819 (approx. EUR 65.81); the median per capita income in the area under study amounts to LKR 5,385 (approx. EUR 29.99) compared to LKR 7,881 (approx. EUR 43.89) on the national level. In comparison to the rest of the country, living standard is the lowest in the Eastern Province of Sri Lanka. This fact is further supported by national poverty statistics. Official poverty line is set at real per capita expenditure per month of LKR 3,624 (approx. EUR 20.18). If a person's real expenditure is below this value, she is in poverty. In Sri Lanka, these are 1.3 million people or 6.7 percent of the total population, which is low by international standards. In the area under study, the share of people living in poverty is 11.0 percent of the population, a value that is only topped by the Uva region (15.4 percent), a sparsely populated area in the south-east of Sri Lanka (Department of Census and Statistics, 2015). When, in addition, the group of the "near-poor" is considered, it becomes obvious that 40 percent of the population lives on an income less than twice the national poverty line (World Bank, 2016: 6). Efforts by the national government to financially support people in need are limited. According to a recent World Bank report, spending on social assistance programs is low by international standards and declined in the past (2016: 56). Details on social assistance programs are listed in Table 5.

Table 5: Social assistance programs of the Government of Sri Lanka in 2011

Program	Beneficiary Type	Benefit Level	Beneficiaries	Expen-diture*
Samurdhi Subsidy Program	Poor families	Monthly stamps worth of LKR 210, 750, 1200, 1500 per family	1,541,575 (Families)	9,043
Monthly Assistance for Disabled	Persons with disabilities, of low income families	Monthly assistance worth of LKR 3,000 per family with a disabled	11,216 (Families)	404
New Elders Assistance Program	Elders over 70 years with no income	Monthly relief of LKR 1,000 per elderly person	229,892 (2012)	190 (2012)
School Meal	Grade 1-5 students of primary and secondary schools in selected rural areas and students from special education	Mid-day meal	1,117,219	2,486
National Supplementary Food	All pregnant mothers and lactating mothers for first 6 months and infants and children from 6-59 months deviating from the normal weight and those who are with growth faltering	Two take home packs of Thriposha once a month	873,509	980

Source: Adapted from World Bank (2016: 55)
Note: * in million LKR

In addition to these social assistance programs, three social insurance schemes are in place: a pension scheme, a National Insurance Trust Fund and a public crop insurance scheme. The pension scheme under the Ministry of Social Empowerment and Welfare targets at the working age population. It covers public service employees; self-employed can contribute voluntary. While it provides pensions in the first place, it also grants personal accident coverage. The National Insurance Trust Fund was set-up in 2006 under the Ministry of Policy Planning and Economic Affairs. It reaches more than 2 million clients and offers health insurance for public servants, crop and loan protection for farmers, and a national natural disasters coverage. In addition, the Agriculture and Agrarian Insurance Board provides crop insurance since 1973. Currently it covers more

than 700,000 farmers and additionally offers pension, personal accident and permanent disability benefits to farmers and fishermen (Microinsurance Network, 2016).

1.6.2 Socio-Demographic Profile of Sri Lanka

In 2013 around 20.5 million people lived in the nine provinces of Sri Lanka. 18.3 percent of population lives in the urban areas and 81.7 percent in the rural areas whereby 4.4 percent of the rural population lives on estates, a situation specific to the large tea estates. Most people, 5.8 million, live in the Western Province which includes the greater Colombo area. Further, a multi-city urban agglomeration evolved from Colombo to Kandy (Central Province) and to Galle and Matara (Southern Province) (World Bank, 2016: 34). The Eastern Province is comparatively sparsely populated with a population density of 168 compared to 1,633 for the Western Province. Sri Lankan population grows slowly with 0.9 percent per year which is the lowest in the SAARC region next to Nepal (Central Bank of Sri Lanka, 2014).

Within the SAARC region Sri Lanka's age structure is the oldest. 25.9 percent of the population is between 0 and 14 years. 60.6 percent between 15-59 years and 13.6 percent are 60 years and above whereby the Eastern Province is the region with the youngest population. The age structure is also reflected in the relatively low birth rate of 17.4 per 1,000 persons, which is for example 21.8 in India and 43.1 in Afghanistan. Life expectancy, estimated in 2012, is 75.1 years, which is only topped by the Maldives (Central Bank of Sri Lanka, 2014).

In Sri Lanka, most people eligible for marriage are married which is 58.2 percent of the population. 32.2 percent have not been married which is a plausible number looking at the age structure of the country. 7.9 percent are widowed and 1.7 percent divorced or separated. The high percentage of widows is explainable by the conflict-situation which especially effected the Northern and Eastern Province until 2009 and the Tsunami of 2004 (Department of Census and Statistics, 2015).

Literacy rate is comparatively high with 95.6 percent of all adults aged 15 years and above. In the SAARC region, only the Maldives have a higher literacy rate of 98.4 percent, in India it is only 75.2 percent. However, little more than one quarter of the population finished secondary education. 13.1 percent passed Grade 10 and 12.4 percent

finished their A-levels. Most inhabitants dropped out of school during their secondary education as 43.6 percent left school between grade 5 and 10. 24.7 percent of the population went to school for a maximum of five years and 3.7 percent of the population is without formal education. In the Eastern province, the educational level is slightly below the nation-average (Department of Census and Statistics, 2015; Central Bank of Sri Lanka, 2014).

Most Sri Lankans belong to the religion of Buddhism: 70.2 percent. Other religions are Hinduism (12.6 percent), Islam (9.7 percent) and Christianity (7.4 percent). Even though Buddhism is the majority religion, distribution of religion across the provinces and districts varies as displayed in Figure 1. For the purpose of this research the two districts of Trincomalee and Batticaloa are of special interest because of their religious diversity. In total, about 169,000 people are living in these districts. Out of this population about 97,000 people are Hindu (58 percent), 65,000 Muslim (38 percent), 7,000 Christian (4 percent) and 600 Buddhist (0 percent) (Department of Census and Statistics, 2012).

Figure 1: Sri Lankan population by religion and district
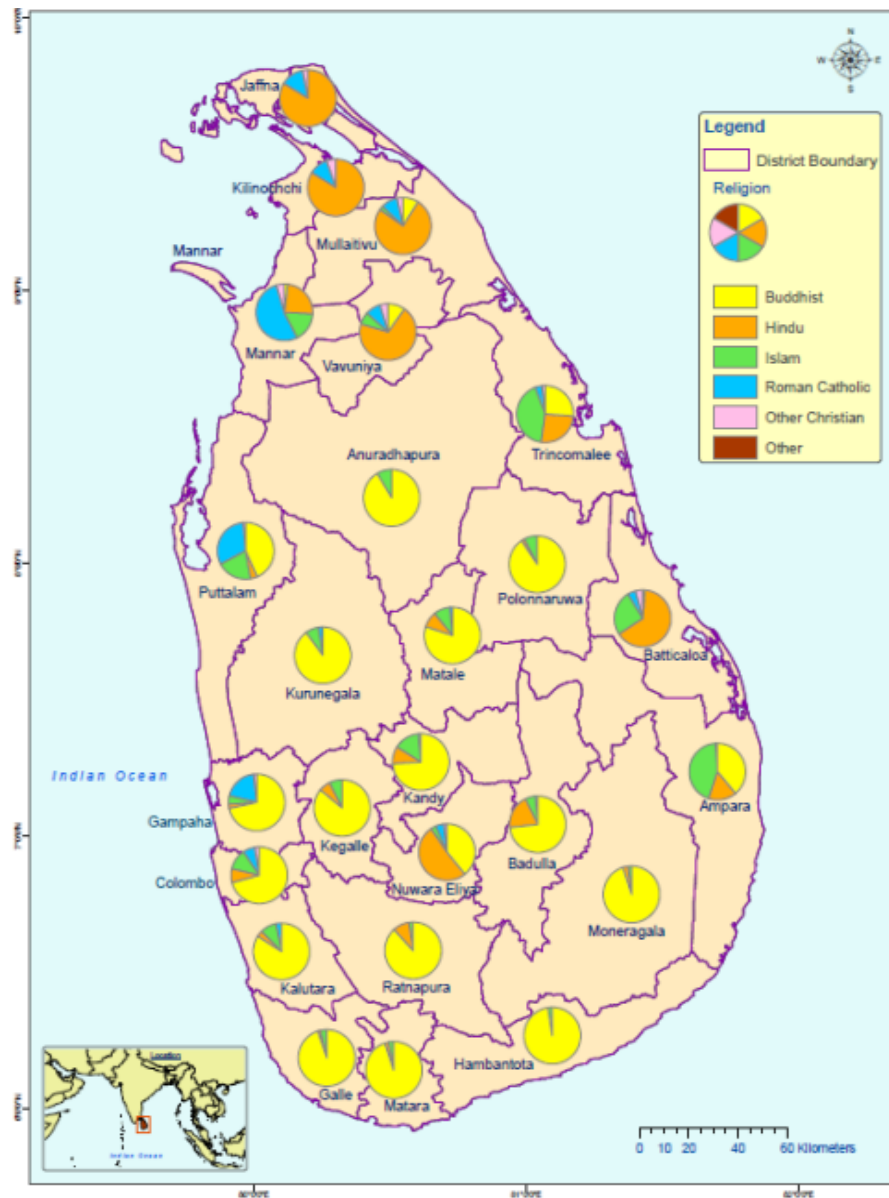
Source: Department of Census and Statistics (2012)

1.6.3 Sri Lankan Micro Insurance Market

Sri Lanka's financial sector is relatively small and limited both in scope and depth of services provided. Access to finance is a major constraint to small and medium enterprises as well as to the poor. Government policies focus on subsidizing and controlling interest rates instead of supporting sustainable, market-based approaches (World Bank, 2015: 4). Still, per Global Findex data, financial inclusion is remarkably high compared to other developing countries in South Asia. 82.7 percent of all adults

had a bank account in 2014. 30.9 percent of all adults saved with a financial institution and 17.9 percent borrowed from a bank (World Bank, 2014).

The private insurance sector mainly serves the corporate segment and the urban middle and upper-income households. In total 29 insurance companies are licensed: 12 composite insurers with licenses for both life and non-life insurance; 2 are licensed for life insurance only, another 15 for non-life insurance (IBSL, 2016). Swiss Re reports life insurance premiums per capita of 41.1 USD with 18.5 USD for life and 24.5 USD for non-life in 2015 (Swiss Re, 2016). The Sri Lanka micro insurance market is in an early stage. Almost 6.9 percent of the population has a micro insurance policy with 1.462 million policies issued. Out of these, 57 percent are personal accident coverage and 40 percent life policies as presented in the Table 6 following below (Microinsurance Network, 2016: 8).

The insurance industry is regulated and supervised under the Insurance Board of Sri Lanka (IBSL). Contrary to other jurisdictions there is no special regulatory provision for micro insurance. It is regulated under the Insurance Industry Act No. 43 of 2000. In addition, some micro insurance schemes provided by mutuals or non-governmental Organizations (NGOs) operate outside the Insurance Industry Act.

Table 6: Sri Lankan micro insurance industry – Key figures

Micro insurance Gross Written Premium reported	USD 16 million
Micro insurance policies issued as a percentage of total population	6.9%
Micro insurance policies issued	1.462 million (100%)
Life	0.59 million (40%)
Personal accident	0.84 million (57%)
Property	0.012 million (0%)
Agriculture	0.011 million (0%)
Livestock	0.006 million (0%)
Health	Not applicable

Source: Adapted from Microinsurance Network (2016: 8)

In total, the Microinsurance Landscape Study of 2016 identified three governmental schemes and 12 registered commercial providers of micro insurance next to non-registered insurance schemes run by NGOs. Main private insurers offering micro insurance are Ceylinco Insurance, HNB Insurance, Sanasa Insurance and Co-operative Insurance. In the informal sector two institutions offer noteworthy micro insurance services: Yasiru and SEEDS. Both institutions aim at alleviating poverty. Yasiru offers life insurance to its 10,000 members in six districts which can be extended to hospitalization benefits. SEEDS (Sarvodaya Economic Enterprise Development Services) has one million members in 4,000 village level societies, offering a loan protection scheme of up to LKR 100,000 (approx. EUR 556.86). In addition, around 30,000 death benevolent societies exist across the country. They operate on community-level and help families to manage funerals and their expenses. These funeral societies have been operating for more than 50 years. Members pay a monthly fee and in case of death of a family members, a pre-agreed upon amount is contributed to the funeral expenses.

The public schemes and private insurers offer in total 35 micro insurance products. Out of these products, 27 are non-life, mainly accident, five are life products, two are health and one is a composite product. Average premiums for life insurance ranged from LKR 708 per year (approx. EUR 3.94) to LKR 6,333 (approx. EUR 35.27). Average annual premiums for personal accident coverage are slightly lower and range from LKR 575 (approx. EUR 3.20) to LKR 3,738 (approx. EUR 20.82) (Microinsurance Network, 2016:11). The participants of the field study are mainly insured with Amana Takaful (61%), Ceylinco (17%), Janashakthi (4%), Sri Lanka Insurance (4%), and Union Assurance (4%). Amana Takaful is an insurer operating in line with Islamic insurance principles (*Takaful*). In the area under study it offers a voluntary bundled life, personal accident and health product. The policyholders and up to five family members are protected against death (LKR 50,000, approx. EUR 278.50), accidental death (LKR 50,000, approx. EUR 278.50), permanent total disability (LKR 50,000, approx. EUR 278.50), hospital benefits of LKR 500 per day up to 30 days (LKR 15,000, approx. EUR 83.55), and medical expenses while in a government hospital (LKR 10,000, approx. EUR 55.70) for an annual premium of LKR 1,990 (approx. EUR 11.08) to be paid in three installments. In addition, Amana Takaful provides a credit-life insurance

product. Ceylinco is offering two products for low-income customers. The bundled product "Ceylinco Support Line" targets small and medium sized entrepreneurs providing personal accident and term life coverage. People can choose between three levels of sum insured. For an annual premium of LKR 1,800 (approx. EUR 10.08), Ceylinco offers an annual life insurance cover of LKR 50,000 LKR (approx. EUR 278.50) and a personal accident cover of LKR 1 million (approx. EUR 5,400). An annual premium of LKR 3,600 (approx. EUR 20.16) guarantees life insurance benefits of LKR 100,000 (approx. EUR 557) and personal accident of LKR 2 million (approx. EUR 11,140) and for twice the premium amount life insurance benefits increase to LKR 150,000 (approx. EUR 835.50) and personal accident cover is doubled to LKR 4 million (approx. EUR 22,280). The product "Ceylinco Pradeepa Insurance" is a term life insurance cover. For a one-time premium payment of LKR 1,250, approx. EUR 6.96, the policyholder receives a 5-year term life cover with a sum insured of LKR 100,000, approx. EUR 557. In sum these products offer a basic term life insurance coverage with additional benefits of personal accident or disability and in one case business interruption coverage in the form of hospital benefits.

Micro insurance in Sri Lanka is mainly distributed by microfinance institutions and community-based organizations. One reason for the strong role of microfinance institutions is that micro insurance in Sri Lanka started with loan protection insurance. In addition, both types of organization have a good outreach in the rural areas.

For the insurance industry, major challenges in serving the low-income households arise from the target group's low levels of financial literacy and understanding of insurance. Many people perceive insurance as a kind of savings products which leads to the expectation of receiving a cash-back after some time, and credit-life insurance is seen as an additional loan fee. Insurers are not used to serve this target group. They are unaware of the target group's needs and way of communication. In addition, to achieve cost-efficiency, insurers need to cooperate with microfinance institutions or other distribution partners. Insurers must outsource many operational processes in the sign-up, policy administration and claims pay-out process which is a new experience for many companies (Lanka Microfinance Practitioners' Association, 2013).

In sum, micro insurance schemes in Sri Lanka are still young and many have not developed beyond the status of a pilot. With a weak social assistance program and low insurance penetration, there is a lot of potential for micro insurance to protect and promote the livelihoods of the low-income people.

2 Fundamentals of Micro Life Insurance Demand: Theory and State of Empirical Research

2.1 Overview

Based on a review of currently available theoretical and empirical research results, this chapter first develops an analytical framework for the determination of the factors affecting micro life insurance demand. Secondly, the chapter establishes the hypotheses for the field study.

With the objective of designing the analytical framework, this chapter starts with a review of the following three streams of literature, as presented in Figure 2: (i) expected utility theory and its application to life insurance demand, and empirical studies on (ii) traditional life insurance consumption in developing countries and (iii) micro life insurance demand. The author decided to broaden the base of her literature study to include these three fields of research as academic literature on micro life insurance is still at an early stage and theoretical models specifically attributable to this topic have not yet evolved.

Figure 2: Structure and content of theoretical framework
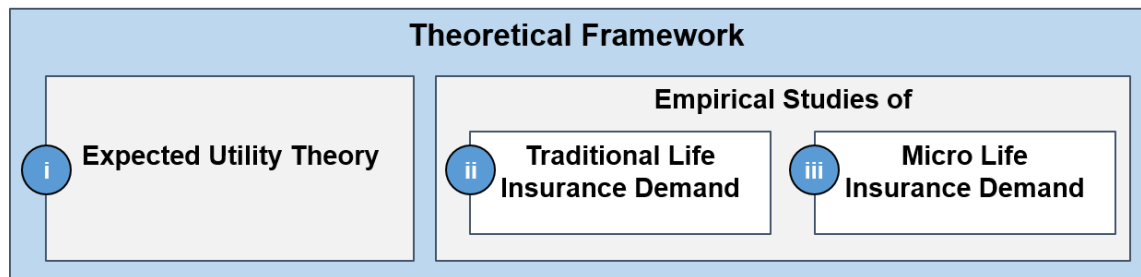
Source: Author's own

The next section (Section 2.2) introduces life insurance demand in the light of expected utility theory. The author decided to focus on the classical models of expected utility theory which explain decision-making under uncertainty and insurance demand. Other decision-making theories such as prospect theory, endowment effect, status quo bias, regret and disappointment paradigms have been excluded as they do not provide superior results in predicting individuals' choice behavior (Kunreuther et al., 2013). Section 2.2 starts with a summary of the basic insurance demand model under the expected utility theory approach, before elaborating different theoretical models which

explain life insurance demand in specific. These specific models focus on the demand for term life insurance and can be divided into three clusters:

1. Models based on the life-cycle hypothesis assuming perfect information (Section 2.2.2),
2. Life insurance demand models under the assumption of imperfect markets (Section 2.2.3), and
3. Portfolio choice models (Section 2.2.4).

This summary of expected utility theory models is limited to the demand models devised for term life insurance, as these products are currently the main products available for low-income households in the Eastern Province of Sri Lanka. Majority micro life insurance products are annually renewable policies disbursing a lumpsum payment in case the policyholder or one of his direct family members dies. As such these term life products serve as a survivors' insurance, as a protection against loan commitments and a source to pay for funerals. They are insufficient to provide for the policyholders' retirement or as an investment. Hence, literature on the demand for endowment products or private pension insurance is excluded. The theoretical models discussed in this section provide a coherent set of variables that explain consumer decision-making and specify how and why such variables are interrelated. However, it is acknowledged that the theory can only describe structures and basic principles of decision-making processes. Actual behaviors do not always follow theoretical predictions.

To overcome the shortcomings of theoretical work, empirical research is considered as well. With this objective, Section 2.3 reviews research studies which explain traditional life insurance demand in developing countries. These empirical results are expected to support and supplement theoretical findings. As the findings are related to the overall insurance market including endowment and pensions, results may only be partially applicable to micro life insurance. Moreover, this arm of the literature provides an analytical framework to structure the life insurance demand factors that is well established in the empirical insurance demand literature (Outreville, 2013).

The analytical framework model is further applied to previous empirical research on the subject of micro life insurance demand (Section 2.4). This field of academic research

currently includes seven peer reviewed studies which provide indicative results, leaving several demand factors yet untested. Section 2.4 also maps the available micro life insurance research findings into the results of the theoretical models and traditional life insurance demand studies using the framework developed by Outreville (2013). This process allows the identification of gaps in research exploring micro life insurance demand and an extension of the previously introduced analytical framework of demand factors to micro life insurance research. Summarized in Section 2.5, this extended framework forms the analytical model for studying micro life insurance demand in Sri Lanka.

The analytical model shapes the field study to be introduced in Chapter 3 in two manners. First, in the qualitative study it guides the content and analysis of the focus group discussions. Second, the hypotheses underlying the quantitative field study are developed based on the extended demand factors framework. These hypotheses are developed in Section 2.6.

2.2 Expected Utility Theory of Life Insurance Demand

2.2.1 Standard Expected Utility Model of Insurance Demand

In 1968, Mossin published one of the first and most cited microeconomic models of insurance demand. It formalizes the consumers' choice under uncertainty and predicts her choice for insurance. Assuming a risk-averse, expected utility maximizing consumer, insurance is demanded if a person prefers to pay a certain small premium instead of facing an uncertain large loss. Today his work represents the classical model of insurance demand within the expected utility theory framework. Even though Mossin's model refers to non-life insurance, its main findings hold for term life insurance demand: the decision to purchase insurance protection against a specified loss depends on an individual's risk aversion, her wealth, and the premium charged.

Mossin's model considers a representative individual with initial wealth $w > 0$ and a concave von Neumann-Morgenstern utility function $U(w)$. The latter is at least two time differentiable with $U'(w) > 0$, indicating a positive marginal utility of wealth and a risk averse individual $U''(w) < 0$. The total initial wealth notated by Mossin as Y is composed of several assets, one property with the value of L and all other assets with

total value of A. During any specified insurance period the property L can suffer a total loss with probability π or no loss with probability $1 - \pi$. If the individual decides to purchase insurance, she pays the premium p. The amount of premium is optimal if the individual's utility from insurance coverage is equal to the utility from not having insurance.

If the individual takes insurance, her final wealth will be with certainty:

$$Y_2 = A + L - p$$

Her utility is U (A + L – p). The final wealth of an individual not taking insurance will be:

$$Y_1 = \begin{cases} A & with\ probability\ \pi \\ A + L & with\ probability\ 1 - \pi \end{cases}$$

Her expected utility is π U (A) + (1 – π) U (A + L). Then, the maximum premium an individual is willing to pay is found by equaling the utilities:

$$\pi U(A) + (1 - \pi)U(A + L) = U(A + L - p)$$

Assuming that the individual is generally risk averse (i.e. U'' < 0), the maximum premium p increases with the loss probability π and her property L.

If the individual can decide on the amount of coverage (C), the premium she pays is proportional to C as well as to the indemnity payment of the insurer. The individual then pays a premium of p·C and in case of a stochastic loss X she receives (C/L) X from the insurer. Her final wealth is then a stochastic variable:

$$Y = A + L - X + \frac{C}{L}X - pC$$

To define the optimal amount of insurance coverage the individual maximizes her expected utility E[U(Y)] under the condition $0 \le C \le L$. This results in:

$$\frac{dE[U(Y)]}{dC} = E\left[U'(Y)\left(\frac{X}{L} - p\right)\right]$$

$$\frac{d^2 E[U(Y)]}{dC^2} = E\left[U''(Y)\left(\frac{X}{L} - p\right)^2\right]$$

Assuming risk aversion, the second derivate is defined to be negative. For estimating the optimal premium for full insurance coverage (C = L), the first derivative must be non-negative:

$$\left.\frac{dE[U(Y)]}{dC}\right|_{C=L} = U'(A + L - pL)\left[\frac{E(X)}{L} - p\right] \geq 0$$

Since U' > 0 this condition will hold only if pL ≤ E(X). In other words, full insurance is only optimal if the insurance premium is equivalent to the loss or actuarially fair (Mossin, 1968: 557). If the insurance premium includes a positive loading for administrative expenses, partial insurance coverage is optimal (Mossin's Theorem). Mossin further proved a negative effect of wealth on an individual's insurance consumption if her risk aversion is decreasing in wealth.

This section introduced the standard approach in insurance economics for explaining insurance demand under expected utility theory. It identifies three basic demand factors to be considered in the empirical study: wealth, risk aversion, and pricing. The application of Mossin's model to life insurance differs from non-life insurance, as the value L of the asset "life" is subjective, guided by the motivation to insure, and there is no partial loss, such that X = L. Still, the actual coverage C will be reduced if the premium is loaded, which directly follows from Mossin's Theorem. Thus, the model of Mossin serves as a reference framework for more specific models on life insurance demand, which aim to allocate a value to the asset "life" (and by that define full and partial coverage). Main results of the introduced theoretical models are also summarized in Table 7 (p. 48).

2.2.2 Life-cycle Theory and a Motive to Bequeath

Optimal lifetime consumption under uncertainty

In his seminal work from 1965, Yaari shows that under uncertainty of lifetime a utility maximizing decision-maker purchases life insurance to make the most of her lifetime consumption. Yaari distinguishes between two approaches:

In the Fisherian model, an individual maximizes her utility from lifetime consumption under the constraint that her wealth is 0 at the time of her death. Under these assumptions life insurance enables the individual to increase her consumption choices by means of borrowings. At the point of death, life insurance ensures that the individual's wealth constraint is fulfilled by covering any remaining debt, thus, allowing the consumer to maximize her expected utility over lifetime. This setting is often the initial situation in the context of credit life micro insurance. The sum insured equals the financial obligations of the policyholders and the lumpsum payout covers for her remaining debt in case of death. Also for non-credit linked term life micro insurance, providing for debt could be one motivation to insure.

The Marshallian model is different insofar as an individual's utility from consumption is constrained by her need for bequest. In this model, a consumer's utility over lifetime depends on his discounted consumption rate at every moment in time and her final wealth at the time of death, that is her bequeath. Yaari assumes that the bequest is always larger or equal to zero. Like in the Fisherian model, life insurance allows the consumer to increase current consumption. In the Marshallian model, however, life insurance is bought up to the point where the utility from current consumption is equal to its utility of bequest. As the utility of bequest depends on timing and weighted subjectively life insurance demand further depends on a so-called intensity for bequest. Similar to the purpose of protecting against the decedents' loan obligations, micro life insurance could be purchased to provide financial support to the dependents and hence serves the intention to bequest. Contrary to traditional retail life insurance though, the maximum sum insured is much smaller and the policy duration shorter in term life micro insurance. For example, in Sri Lanka, as explicated in Section 1.6.3, the available products cover up to LKR 4 million (approx. EUR 22,280) but average sum insured is LKR 50,000 (approx. EUR 278,50) and are either annually renewable or run up to 5 years. The author would expect that an individual who is motivated by a bequest motive to repeatedly renew his term life policy. Because of the limited average sum insured, which still covers the average monthly income of a household (LKR 7,666; approx. EUR 278,50) for more than six months, she expects an effect of smaller scale of a bequest motive in term life micro insurance.

Following the approach of Yaari, Fischer (1973) explicates the effect and individual importance of a bequest motive. He shows that an individual with a large weighting on the bequest function would buy even heavily loaded insurance, whereas an individual with a low intensity for bequest would abstain from purchasing life insurance, even if it is actuarially fair or sold at a subsidized premium rate. He further demonstrates that insurance demand increases, the higher the weighting attached to the bequest motive, which in turn reduces current consumption. On the other hand, if the weighting attached to bequest is low and the probability of death increases, insurance demand decreases as current consumption grows. For the case of micro term life insurance, it is expected that even though premiums are loaded with operational and distribution expenses, a bequest motive could support its uptake.

Uncertainty about labor income

Introducing labor income to his model, Fischer (1973) illustrates that a wage earner who plans to leave an inheritance is more likely to buy life insurance than an individual living off her wealth and that the amount of coverage positively relates to the future labor income. Life insurance is purchased to compensate for a loss of income the policyholder would share with her family. Further, a wage earner is more likely to purchase life insurance early in her lifetime. Campbell (1980) takes up the point of Fischer (1973) that some individual cares more about uncertainty related to her income streams from labor than from her assets. In his model, the main and sole breadwinner of the household is maximizing her utility from current wealth and future labor income. Until the retirement of the breadwinner, the utility from future human capital income is uncertain as it depends on the survival of the breadwinner. To transfer the uncertainty of future labor income streams, the breadwinner can purchase term life insurance. Insurance premium is calculated based on the expected loss and a loading factor. Due to the law of large numbers, the insurance company knows the expected loss, whereas the probability of death assumed by the risk averse household might be biased. The optimal amount of term life insurance is then determined by the future expected income of the household, reduced by a proportion of her total wealth, whereby the proportion of wealth is dependent on the households' intensity for bequest, its risk aversion and perception of the insurer's loading fee. Campbell finds that the demand for term life insurance of a risk averse household with an interest in leaving an inheritance increases

if (i) her intensity of bequest or level of risk aversion increases, or (ii) the perceived loading factor of the insurer decreases, or (iii) she is overestimating her death probability and at the same time underestimating the loading factor of the insurer. In sum, the models of Fischer and Campbell emphasize the relevance of a bequest motive by introducing a second factor that defines the scope of a bequest motive: the protection against lost income flows of the breadwinner in case she dies. In the case of micro term life insurance, it could be argued that a bequest motive related to lost labor income is irrelevant because the target group does not have regular, monthly income flows or because the total sum insured is relatively small and hence is not able cover lost labor income over a long period. Even though, income flows are unsteady they guarantee a household's survival and with the average sum insured of term life micro insurance products available in the region under study, a payout of LKR 50,000 (approx. EUR 278.50) compensates the average monthly income of LKR 7,666 (approx. EUR 42.44) for six and a half months.

Campbell further shows that the optimal amount of insurance is less than full insurance coverage, that is the present value of the wage earners future income flows. Up to the amount of her accumulated assets, the household can self-insure its human capital income. Full insurance is only optimal if the breadwinners' utility from consumption, conditional on her survival, is equal to her utility from bequest, and if the actuarially fair premium charged by the insurer is perceived as such by the household. The possibility of self-insurance further explains the fact that older households demand less insurance. Over their lifetime, these households have built up a higher stock of assets and their expected income from human capital decreases. This theoretical approach is of special interest to the field study because it introduces the possibility of self-insurance and a life-cycle effect, the latter meaning that life insurance consumption is related to a person's age and working years. If self-insurance is a suitable instrument for low-income households must still be assessed, as their capacity to save and accumulate assets is usually limited.

Preferences of the dependents

In 1989, Lewis published another modification of Yaari's idea of a bequest motive in a life cycle model under uncertainty. Lewis directly incorporates the preferences of the dependents in the consumption function of the breadwinner, and provides a first

analysis of the demand for life insurance according to the preferences of dependents. He assumes that the breadwinner of a family regularly conducts income transfers to her dependents. Hence, the utility function of the children and spouse depends on the breadwinner's uncertain income. A utility maximizing dependent will prefer that some income is allocated to insure the ability of the breadwinner to generate and transfer income beyond the breadwinner's lifetime. In his model the amount of life insurance increases with the breadwinner's probability of death, present value of the dependents consumption and their degree of risk aversion while it decreases with the premium loading factor and the household's wealth. Similar to Fischer's model, insurance is understood as a measure to secure future income flows. However, Lewis incorporates that the decision not only depends on the breadwinner's utility, but on the utility of the family.

Overall, the models presented in this section, and summarized in Table 7 (p. 48), assume that life insurance allows an individual, who does not know how long she will live, to increase her utility either from consumption or a bequeath motive. In the context of term life micro insurance the models provide the theoretical foundations for the relevance of a a bequest motive (relative to the premium loadings), labor income (in dependence of a bequest motive, risk aversion, death probability, accumulated assets, and premium loadings) and a lifecycle effect for micro life insurance consumption. These expected utility theory models assume complete life insurance markets. The following section describes life insurance demand behavior if this assumption is released.

2.2.3 Life Insurance Demand under Market Imperfections

Contrary to the previously presented demand theories, life insurance markets in reality are incomplete. This section introduces two market imperfections of asymmetric information: adverse selection and contract non-performance as well as search and transactions costs. It further explains why these market imperfections might lead to partial micro life insurance coverage. For an overview, results are again summarized in Table 7 (p. 48). Even though, most of the presented models are developed in the context of non-life insurance, they are applicable to term life insurance as in both cases the purpose of insurance is to protect a specific loss by providing a lumpsum payment in

case of risk occurrence. The situation would be different, i.e. in the context of endowment insurance or private pensions because of the involved savings components or frequent annuity payments over an uncertain time span.

Informational asymmetries

In a typical life insurance market, the information available to the customer and insurer is incomplete. Usually, information of the two parties is distributed asymmetrically between the two. For example, insurers may not have sufficient information at hand to assess the risk to be insured. In most cases the consumer knows more about her living conditions and her personal health status, which both determine her risk profile. If her risk profile is high, she may opt for higher insurance coverage, known as adverse selection. On the other side, consumers do not know how the insurer performs financially over time or in case of a loss, and are therefore exposed to the risk of contract non-performance. The issue of moral hazard, where an insured person takes more risk after concluding an insurance contract, is not discussed in this setting, as in the context of micro life insurance it would mean that a person is willing to put her life at risk after taking out insurance, which is a rather unrealistic scenario.

Adverse selection

Literature on adverse selection tells that in the state of a separating equilibrium high-risk individuals are more likely to buy full insurance coverage at a higher premium whereas low risk individuals partially insure at a lower rate (Rothschild and Stiglitz, 1976). In their model for non-life insurance, Rothschild and Stiglitz assume full competition and two kinds of individuals: high risk and low risk consumers. If information asymmetries are present and insurance companies do not have sufficient knowledge about risk-profiles, they offer insurance services at an average premium with an expected profit of zero. However, an average premium attracts more high risk individuals knowing their risk profile. Insurance is relatively cheap for them than. Low risk consumers on the contrary will under purchase or buy no coverage at all. In a second scenario, the insurer could also offer separate insurance contracts for the low and high risk customers at actuarially fair premiums. If the insurer does not know which customer is of low or high risk, then all high-risk individuals will purchase the low risk insurance contract. In both cases and under full competition the insurer makes a profit

of zero with the low risk customers but losses with the high-risk customers, leading to a loss in profits or an increase in premium further reducing the number of low-risk profiles within a company's customer base. Under these circumstances the insurer offers full coverage to high risk individuals at a premium which allows him to make no losses but zero profits with this market segment. While he offers only partial insurance at a premium rate which is on the one hand attractive to the low risk individuals but on the other hand still ensures that high risk customers prefer full coverage at a higher premium. Under adverse selection, low risk customer prefer lower insurance coverage at a lower premium rate whereas high risk individuals buy higher coverage at a higher premium (Rothschild and Stiglitz, 1976; Schlesinger, 1994), which also applies to term life insurance.

Contract non-performance

In the earlies nineties, the discussion started on how an incomplete information about the insurer impacts insurance consumption. On the supply side the insurer is more knowledgeable about her performance which poses a risk of contract non-performance for the customers. Based on the non-life insurance model of Mossin (1968), Doherty and Schlesinger (1990) analyzed how contract non-performance affects an individuals' decision to purchase insurance. They consider the case where an insurance company might not perform on its contractual obligation due to insolvency, on-going disputes about eligibility of a claim payout, or heavy delay in claim settlements. Under the assumption of default risk, Doherty and Schlesinger show that previous theoretical results on insurance demand do not hold. In the case of default risk, it is optimal for an individual to buy less than full insurance coverage even if the premium is actuarially fair. In the context of term life insurance offered as microinsurance product, contract non-performance could be of great relevance, as consumer protection rights and complaints mechanisms are typically weak and the supervision of the insurance sector and legal enforcement is less developed compared to industrialized countries.

Search and transaction costs

Search and transaction costs (which may include money, time or any other effort) increase the indirect costs of insurance. If the effort to obtain information on insurance premiums is too high or the purchase of insurance involves travel costs to the nearest

agent, it might be more efficient for the individual to refrain from life insurance consumption and to self-insure instead. Under the presence of search or transaction costs an individual will only bear these costs and purchase insurance if the difference in expected utility with and without insurance is sufficiently large (Kunreuther et al., 2013: 70-71; Schlesinger and Doherty, 1985). In the context of term life micro insurance, these costs might be relatively large as potential customers are often not aware or knowledgeable about insurance, obtaining information may be time-consuming, and insurance services might not be accessible in their neighborhood.

This section summarized main explanations of demand behavior if markets are incomplete. If information is distributed asymmetrically between the insurer and the insured, full life insurance coverage is only attractive to a specific segment of the market, the high-risk individuals, whereas partial coverage is selected by low risk consumers. The risk of contract non-performance may turn life insurance to be perceived as unattractive by the low-income consumer. Search and transactions have been introduced as additional costs, further factors reducing the consumption of micro life insurance.

Overall, the last two sections of this chapter analyzed the decision to consume life insurance as an isolated choice of the household. The models presented so far did not consider other risk management strategies and their interdependence with life insurance consumption. This is the content of the following section.

2.2.4 Portfolio Choice and Life Insurance Demand

In their portfolio approach, Mayers and Smith (1983) studied the interplay of insurance uptake and other assets. Using the example of liability insurance they proved that the decision to insure is not a separable decision but part of a portfolio decision on the ownership of different assets. Next to insurance, holdings of marketable assets can serve as a mean for protection against unforeseen events or a hedge against certain risks. For diversification purpose, an individual could also choose to self-retain some risks and at last, insurance payouts across different assets may be interrelated. Mayers and Smith (1983) conclude that the optimal level of insurance depends on the level of insurable risks and the portfolio composition. Doherty (1984) added to this discussion that insurance is only necessary if diversification within a portfolio of assets is incomplete.

The portfolio choice approach emphasizes that the decision to uptake micro life insurance is not an isolated decision, but that people usually consider other means of risk management, e.g. savings, or non-monetary assets such as land or housing, next to the purchase of micro life insurance. However, as low-income households might have fewer possibilities for such diversification because of their economic status, insurance to protect against the risk of death might be of high relevance.

Summarizing the above discussion, Section 2.2 began with the introduction of the classical model of insurance demand under uncertainty, before discussing the most common life insurance demand models as well as models of contract theory that are relevant for term life micro insurance. This theoretical work guides the author's empirical study on micro life insurance demand among low-income households in the Eastern Province of Sri Lanka. The field research is further based on the results of previous empirical studies that validate theoretical results but also identify additional life insurance demand factors. A review of empirical studies analyzing life insurance consumption in developing countries in general and on micro life insurance demand in specific is provided in the following two sections.

Table 7: Life insurance demand factors derived from expected utility theory

Demand factor	Author	Study
Risk aversion	Mossin (1968)	Aspects of Rational Insurance Purchasing
Wealth	Mossin (1968)	Aspects of Rational Insurance Purchasing
Labor income	Fischer (1973), Campbell (1980)	A Life Cycle Model of Life Insurance Purchases
Price of insurance		
Premium loading	Mossin (1968)	Aspects of Rational Insurance Purchasing
Search and transaction cost	Schlesinger and Doherty (1985)	Incomplete Markets for Insurance: An Overview
Life cycle hypothesis	Yaari (1965), Fischer (1973)	Uncertain Lifetime, Life Insurance, and the Theory of the Consumer
Bequest motive	Yaari (1965), Lewis (1989)	Uncertain Lifetime, Life Insurance, and the Theory of the Consumer
Adverse selection	Rothschild and Stiglitz (1976)	Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information
Contract non-performance	Doherty and Schlesinger (1990)	Rational Insurance Purchasing: Consideration of Contract Nonperformance
Portfolio choice	Mayers and Smith (1983), Doherty (1984)	The Interdependence of Individual Portfolio Decisions and the Demand for Insurance

Source: Author's own

2.3 Empirical Results on Life Insurance Demand in Developing Countries

Despite the focus of this research on micro life insurance, a review of the literature on traditional life insurance markets seems necessary as academic research on micro life insurance demand is still nascent and results are often ambiguous. By using the term "traditional insurance markets", the author refers to the overall life insurance market in developing countries that usually targets high-income customer segments and covers term life as well endowment products and private pensions. Even though the demand dynamics of the two market segments are expected to be different, a general identification of life insurance demand drivers or barriers in developing countries

should be possible based on a profound literature analysis. Later in Section 2.4, the conclusions are compared and completed with the results of the seven peer reviewed studies available on micro life insurance demand.

The structure of the review follows an insurance demand factors framework developed by previous researchers (such as Outreville, 2013; Feyen et al., 2011; Hussels et al., 2005; Zietz, 2003). This section applies the latest version of the framework, as outlined in Outreville (2013). His framework groups the demand factors into four categories:

1. Economic factors
2. Demographic factors
3. Social and cultural factors
4. Structural factors.

This framework is considered to be an appropriate instrument for structuring literature results as it is well established in academia and has already been applied within the research area of micro insurance demand. Eling et al. (2014) previously used his framework for a literature review on micro insurance demand, covering the academic literature published between 2000 and 2014 on weather index, agricultural, health, property, and life insurance. Contrary to the framework of Outreville (2013), this study excludes demand factors that have not been tested in a developing country and whose effect cannot be tested in a single country setting, such as risk aversion, real interest rate, interest rate volatility, stock market impact, and population density. The framework of Outreville provides a very systematic approach in clustering life insurance demand factors. However, it does not capture the interdependencies between the various demand determinants.

This review of empirical studies includes peer-reviewed studies that (i) cover at least one low-income or lower-middle income country in their sample, (ii) have been published until April 2016, and (iii) are a part of the SJR SCImago Journal and Country Ranking. Further, only studies published in English or German are considered because of the language skills of the author.

The studies have been identified by searching two online databases: EBSCO and ProQuest, complemented by the list of references from previous literature reviews on

the topic of life insurance demand (Outreville, 2013; Feyen et al., 2011; Hussels et al., 2005; Zietz, 2003). To search the online databases, the researcher used the following key terms: "life AND insurance AND demand", "life AND insurance AND purchase", "life AND insurance AND consumption", as well as "life insurance" AND the name of each low-income and lower-middle income country listed by the World Bank as of March 2015. Finally, the author searched for recent publications which cited any of the identified literature reviews with the help of Google Scholar. In total, the review encompasses 12 cross-national studies and three literature summaries which are presented inTable 8 (p. 51). The table lists the analyzed studies chronologically, including a description of the sample set, source, and the period.

The first empirical study which researched the demand for life insurance covering non-OECD countries, is attributable to the work of Bernard Wasaw (1986). Empirical studies have frequently considered the low-income and lower-middle income countries of Cameroon, Egypt, Morocco, Nigeria, India, Indonesia, Kenya, Pakistan, the Philippines, and Zimbabwe because of data availability reasons. However, life insurance demand in Bangladesh, El Salvador, Guatemala, Honduras, Sri Lanka, Syria and Vietnam has only been studied once. Nevertheless, a growing interest in the Asian region has been observed in the recent years.

In the following sections, the main findings of these studies are reported, in line with the structure of the demand factors frameworks outlined by Outreville (2013). Table 9 (p. 60) provides an overview of the identified demand factors, their significance and the direction of their relationship with the dependent variables: life insurance density or life insurance penetration.

Table 8: List of life insurance demand studies (low-income or lower-middle income countries)

Year	Author	Source	Article	# of countries (total; low-/lower-middle income)	Dependent variable	Period
1986	Wasaw, B.	Insurance Industry in Economic Development	Determinants of Insurance Penetration: A Cross-country Analysis	48; 9	Life insurance penetration	1982
1993	Browne, M.J. and K. Kim	Journal of Risk and Insurance	An International Analysis of Life Insurance Demand	45; 8	Life insurance in force; Premiums	1980;1987
1996	Outreville, J.F.	Journal of Risk and Insurance	Life Insurance Markets in Developing Countries	48; 48	Life insurance density	1986
2002	Ward, D. and R. Zurbruegg	Geneva Papers on Risk and Insurance	Law, Politics and Life Insurance Consumption in Asia	37; 4	Life insurance density	1987-1998
2002	Park., H., Borde, S.F., and Y. Choi	International Business Review	Determinants of insurance pervasiveness: A Cross-country Analysis	37; 3	Life insurance penetration	1997
2003	Beck, T. and I. Webb	The World Bank Economic Review	Economic, Demographic, and Institutional Determinants of Life Insurance Consumption across Countries	68; 12	Life insurance penetration	1980-2000
2008	Arena, M.	The Journal of Risk and Insurance	Does Insurance Market Activity Promote Economic Growth? A Cross-country Study for Industrialized and Developing Countries	55; 11	Life insurance penetration	1976-2004
2008	Chui, A. CW and Chuck CY Kwok	Journal of International Business Studies	National culture and life insurance consumption	41; 41	Life insurance density	1976-2001

Year	Author	Source	Article	# of countries (total; low-/lower-middle income)	Dependent variable	Period
2009	Chui A. C.W. and Chuck C.Y. Kwok,	Journal of Multi-National Financial Management	Cultural practices and life insurance consumption: An international analysis using GLOBE scores	38	Life insurance penetration Life insurance density	1966-2004
2012	Chen, Pei-Fen, Chien-Chian Lee and L. Chi-Feng	Journal of International Development	How does the Development of the Life Insurance Market Affect Economic Growth? Some International Evidence	60; 9	Life insurance penetration Life insurance density	1976-2005
2013	Chang, C.P. and A. N. Berdiev	The Geneva Papers	Natural Disasters, Political Risk and Insurance Market Development	39	Life insurance penetration Life insurance density	1984-2009
2013	Subir Sen and S. Madheswaran	Asian-Pacific Economic Literature	Regional determinants of life insurance consumption: evidence from selected Asian economies	12; 7; Asian economies only	Life insurance penetration Life insurance density	1994-2008

Literature Reviews

Year	Author	Source	Article			
2013	Outreville, F. J.	Risk Management and Insurance Review	The Relationship between Insurance and Economic Development: 85 Empirical Papers for a Review of the Literature			
2003	Zietz, E.	Risk Management and Insurance Review	An Examination of the Demand for Life Insurance			
2005	Hussels, S., Ward, D., and R. Zurbruegg	Risk Management and Insurance Review	Stimulating the Demand for Insurance			

Source: Author's own

2.3.1 Economic Factors

Income and wealth

According to the theoretical work Fischer (1973) and Campbell (1980) life insurance is purchased to transfer the uncertainty of future labor income streams and demand is expected to increase with income. Almost all cross-country demand studies on life insurance demand prove a positive relationship between life insurance penetration or density and income. Income is usually measured by gross domestic product (GDP) or GDP per capita and therefore further serves as a proxy to measure for wealth (Browne and Kim, 1993; Outreville, 1996; Park et al. 2002; Ward and Zurbruegg, 2002; Chang and Berdiev, 2013). Interestingly, Beck and Webb (2003) show that the permanent income per capita is not relevant for insurance consumption in developing economies. Even though results are not consistent, six out of eight studies observe a positive relationship of income per capita and life insurance consumption globally.

Price of insurance

Per expected utility theory, the insurance premium is a key determinant for life insurance demand, which is negatively related to a premium's loading factor for operational and distribution expenses. Due to measuring difficulties only Browne and Kim (1993) have estimated the price effect on life insurance in force in the context of low-income and lower-middle income countries and proved a negative relationship. In the context of micro life insurance, the premium could also indicate the economic capacity of the potential customer.

Inflation rate

Based on a Brazilian sample Babbel (1981) showed for the first time that inflation has a significant negative effect on endowment life insurance demand. If inflation is anticipated the value of life insurance decreases and hence its demand. In cross-country studies, the negative effect of inflation on insurance demand is clearly proven for the case of the real inflation rate (Beck and Webb, 2003; Ward and Zurbruegg, 2002; Chen et al. 2012; Chang and Berdiev, 2013; Sen and Madheswaran, 2013) and the anticipated inflation rate measured by the average inflation rate of the last eight years (Browne and Kim, 1993; Outreville, 1996). Further, Ward and Zurbruegg (2002) have demonstrated that inflation is much more important for growth of life insurance density in the Asian

region when compared to OECD countries. As the focus of the empirical study is on term life insurance, this factor is not further considered.

2.3.2 Demographic Factors

Young dependency ratio

Following the theoretical work on a bequest motive, the young dependency ratio defined as the number of people under 15 over the working age population is assumed to have a positive effect on life insurance demand. If the number of dependents increases a working age individual is more likely to be attached to a youngster she would like to leave an inheritance to. Empirically, evidence for a significant positive relationship is provided by Browne and Kim (1993), Outreville (1996) and Ward and Zurbruegg (2003) for their overall sample, whereas more recent work by Sen and Madheswaran (2013), Chen et al. (2012) and Chang and Berdiev (2013) show a negative effect. The latter studies explain this negative effect by a savings for retirement function of life insurance. If a nations number of young dependents is relatively large compared to the working age population, the need to save for retirement is proportionally small. A third group of studies cannot show a significant relationship for the sample of Asian Non-Tiger states (Beck and Webb, 2003; Ward and Zurbruegg (2003). As the present study excludes endowment or private pension products, the author expects to observe a positive correlation between uptake and young dependency ratio, indicating a bequest motive.

Old dependency ratio

In contrast to the young dependency ratio, it is assumed that the ratio of old dependents defined as the number of people above 65 over the working age population is negatively related to insurance demand. Applying the theoretical model of Campbell (1980) it can be argued that older people are more likely to self-insure as their stock of assets is higher compared to younger households. In addition, the incentive to purchase life insurance decreases with age as premiums increase. Beck and Webb (2003) prove this correlation for their full sample. Because of the assumed correlation of age and accumulated assets, which is not applicable to the context of low-income people in developing countries, the old dependency ratio should be a negligible demand factor.

Life expectancy

According to the theory of adverse selection and the life cycle hypothesis, life insurance demand is expected to be higher if life expectancy is lower. However, empirical findings on the relationship are ambiguous. Studies by Outreville (1996) and Ward and Zurbruegg (applying their Asian sample; 2002) find a positive effect of life expectancy at birth on life insurance density, whereas Beck and Webb (2003) prove the opposite correlation for life insurance penetration and Browne and Kim (1993) find no effect looking at life insurance in force and premiums.

Urbanization

From the theoretical work on search and transaction costs, it is assumed that urbanization positively relates to life insurance demand. Due to geographic proximity to the insurance providers and their distribution channels, search and transaction costs are lower for consumers in urban settings. Hence, demand in urban areas should be higher than in rural ones. Further, if products specifically address the urban population the premium loading should be lower as operational processes, marketing, and distribution can be run in a more cost-efficient manner (Beck and Webb, 2003). A lower gross premium should increase uptake as discussed in the previous in the section. Sen and Madheswan (2013) find evidence for this hypothesis measuring insurance demand in terms of insurance density. However, if demand is measured in insurance penetration the relationship is insignificant. In the context of micro life insurance, urbanization could influence demand, but the author would argue that such an effect is rather supply than demand driven. In many countries, micro insurance providers face operational challenges in serving the rural market and therefore restrict their services to the cities.

2.3.3 Social and Cultural Factors

Education

The authors of empirical studies bring forward four main reasons for a positive effect of education on life insurance consumption. First, secondary or tertiary education lengthens the time of dependency, which increases the demand for life insurance by the households' breadwinner (Browne and Kim, 1993; Ward and Zurbruegg, 2003). Second, it is assumed that more educated people are more likely to purchase insurance as they are more aware of the benefits of insurance (Browne and Kim, 1993), have a

better understanding of the value of insurance (Beck and Webb, 2003) and are more likely to earn a higher income to afford micro life insurance. Third, more educated people are assumed to be more risk averse because of their increased risk awareness and knowledge about risk management (Ward and Zurbruegg, 2003; Beck and Webb, 2003). Fourth, it is argued that human capital increases with education. Hence, wage income increases and so the need to secure future income streams to the dependents in case of premature death (Campbell, 1980). Most empirical studies prove the postulated positive relationship of education on life insurance consumption. Most relevant for the following field research is a finding of Ward and Zurbruegg (2003): They demonstrate that with a rising proportion of the population completing secondary education insurance density increases in the Asian Non-Tiger countries. However, it is not known if this effect is facilitated for example by an effect of income or risk aversion.

Culture

People of different cultures might have different perceptions of risk, diverse attitudes towards risks or ways of handling risks (Park et al., 2002). The relevance of culture on life insurance penetration and density is measured by Park et al. (2002) and Chui and Kwok (2008; 2009) using the concept of Hofstede's cultural dimensions. According to Hofstede et al. (2010), culture comprises of multiple elements: values, rituals, heroes or persons, symbols and practices whereby the element of practice subsumes rituals, persons and symbols. Values are belief, attitudes or feelings, and form the core of the definition. Rituals are generally accepted patterns of behavior that support social interactions. Heroes are outstanding persons that are highly appreciated and people can identify with. Symbols are words, objectives, pictures that have a specific meaning. In his empirical work on culture in the context of organization theory, Hofstede defines four dimensions labeled power distance, uncertainty avoidance, individualism vs. collectivism, and masculinity vs. femininity. Hofstede and his research team collected data on these dimensions for 50 countries. Relating these data to life insurance consumption, three studies (Park et al., 2002; Chui and Kwok, 2009; 2008) find evidence for an effect of specific cultural aspects and yet, evidence is ambiguous. According to Park et al. (2002) people of more masculine oriented cultures, i.e. cultures focused on values such as power, wealth, and status, are more likely to purchase insurance compared to members of more feminine cultures which value personal

relationships and welfare. Chui and Kwok (2008) show the opposite arguing that in more feminine oriented societies the motivation to care for one's dependents drives the demand for life insurance, a finding closely related to the theoretically derived bequest motive. Individualism and the motivation to avoid uncertainty and ambiguity support the development of life insurance markets (Chui and Kwok, 2008). In higher power-distance cultures where subordinates expect their superiors to provide protection, life insurance is less prevalent (Chui and Kwok, 2008). In a later publication, Chui and Kwok (2009) validate their findings for the importance of individualism as measured by the GLOBE's cultural values. Further, they find if people are more likely to take pride in memberships in small groups, e.g. family and close friends, insurance consumption is lower. This result further emphasizes the role of social networks in life insurance demand and the difficulty to clearly differentiate between the various concepts of culture, social capital and religion. A topic further discussed in the following paragraph and considered in the data analysis and interpretation process of this study.

Religion

The above introduced definition of culture already indicates that religions do not exist in a vacuum but are part of a subject's culture. Religions shape values, rituals and symbols, and in many religions Gods are worshiped or extraordinary human beings are in a leadership role. However, the concept of culture is broader in its nature and religion is one formative factor of culture among others. Previous empirical cross-country studies that examine the effect of religion and life insurance consumption used the simple proxy of religious denomination to measure for the complex construct of religion. Based on macro level data they find a negative impact of the religion of Islam on life insurance consumption while for the Christian religions they cannot establish a significant relationship (Beck and Webb, 2003). To explain for the negative relationship between Islam and life insurance consumption, Ward and Zurbruegg (2003) reason that some Islamic laws do not allow for consumption of conventional life insurance. Zelizer (1979) argues historically that religious people in the U.S. were rather reluctant to purchase insurance as it might be viewed as a distrust in the protection provided by God. This attitude may still be prevalent in Islamic societies. Beck and Webb (2003: 60) add to the latter argument that insurance might be considered as "a hedge against the will of Allah". People might prefer to accept financial losses if they perceive the

occurrence of an unexpected event as a divine act (Park et al., 2002). Further, Wasaw (1986), Browne and Kim (1993), and Beck and Webb (2003) suggest that people in predominantly Islamic countries might have a different risk attitude or level of risk aversion. However, none of the above-cited study provides evidence for her argument

2.3.4 Structural Factors

Financial system

As the insurance sector is part of the financial sector and closely linked to the banking sector, a positive relationship is assumed between the insurance market, banking sector, and stock market development. A well-functioning banking sector provides efficient payment systems to the insurance sector and profitable investment opportunities (Beck and Webb, 2003). Cross-country studies including low-income and lower-middle income countries generally confirm a strong positive correlation of the development of the insurance sector and the banking sector (Outreville, 1996; Ward and Zurbruegg, 2002; Arena, 2008; Sen and Madheswaran, 2013). However, a study by Beck and Webb (2003) on a sample of only developing countries finds deviating results, which might be caused by a population's preference for informal risk management strategies. This demand factor is not further investigated as it is not testable in a single-country setting.

Insurance market structure

Regarding the theory of competition, it is argued that life insurance consumption increases if insurance supply is not restricted by protectionism or monopolistic market structures. Outreville (1996) proves the latter empirically. Wasaw (1986) as well as Sen and Madheswaran (2013) test for an effect of foreign insurance companies and find a positive relationship. In the case of micro life insurance, Allianz is an example of a foreign insurance company driving the development of micro insurance in Indonesia. However, because of the single-country setting of the field study, this demand factor is not further considered.

Regulatory and legal environment

Market structure is heavily dependent on the regulatory system in place, which is proven to have a stronger effect on the supply side than on the demand side (Wasaw, 1986; Park et al., 2002). Further, if individual rights cannot be guaranteed or enforced,

the development of life insurance markets is constrained, which is proven by several studies (La Porta et al., 1997b, 1998, 2000) and related to the risk of contract non-performance.

State-organized social security

If government provides social insurance or social assistance, private provision to protect against life risks is crowded out. Almost all empirical studies find prove for such a substitution effect (Ward and Zurbruegg, 2002; Chang and Berdiev, 2013; Chen et al., 2012).

Savings

Following the portfolio choice approach, empirical studies test for the relationship between savings and insurance consumption. Again, empirical findings are inconsistent. Sen and Madheswaran (2013) find a positive effect for life insurance density and penetration while Chen et al. (2012) show the opposite relationship for life insurance density. This negative relationship could be explained by a substitution effect. Households might prefer to accumulate savings to protect against a financial shock instead of transferring their risk by insurance. This could hinder the uptake of micro life insurance, as people might not be familiar with the idea of insurance, but trust their savings institution.

Summing up the above-presented discussion, this section provides a comprehensive review of the factors supporting or hindering life insurance demand in developing countries, as summarized in Table 9. Despite the focus of this study's empirical work on micro insurance, a review of research on traditional insurance markets was necessary as existing academic literature on the consumption of micro life insurance is limited to merely seven studies and five of them are from the same group of researchers using similar household questionnaires and data sources. In the context of term life micro insurance the author expects the factors of income, wealth, young dependency ratio, education and religion to substantially influence demand. The next section provides a deeper insight into current micro life insurance demand studies. Supplementing the findings from the previously presented theoretical and empirical work on traditional life insurance markets, Section 2.4 builds the third pillar of the analytical framework, guiding the field research on the demand for micro life insurance in Sri Lanka.

Table 9: Life insurance demand factors derived from empirical research

Variable	Positive Effect	Negative Effect	Insignificant
Economic Factors			
Income per capita *(Wealth, Labor income)*	Browne and Kim (1993); Outreville (1996); Park et al. (2002); Ward and Zurbruegg (2002) Beck and Webb (2003: full sample) Chang and Berdiev (2013: life insurance density)		Beck and Webb (2003; developing economies) Chang and Berdiev (2013: life insurance penetration)
Price of insurance *(Premium)*		Browne and Kim (1993)	
Anticipated inflation rate		Browne and Kim (1993); Outreville (1996)	
Inflation rate		Beck and Webb (2003) Ward and Zurbruegg (2002) Chang and Berdiev (2013: life insurance density and penetration) Sen and Madheswaran (2013: life insurance density and penetration)	
Demographic Factors			
Young dependency ratio *(Bequest motive)*	Browne and Kim (1993); Outreville (1996); Ward and Zurbruegg (2002: OECD, Asia Tiger countries)	Sen and Madheswaran (2013: life insurance density and penetration) Chen et al. (2012: life insurance density) Chang and Berdiev (2013: life insurance density and penetration)	Ward and Zurbruegg (2002: Asia non-Tiger countries) Beck and Webb (2003) Chen et al. (2012: life insurance penetration)
Old dependency ratio		Beck and Webb (2003)	
Life expectancy *(Adverse selection; life cylce hypotheses)*	Outreville (1996); Ward and Zurbruegg (2002);	Beck and Webb (2003) Sen and Madheswaran (2013)	Browne and Kim (1993);
Urbanization *(Search and transaction costs)*	Sen and Madheswaran (2013: life insurance density)		Outreville (1996) Sen and Madheswaran (2013: life insurance penetration)
Social and Cultural Factors			
Education	Browne and Kim (1993: life insurance in force 1980) Ward and Zurbruegg (2002: Asia, OECD, Asia non-Tiger) Beck and Webb (2003); Sen and Madheswaran (2013: life insurance		Outreville (1996); Browne and Kim (1993: life insurance in force 1987 and premiums 1987); Ward and Zurbruegg (2002: Asia Tiger)

	density and penetration)		
Religion: Muslim		Wasaw (1986); Browne and Kim (1993: premiums 1987; life insurance in force 1987); Outreville (1996); Beck and Webb (2003)	Browne and Kim (1993: life insurance in force 1980);
Religion: Catholic or Christian			Beck and Webb (2003)
Culture	Park et al. (2002); Chui and Kwok (2008) Chui and Kwok (2009)	Chui and Kwok (2008)) Chui and Kwok (2009)	
Structural Factors			
Financial sector development	Outreville (1996); Ward and Zurbruegg (2002); Beck and Webb (2003: overall sample); Arena (2008); Sen and Madheswaran (2013: life insurance density and penetration)		Beck and Webb (2003: developing countries)
Insurance market structure	Sen and Madheswaran (2013: life insurance density and penetration)	Wasaw (1986); Outreville (1996)	Outreville (1996)
Regulatory environment	Wasaw (1986);	Park et al. (2002)	
Legal environment	La Porta et al. (1997, 1998, 2000)		
Social security *(Portfolio choice)*	Browne and Kim (1993: premiums 1987 und life insurance in force 1987)	Ward and Zurbruegg (2002) Chang and Berdiev (2013: life insurance density and penetration) Chen et al. (2012: life insurance density and penetration)	Browne and Kim (1993: life insurance in force 1980) Outreville (1996)
Savings	Sen and Madheswaran (2013: life insurance density and penetration)	Chen et al. (2012: life insurance density)	Chen et al. (2012: life insurance penetration)

Source: Author's own
Note: Related theoretical concepts are put in parentheses

2.4 Empirical Results on Micro Life Insurance Demand in Developing Countries

This section summarizes the results of the few peer-reviewed studies on micro life insurance demand and compares their findings with the results from the previous two sections. It thereby validates the theoretical and empirical findings for micro life insurance, identifies specific demand characteristics of this market segment and points out research gaps.

The approach employed by the author is similar to the work of Eling et al. (2014). However, their review did not differentiate between the different product lines of micro insurance and mainly studied agricultural and health insurance schemes. In contrast to their work, this review focuses only on the demand of life insurance. From the author's point of view, it is necessary to use life insurance as a focal point because the demand determinants for life insurance are expected to differ from agriculture or weather index insurance and health insurance. The latter products are much more complex and face product specific demand barriers, such as the availability of health facilities whereas index insurance is troubled with basis risk and covers idiosyncratic shocks. However, results from the studies on agricultural or index insurance and health insurance are used selectively in this review, if they provide additional evidence which complements the findings from micro life insurance demand studies or emphasize current research gaps.

In her literature search, the author identified seven peer reviewed studies which were published in academic journals between 2002 and early 2016. She searched the two economic literature databases EBSCOhost and ProQuest, initially using the search terms "life insurance" AND "micro". Due to the low number of results, she extended the search criteria and used the terms "insurance" AND every country listed by the World Bank as low-income or lower-middle income as of March 2015. Since the results for India and Georgia exceeded more than 200 entries, she added the term "demand" in her search for these two countries. Table 10 presents the search results. It lists the empirical studies on micro life insurance demand chronologically, including the operationalization of the dependent variable, a description of the sample set, source and the year of data collection.

As mentioned earlier, the present literature review follows the work of Eling et al. (2014) and Outreville (2013) in terms of structure. The author clustered the empirical evidence using the demand factors framework, as summarized in the previous section. However, the author added a fifth cluster termed as 'Risk aversion and exposure' and adapted the individual demand factors listed under the initial four categories based on her review results:

1. Economic factors,
2. Demographic factors,
3. Social and cultural factors, and
4. Structural factors
5. Risk aversion and exposure.

So far, the empirical studies on micro life insurance demand have gathered data by using household surveys, focusing on the demand in one country (or region). Whereas, life insurance demand in general is usually studied across various countries using global databases provided by sources such as the World Bank or Swiss Re. Consequently, the results explaining macroeconomic factors, such as inflation, are not available for the low-income market segment. Nonetheless, the household surveys allowed the researchers to measure additional microeconomic factors, including risk aversion. Table 11 (p. 74) presents the extended analytical framework of demand factors of micro life insurance. In total, it summarizes 30 characteristics. Again, the clustering approach of the framework hides the fact that various demand factors might correlate. This is a weakness the author mitigates by making special references wherever relevant.

Table 10: List of micro life insurance demand studies

Year	Author	Journal	Article	Operationalization of dep. variable	Data source	Sample countries	Period
2002	Churchill, Craig	Journal of International Development	Trying to understand the demand for micro insurance	Not specified	Not specified	Not specified	Not specified
2005	Cohen, Monique. and Jennefer Sebstad	Journal of International Development	Reducing vulnerability: the demand for microinsurance		Focus group discussion, in-depth and individual interviews	Tanzania, Uganda, Kenya	
2011	Bendig, Mirko. and Thankom Arun	Journal of Economic Development	Microfinancial Services and Risk Management: Evidences from Sri Lanka	Use of insurance	Household survey; #330	Sri Lanka	2008
2011	Giesbert, Lena, Steiner, Susanne and Mirko Bendig	The Journal of Risk and Insurance	Participation in Micro Life Insurance and the Use of Other Financial Services in Ghana	Household is insured	Household survey; #350	Ghana	2008
2012	Arun, Thankom, Bendig, Mirko. and Shoba Arun	World Development	Bequest Motives and Determinants of Micro Life Insurance in Sri Lanka	Purchased life insurance	Household survey; #330	Sri Lanka	2007-2008
2015	Giesbert, Lena and Susanne Steiner	Journal of International Development	Client Perceptions of the Value of Microinsurance. Evidence from Southern Ghana	Person is insured	Focus group discussion; #32	Ghana	2008
2016	Bendig, Mirko and Thankom Arun	Geneva Papers	Uptake of Multiple Microinsurance Schemes: Evidence from Sri Lanka	Purchased life insurance	Household survey: #330	Sri Lanka	2007-2008

Year	Author	Journal	Article	# of studies included	# of health schemes	# of life schemes	# of agriculture schemes
2011	Brau, James C., Merrill Craig and Kim B. Staking	Journal of Developmental Entrepreneurship	Insurance Theory and Challenges Facing the Development of Microinsurance Markets	13	9	1	3
2013	Matul, Michal, Aparna Dalal, Ombeline De Bock and Wouter Gelade	Enterprise Development and Microfinance	Microinsurance Demand: Determinants and Strategies	30	5	1	7
2014	Eling, Martin, Shailee Pradhan and Joan T. Schmit	The Geneva Papers	The Determinants of Microinsurance Demand	41	15	2	5

Source: Author's own

2.4.1 Economic Factors

Income and wealth

Traditional life insurance demand studies usually find a positive effect of income on life insurance consumption using national income data on an aggregated level, confirming theoretical models. On a household level, (annual) income is much more challenging to measure in a developing country. Most of the population receives irregular incomes from working in the informal sector. Such fluctuations make it difficult for a household to estimate income reliably. Therefore, micro life insurance demand surveys usually measure for an effect of wealth and collect information on the regularity of income or employment status of the household members.

Wealth is measured using a predetermined set of assets representing different levels of wealth. The previous studies established a positive effect of wealth on micro life insurance uptake in Ghana and Sri Lanka (Bendig and Arun, 2011; Giesbert et al., 2011; Arun et al., 2012). However, it should be noted that for the micro insurance customer segment wealth might rather proxy for the ability to pay a regular insurance premium whereas for the traditional retail customer segment the positive relationship is explained by potentially higher losses to protect against (Eling et al., 2014: 234-7). In addition, the demand factor of wealth might correlate with several other demand factors, i.e. remittances, young dependency ratio, education and financial literacy, usage of financial services, risk exposure.

Employment status

In micro life insurance research, the role of labor income is further analyzed considering the household's occupational situation. Theoretically, labor income increases the demand for term life insurance to secure future income streams for one's dependents (Fischer, 1973; Campbell, 1980). Empirically, formal sector jobs are associated with steady income flows, which are more likely to allow for regular premium payments. However, previous studies could not provide evidence for such causalities (Bendig and Arun, 2011; Giesbert et al., 2011; Arun et al., 2012). This might be caused by the limited ability of term life micro insurance products to cover for lost income over a longer time period.

Remittances

In developing countries, an important income source are remittance payments of family members working abroad or in urban areas. It is further argued that such remittance payments could be substitutes for insurance or crowd out insurance, as such transfers might smoothen income flows in the case of financial losses due to sickness, accident or death, which is evidenced in Ghana (Giesbert et al., 2011) whereas in Sri Lanka, Bendig et al. (2016) find the opposite effect. The receipt of remittances might also correlate with a household's level of wealth as workers usually earn a much higher income abroad.

Price of insurance

Related to theoretical work on (life) insurance demand, focus group discussants in Ghana named the premium amount as an uptake barrier (Giesbert and Steiner, 2015). Respondents frequently raised the topic of affordability of life insurance premiums. If the premium amount is set too high or perceived as such by the (potential) customers, households are less likely to purchase life insurance. This inverse relationship is also found in cross-country studies analyzing traditional life insurance consumption in developing markets. The effect of pricing and the (perceived) premium loading could be a fruitful area for future research. In contrast to demand research on micro health or weather index insurance quantitative or experimental evidence is lacking for the business line of micro life insurance. Research studies on pricing in agricultural and health micro insurance indicate price elasticities ranging from 0.44 (Mobarak and Rosenzweig, 2012; Karlan et al., 2012) to 1.16 (Cole et al., 2013) compared to price elasticities between 0.2 and 0.4 of traditional market segments (Eling et al., 2014). Hence, setting the price at a level acceptable for the target group could increase demand significantly. Further research could also focus on the role of search and transactions costs. Implicit costs, e.g. travels for premium payment or claims filing, could potentially affect uptake (Matul et al. 2013).

2.4.2 Demographic Factors

Young dependency ratio

The work of Yaari (1965) established the relevance of a bequest motive for life insurance demand within the theoretical framework of expected utility theory. Empirical

studies in the field of traditional life insurance typically measure for a bequest motive by the young dependency ratio. Yet, their results are inconclusive. Previous studies in micro life insurance demand follow this approach. Arun et al. (2012) observe a positive effect of a household's number of young dependents on micro life insurance ownership in Sri Lanka, whereas the overall household size is insignificant (Bendig and Arun, 2011). Further, in their qualitative study Giesbert and Steiner (2015) find that the possibility of leaving a bequest to the family is the main social value of life insurance (p. 26). However, their earlier quantitative study (Giesbert et al., 2011) does not support this finding. When testing for an effect of the young dependency ratio, it should be considered that the number of children might relate to a household's level of wealth.

Age

In the field of micro life insurance, age is used as another proxy to test for a bequest motive and to estimate an life cycle effect. In both cases, life insurance demand is expected to decrease with age. In the first case dependencies vanish as children become independent whereas in the second case the stock of accumulated assets over lifetime serves as an instrument of self-insurance reducing insurance consumption. If the latter effect is applicable to the setting of micro life insurance and the wealth situation of its target group is questionable. Overall, empirical results are ambiguous. In Ghana, Giesbert et al. (2011) find a positive effect of age on micro life insurance uptake, whereas in Sri Lanka demand is negatively affected (Arun et al., 2012; Bendig and Arun, 2011).

Marriage status

In previous micro life insurance demand studies, both theories of a bequest motive and a life cycle effect are further measured by a household's family status. However, none of the micro life insurance demand studies find a significant relationship.

Gender

In the context of micro insurance, researchers argue that women are more exposed and vulnerable to life risks compared to men and hence are more likely to insure (Cohen and Sebstad, 427-428). Nevertheless, previous studies have not observed any significant effect (Bendig and Arun 2016 and 2011; Giesbert et al., 2011; Arun et al., 2011).

Gender and insurance consumption by low-income households could be an interesting field of research. In developing countries women are often responsible for a family's well-being and must cope with unexpected losses. Further research would be needed to provide evidence for the different risk transfer needs of women and men and how to address them. However, as data on gender and micro insurance is scarce, it is difficult to establish a rationale for such a research.

2.4.3   Social and Cultural Factors

Education and financial literacy

In accordance with results from traditional life insurance demand studies (Sen and Madheswaran, 2013; Beck and Webb, 2003; Ward and Zurbruegg, 2002; Browne and Kim, 1993), a low-income household's level of education positively influences its decision to insure against life risks (Arun et al., 2012; Bendig and Arun, 2011; Giesbert et al., 2011). Moreover, Giesbert and Steiner (2015) provide qualitative evidence for a positive effect of financial literacy on life insurance demand from Ghana. If households have a better understanding and knowledge about insurance, and know how to access insurance services, they are more likely to consume micro life insurance. The quantitative validation of these qualitative results on the effect of financial literacy on micro life insurance uptake is still pending. Demand research in agriculture insurance evidenced a positive relationship between financial literacy initiatives and insurance consumption (Cai et al., 2015; Dercon et al, 2014) or no effect (Cole et al., 2013). However, as term life micro insurance is less complex than a weather index insurance policy, the effect of financial literacy on uptake is expected to be much smaller.

Religion

Demand studies of traditional life insurance markets established a negative correlation between Islam and life insurance consumption which is explained by religious concerns towards life insurance or differences in risk attitudes. In micro life insurance, the relevance of religion is so far considered by one study. Arun et al. (2012) studied the relationship of life insurance coverage and the religious denomination of Hinduism, Buddhism, and Christianity in Sri Lanka. He found a significant negative effect for Hinduism, which could also be explained by the Hindu's affiliation to the Sri Lankan ethnic minority of Tamils (p. 1707). Other hypotheses on the role of religion raised by

life insurance demand research remain untested for the low-income market segment and other target groups. An understanding about the effect of religious denomination on life insurance consumption is still lacking. The "effects of religion on risk attitudes and insurance demand" are suggested as a future research area (Eling et al., 2014: 242) which is further elaborated in Section 2.6.2.

Peer effect and social networks

Extending the scope of traditional life insurance demand studies Giesbert and Steiner (2015) analyze their focus group discussions for an influence of peers on a household's insurance consumption behavior. They show that policyholders share their knowledge on insurance and try to convince the non-insured about the value of micro insurance while the non-policyholders respect the insureds as some kind of experts on the topic (p. 31). These positive effects of peers are in line with findings from weather index insurance demand studies showing an increased insurance consumption if peers, e.g. friends, relatives and neighbors own insurance (Cai et al. 2015; Giné et al., 2008). Cai et al. (2015) studied the role of peers for index insurance uptake in China through a (i) diffusion of information leading to an increased awareness of insurance, an (ii) imitation of consumption behavior and a (iii) learning effect from a peer's insurance experience which also creates trust. The idea of testing for various functions of peer networks in microinsurance uptake builds on the previous work of Giné et al. (2008). They find that membership in an informal or formal organization as well as a peer's insurance status is positively significantly for index insurance uptake in India. Future research could further improve the understanding about the different kinds of peer mechanisms and their applicability to micro life insurance.

Informal risk sharing

Giesbert et al. (2011) investigate the relationship between insurance uptake and informal savings institutions, e.g. Rotating Savings and Credit Associations. In their research, they do not find evidence for a substitution or crowding out effect. On the contrary, usage of informal financial services and micro life insurance are complementary as both risk management strategies serve different needs. In the context of health insurance Jowett has investigated the relationship between informal risk sharing and micro insurance demand, Mobarak and Rosenzweig (2012) for weather

index insurance and Landmann et al. (2012) in the abstract setting of a laboratory experiment in the Philippines. However, their results are not yet conclusive. Strong informal risk sharing networks crowd out health insurance uptake in Vietnam (Jowett, 2003) while in the Philippian laboratory setting formal insurance may reduce informal transfers if savings are not available (Landmann et al., 2012). Mobarak and Rosenzweig (2012) find that under basis risk the effect of informal insurance on formal index insurance depends on the type of indemnification by the informal arrangement and on the extent of basis risk. Informal risk sharing reduces formal insurance if the informal insurance protects against covariate shocks but not against the idiosyncratic shocks, the individuals face. If the formal insurance involves basis risk, informal risk sharing arrangements can enhance the benefits of formal insurance. However, these findings are not transferable to the life insurance segment as from example in the case of agricultural insurance the models assume covariate shocks and the presence of basis risk. Academic research could further investigate on the interplay of informal and formal risk sharing related to micro life products to better understand the needs of the target segment and to identify how formal insurance could leverage on the informal mechanisms. As informal risk sharing or the access to financial resources can be considered as a function of social networks next to information exchange (Chuang and Schechter, 2015), this research studies the impact of peer effects and informal risk sharing within the broader sociological concept of social capital.

2.4.4 Structural Factors

Savings and other financial services

Considered the results of life insurance demand studies for the traditional market segment (Sen and Madheswaran, 2013; Arena, 2008; Ward and Zurbruegg, 2002; Outreville, 1996), Giesbert et al. (2011) and Giesbert and Steiner (2015) test for the relationship between insurance consumption and the usage of other financial services. Insurance ownership should be more likely if the financial sector is well developed and services are provided to the low-income groups (Arena, 2008; Beck and Webb, 2003; Ward and Zurbruegg, 2002; Outreville, 1996). For example, term life insurance policies are often distributed by microfinance institutions or bundled with microcredits (Cohen and Sebstad, 2005: 339). However, current research results are ambiguous. The usage of microcredits or savings can support or hinder micro insurance uptake (Giesbert and

Steiner, 2015; Giesbert et al., 2011). The negative relationship could be explained by a crowding out effect of life insurance consumption by other financial instruments as indicated by portfolio choice models.

Contract non-performance

Doherty and Schlesinger (1990) proved theoretically that under the presence of a default risk by the insurer, it is optimal for the consumer to buy less than full non-life insurance coverage. Focus group discussions from Ghana indicate that a lack of trust in a valid claim payment is a main barrier for micro life insurance consumption (Giesbert and Steiner, 2015: 24). If the reputation of the insurance provider or his products is tarnished and the consumer does not trust in the insurance promise, e.g. because of agent fraud, long claims processes, or the risk of insolvency of the insurer, he is less likely to purchase insurance. This negative effect of a risk of contract non-performance is validated by previous research on micro insurance demand using theoretical modelling (Liu and Myers, 2014) and experimental testing in the field (Biener et al., 2014). However, these results are not yet applied to the context of micro life insurance. Compared to industrialized countries the risk of contract non-performance might even be a stronger demand barrier in developing countries as institutions responsible for legal enforcement of customer rights and consumer protection measures are comparatively weak, slowing down the development of an insurance market (e.g. La Porta et al., 2000).

2.4.5 Risk Aversion and Exposure

Risk aversion

Applying expected utility theory, demand models usually assume that individuals are risk averse where risk aversion positively influences insurance consumption. Using a survey question on the respondent's willingness to take risks, Giesbert et al. (2011) find that more risk averse households are less likely to be insured which is a finding in contradiction with the predictions of standard expected utility theory assuming decreasing relative risk aversion. To explain their results Giesbert et al. (2011) argue that low-income households with low levels of financial literacy might perceive the purchase of insurance as a risk itself. By not fully understanding the product and its benefits, risk averse households might be more reluctant to spend their few dollars of

income on an intangible financial service. However, their result could also be caused by the selected survey measurement approach. Since the 1980's empirical studies usually use a lottery design to measure for risk aversion, as the methodology allows to observe actual behavior. Two lottery approaches are well-established: Binswanger lottery (1980; 1981) or Holt and Laury lottery (2002). As risk aversion is one of the fundamental determinants of insurance uptake, future research could further investigate on the relationship between risk aversion and micro life insurance consumption using the more sophisticated measurement approach of a lottery design.

Risk exposure

The work of Stiglitz and Rothschild (1976) on adverse selection predicts that households with a higher likeliness of risk occurrence are more likely to insure, assuming equal premiums and benefits. However, results for the micro life insurance customer segment on adverse selection are mixed. According to Giesbert et al. (2011), risky households, measured by their self-perceived exposure to several risks, are less likely to insure, whereas Bendig and Arun (2011) find a positive correlation for their Sri Lankan sample using the same measurement approach.

Experience of risk events

In addition, studies on micro life insurance demand collected information about a household's experience with different risk events and their financial impact. Past shocks might influence a household's perception of the likeliness of a risk occurrence (Kunreuther, 1996) or affect her risk coping ability (Eling et al., 2014) which then affects her demand behavior. In most cases past risk experiences did not influence current insurance consumption except for the agricultural risks of crop failures and increases in input prices. Both events negatively affect insurance uptake (Bendig and Arun, 2011) by reducing the household's financial resources and liquidity, which in turn affects their ability to pay for regular premium payments.

Table 11: Micro life insurance demand factors

Explanatory Variable	Positive Effect	Negative Effect	Insignificant Effect
Economic Factors			
Income / Wealth			
Assets	Bendig and Arun (2011); Giesbert et al. (2011); Arun et al. (2012) Bendig and Arun (2016)		
Land ownership	Arun et al. (2012)		Bendig and Arun (2011); Giesbert et al. (2011); Arun et al. (2012) Bendig and Arun (2016)
Income per capita	Not yet tested		
Employment status			Bendig and Arun (2011; self-employment and unemployment); Giesbert et al. (2011; employment); Arun et al. (2012; self-employment and unemployment) Bendig and Arun (2016; self-employment and unemployment)
Remittances	Bendig and Arun (2016)	Giesbert et al. (2011)	Bendig and Arun (2011)
Price of insurance		Giesbert and Steiner (2015) Cohen and Sebstad (2005)	
Demographic Factors			
No. of young dependents	Arun et al. (2012)		
No. of old dependents			Arun et al. (2012)
Dependency ratio			Giesbert et al. (2011)
Household size	Bendig and Arun (2011) Bendig and Arun (2016)		
Bequest motive	Giesbert and Steiner (2015)		Giesbert et al. (2011)
Age	Giesbert et al. (2011)	Bendig and Arun (2011); Arun et al. (2012) Bendig and Arun (2016)	
Age squared	Bendig and Arun (2011)	Giesbert et al. (2011)	
Life expectancy	Not yet tested		
Marriage status			Giesbert et al. (2011), Arun et al. (2012) Bendig and Arun (2016)

Urbanization	Not tested		
Gender (Female household head)	Cohen and Sebstad (2005)		Bendig and Arun (2011); Giesbert et al. (2011); Arun et al. (2012); Bendig and Arun (2016)
Social and Cultural Factors			
Education	Bendig and Arun (2011; secondary education); Giesbert et al. (2011; no of schooling years); Arun et al. (2012) Bendig and Arun (2016; none, primary or secondary education)		Bendig and Arun (2011; no primary education)
Financial literacy	Giesbert and Steiner (2015)		
Religion		Arun et al. (2012; Hindu)	Arun et al. (2012; Buddhist)
Culture	Not yet tested		
Informal risk sharing			Giesbert et al. (2011)
Peer effects	Giesbert and Steiner (2015)		
Institutional and Structural Factors			
Access / usage of microcredit	Giesbert et al. (2011) Cohen and Sebstad (2005)	Giesbert and Steiner (2015)	
Access / usage of savings	Giesbert et al. (2011)	Giesbert and Steiner (2015)	
Social security	Not yet tested		
Contract non-performance	Giesbert et al. (2011); Giesbert and Steiner (2015)		
Risk Aversion and Exposure			
Risk aversion (willingness to take risk)		Giesbert et al. (2011)	
Risk exposure	Bendig and Arun (2011) Bendig and Arun (2016; ratio of ill HH-members)	Giesbert et al. (2011)	Arun et al. (2012) Bendig and Arun (2016; self-assessment)
Experience of risk events			
Death			Bendig and Arun (2011); Giesbert et al. (2011); Arun et al. (2012) Bendig and Arun (2016)
Illness		Bendig and Arun (2016)	Bendig and Arun (2011); Giesbert et al. (2011); Arun et al. (2012)

Draught			Bendig and Arun (2011)
Animal threat			Bendig and Arun (2011)
Crop failure		Bendig and Arun (2011)	
Increase in input prices		Bendig and Arun (2011)	
No ability to sell agricultural products			Bendig and Arun (2011)
Other severe shocks		Bendig and Arun (2011); Arun et al. (2012) Bendig and Arun (2016)	Giesbert et al. (2011)
Natural disasters	Not yet tested		

Source: Author's own

2.5 Summary of the Analytical Framework

A summary of the analytical framework for studying micro life insurance demand is provided in Figure 3. The results from existing micro life insurance demand studies indicate that the theoretical predictions and results from the traditional life insurance market in developing countries are generally applicable to the low-income segment. Broadly speaking, academic studies have so far identified wealth, education, risk aversion and the usage of other financial or insurance services as main explanatory factors for the demand of micro life insurance whereby the demand factors of wealth, education and usage of financial services are expected to correlate. These possible correlations are further considered in the process of data analysis and interpretation of the qualitative and quantitative study. Indicative evidence is also provided for a life-cycle effect and a bequest motive. Some research results are particularly interesting, as they deviate from the expected utility theory of life insurance demand. For instance, risk-averse households are less likely to purchase micro life insurance. The level of financial literacy and premiums as well as the risk of contract non-performance seems to be much more important in the decision to insure when compared to traditional retail life insurance (Giesbert and Steiner, 2015; Giesbert et al., 2011).

Figure 3: Analytical framework (research model)

Demand Factors	Variables
Economic Factors	Labour income
	Assets
	Land ownership
	Employment status
	Price of insurance
	Remittances
Demographic Factors	No. / ratio of young dependents
	No. / ratio of old dependents
	Household size
	Age / Age squared
	Marriage status
	Gender
Social and cultural Factors	Education
	Financial Literacy
	Religion
	Culture
	Informal risk sharing
	Peer effects
Structural Factors	Access / usage of microcredit
	Access / usage of savings
	Social security
	Contract non-performance
Risk aversion and exposure	Risk aversion
	Risk exposure
	Experience of risk events

Micro life insurance consumption

Source: Author's own illustration

The overall picture of why low-income households purchase or do not purchase life insurance is still vague as some of the demand factors have not been studied yet or their measurement approach is weak. This means a thorough understanding of why these factors support or hinder micro life insurance uptake is still missing. In the author's opinion, future research could especially focus on:

- Role of peers and social networks in the decision to insure
- Interdependence of formal and informal insurance mechanisms
- How religions impact micro life insurance uptake
- Risk of contract non-performance
- Effect of pricing and various premium levels on micro life insurance demand
- Understanding the inverse effect of risk aversion.

The author decided to focus her research on the two demand factors:

1. The role of peers, social networks and informal risk sharing strategies grouped under the sociological concept of social capital and
2. Religion.

A choice which is further elaborated in Section 2.6.1.1 and 2.6.2.1. The next section develops the specific research questions, defines the main concept, and formulates the hypotheses.

2.6 Conceptualization and Formulation of Hypotheses

The previous chapter summarized the theoretical framework explaining micro life insurance demand and identified several potential research areas including two key areas of interest that address (i) the role of social networks and peers in the decisions to insure and (ii) impact of religions on micro life insurance uptake. These two potential demand factors are not yet fully understood but could be critical in increasing the uptake of micro life insurance. This chapter and its sub-sections explain in detail why the author decided to empirically study the two demand factors of social capital (2.6.1.1) and religion (2.6.2.1). It defines the concepts of social capital (2.6.1.2) and religion (2.6.2.2) and develops the hypotheses to be tested in the quantitative study (2.6.1.3 and 2.6.2.3).

2.6.1 Social Capital and Micro Life Insurance Demand

2.6.1.1 Relevance of Social Capital for Micro Life Insurance Demand

In the last 15 years, several economists have started to consider the role of social capital or social ties in connection with goods, productive assets, and monetary and human capitals in their work (Glaeser et al., 2000). Their interest is nurtured by several studies that provide evidence for an impact of social capital on economic behavior in various areas, including the adoption of new agricultural practices (Maertens and Barrett, 2013), health technologies (Oster and Thornton, 2012; Kremer and Miguel, 2007), job search (Munshi, 2003), and credit uptake (Banerjee et al., 2013). In the research that aims to investigate micro life insurance demand, the subject of social capital and the influence of its various functions have not received significant attention so far. To the author's

best knowledge, peer reviewed studies on micro life insurance demand have not yet directly tested for an effect of social capital on micro life insurance demand, even though closely related research on non-life micro insurance products suggests existence of an impact of social networks on insurance uptake (Cai et al., 2015; Karlan et al., 2012; Morsink, 2012; Giné et al., 2013 and 2008). The work of Cai et al. (2015) and Giné et al. (2008) are the first who systematically study the various channels through which social capital affects uptake micro insurance uptake. They find that social networks influence the demand for weather index insurance among low-income households due to the exchange of information about insurance among peers. Consequently, social networks can increase awareness and understanding of insurance. However, the researchers do not find evidence for an imitation effect. The research presented in this section follows the comprehensive approach employed by Cai et al. (2015) and Giné et al. (2008). It examines if social capital influences life insurance demand among low-income households in Sri Lanka. It further investigates the channels through which social capital works. Thereby, this study introduces a demand factor which has not been researched in relation with micro life insurance consumption.

2.6.1.2 Definition of Social Capital

Research on social capital gained importance with the work of Granovetter published in 1973 and experienced a further upswing in the 1990ies following the work of Coleman (1990) and Putnam's publication of "Making Democracy Work" (1993). Due to its applicability to various research areas, the concept of social capital became kind of an "umbrella concept"; a term that means "many things to many people" (Narayan and Pritchett, 1997: 2). In economic research, the following definition of Putnam (1993, 2000) is cited frequently: "Social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them" (2000: 19). In 2001, Putnam further clarified his understanding of social capital. He acknowledges the multidimensional nature of the concept and stresses the central role of social networks in human interactions and behaviors. On the one hand, social networks refer to the formal institutions of the communities; for example, societies, associations, and clubs (Putnam, 2000: 27). On the other hand, the term 'social networks' is also used to indicate the "informal ties through which people connect" or other social activities such as meeting friends or family members for coffee and cake after work (Putnam,

2000: 92). These social networks are associated with the norms of reciprocity and altruism. In addition, generalized trust is considered to be a close consequence of social capital. According to Putnam, altruism and generalized trust are good proxies to measure social capital, although reciprocity, altruism and generalized trust are not part of his definition of social capital (Putnam, 2001).

Contrary to Putnam (1993), Coleman (1990) emphasized that "social capital is defined by its function" (p. 302), rather than by its formalization of engagement and interaction. According to him, social capital is defined by two characteristics: the relationships between persons and more importantly the facilitation of actions of the people within a social structure. Social capital is of value if "actors achieve particular ends that would have been impossible without it" (Coleman, 1990: 302).

This research acknowledges both of the above-mentioned approaches towards defining social capital and the implied multidimensional nature of the concept. Taking these two approaches in account, it firstly examines if the participation of households in social networks affects micro life insurance demand. Secondly, this research is interested in studying the actions facilitated by social networks or the reasons for an effect of social capital on micro life insurance demand. Applying these various aspects of social capital to this field study, the author follows an empirical approach proposed and applied by the World Bank, in the context of the developing world (World Bank, 2016).

Presented in Table 12, the following six dimensions are usually considered in the research related to social capital: (i) group membership in various types of groups and networks, (ii) generalized trust, (iii) collective action and cooperation, (iv) access to information and communication infrastructure, (v) social cohesion and inclusion, and (iv) empowerment and political action (World Bank, 2016).

The first two dimensions cover the forms of social capital as suggested by the definition of Putnam (2001, 1993). The third and fourth dimensions measure the actions facilitated by social networks or the ways in which social capital operates, as proposed by Coleman (1990). The last two dimensions represent major outcomes of social capital (Grootaert et al., 2004: 5).

Table 12: Dimensions of social capital

Forms of social capital	Mode of action	Outcome
(i) Group membership	(iii) Collective action and cooperation	(v) Social cohesion and Inclusion
(ii) Generalized trust	(iv) Access to information and communication	(vi) Empowerment and political action

Source: Adapted from Grootaert et al. (2004: 5)

For the purpose of this study, uptake of micro life insurance is considered to be the outcome of social capital which reduces the number of outcome dimensions to one. Current research provides evidence for both modes of actions through which social capital might affect micro insurance demand: (iii) collective action and cooperation and (iv) access to information and communication. The function of 'collective action and cooperation' relates to financial flows (Chuang and Schechter, 2015). Social networks provide direct or indirect access to money; directly by giving credit or money to the members of the same social network and indirectly by monitoring credit repayments in the setting of group loans provided by financial institutions. In the context of insurance, collective action is relevant because informal risk sharing mechanisms might interact with micro life insurance demand. Under the function of 'access to information and communication', three different kinds of effects are summarized: First, social capital works through access to information about innovations or formerly unfamiliar technologies, services or products, by familiarizing an individual with something new and creating an understanding of how it works. In the context of insurance, for example, a consumer might become *aware* of and learn about the concept of insurance in a discussion with her relative. Second, when a person observes how the benefits of a new technology, product or service benefited her peers, her *trust* in these new developments might increase. Similarly, trust in insurance might increase after hearing from a friend or relative that she received an insurance pay-out. Third, an individual might adopt a behavior purely by *imitation* as she wants to follow the actions of one of her peers. In case of insurance, this implies that a person might simply buy micro life insurance because she wants to imitate the insurance consumption decision of someone she knows, such as her neighbor or a friend.

Table 13 summarizes the application of multidimensional concept of social capital to the study of micro life insurance demand. Because of the multidimensional definition of

social capital, the author expects to observe correlations between the various dimensions, especially between the forms of social capital and its modes of action. The forms of social capital are expected to serve certain functions, and specific functions might require a certain form of social capital. Consequently, the quantitative analysis in Chapter 4 controls for multicollinearity between the dimensions of social capital.

Table 13: Dimensions of social capital and micro life insurance demand

Forms of social capital	Mode of action	Outcome
(i) Group membership	(iii) Collective action and cooperation: *Informal risk sharing*	
(ii) Generalized trust	(iv) Access to information and communication - *Awareness/ Understanding* - *Trust building* - *Imitation*	(v) *Micro life insurance demand*

Source: Author's own

2.6.1.3 Development of Hypotheses

Group membership

Giné et al. (2008) provide first evidence for a positive effect of formal social networks on weather index insurance in Southern India: "Households that are members of the village Gram Panchayat [a local self-help organization] are significantly more likely to purchase insurance" (p. 558). In line with their research, this research tests for a positive effect of institutionalized social networks on micro life insurance demand:

H1: Membership in a formal organization increases micro life insurance demand. ("Group membership hypothesis")

In the context of the qualitative and quantitative field study, the term formal organization is operationalized and defined as membership in one of the following groups, associations or organizations: village development society, women rural development society, religious society, savings group/association, agricultural association/fishery society, sports club, political party, and others to be specified. This definition indicates that the two research areas of social capital and religion are not independent of each other. Social capital could be institutionalized in the form of an

involvement in a religious community for example. However, religion is only one out of various sources for the emergence of social capital.[3]

Generalized trust

According to Putnam (2001), generalized trust is a good proxy to measure social capital. Generalized trust is defined as a basic attitude towards human. It includes the trust that evolves in strong and frequent relationships, but more importantly the trust towards strangers (Putnam, 2000: 136). To the best of the author's knowledge, the relationship between generalized trust and insurance consumption has not been discussed in the literature, although previous literature has well-established the relevance of trust in economic decision-making (for instance, Gächter et al., 2004; La Portal et al., 1997; Knack and Keefer, 1997). Assuming an overall positive relationship between social capital and micro life insurance demand and generalized trust as a good indicator for social capital, it is hypothesized:

> *H2: Generalized trust increases micro life insurance demand. ("Generalized trust hypothesis")*

Section 2.6.2.3 further discusses how religion might shape an individual's generalized trust.

Creation of awareness and understanding

Academic studies and practitioners frequently emphasize the relevance of insurance awareness and understanding for micro (life) insurance uptake (Giesbert and Steiner, 2015; Cai et al., 2015; Dercon et al., 2014; Cole et al., 2013). In many environments, the concept of insurance is unknown to low-income households. They lack an understanding of insurance principles, its benefits, and obligations which eventually leads to a suppressed demand. Earlier studies found that social networks can effectively

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[3] Data from the quantitative study shows the around 50% of the survey participants belong to at least one formal organization. Most of the time this is a women rural development society, followed by a village development society, agricultural association or religious society.

help in raising awareness for and understanding of micro insurance (Giesbert and Steiner, 2015; Cai et al., 2015; Giné et al., 2013). However, evidence for the micro life insurance segment is limited to the qualitative study conducted by Giesbert and Steiner (2015) in Ghana. They provide evidence that insured Ghanaians share their knowledge about the concept and value of insurance with their non-insured acquaintances (Giesbert and Steiner, 2015: 31).

Evidence for the relationship between social networks and agriculture insurance is more robust. In their setting of a randomized field experiment in Kenya, Giné et al. (2013) explore if social networks (in this case neighbors) contribute to the efficiency of financial literacy measures through information sharing. They find that the likelihood of uptake of an index-based draught insurance increases if neighbors also received financial literacy materials. Using data from a randomized experiment in China, Cai et al. (2015) reported similar findings. They find that social networks influence insurance understanding by effectively transferring knowledge about the concept and value of insurance. However, according to their study, information about a peer's insurance consumption decision is not shared in social networks outside the experimental setting, even though this information would be highly valued by others when they make their own consumption decisions. In another related research area within the broader field of financial inclusion, Banerjee et al. (2013) find that social networks positively influence the uptake of microcredits due to their ability to distribute information on microfinance services. Based on these previous findings, it is hypothesized:

> *H3: People who discuss the concept of insurance within their social network are more likely to buy micro life insurance. ("Creation of awareness/ understanding hypothesis")*

Imitation

To date, only a few studies have analyzed the effects of peer consumption decisions on individual micro insurance demand (Karlan et al., 2012; Morsink, 2012; Giné et al., 2008). Studying the uptake of rainfall insurance in Southern India, Giné et al. (2008) observed an increased demand if a larger number of peers also bought insurance: "one additional purchasing household among the respondent's primary group raises the probability of the household purchasing insurance by 12 percent" (p. 558). Primary

group in this context are people affiliated with the same village organization. The experimental work of Cai et al. (2015) also supports a similar imitation effect. In the context of a randomized experiment in China, they noted that the individuals who participated in the experiment are more likely to purchase weather insurance, if they observe insurance purchases among their peers. Consequently, it is assumed that imitation effects support micro life insurance uptake:

> *H4: People who know of a friend, relative or a neighbor who has a micro insurance policy are more likely to purchase micro life insurance cover for themselves. ("Imitation hypothesis")*

Trust building

In contrast to the other micro financial products like savings or credit, micro insurance requires a significant level of trust in the product and service providers. People first must pay for a feeling of security. They only find out later in future at the time of claims settlement, if the insurer is willing and able to fulfill the contractual terms and conditions. This risk of contract non-performance demands trust on the consumer side (Doherty and Schlesinger, 1990). In line with this, previous research on micro insurance has identified lack of trust as one of the main demand barriers (Giesbert and Bendig, 2015). This effect is often amplified by the target group's relatively high risk environment. Low-income households usually live in settings where contractual obligations are difficult to enforce legally and consumer protection mechanisms are commonly not in place (e.g. La Porta et al., 2000). Based on this situation, some studies have analyzed the role of social capital in building trust in the performance of insurance providers. Karlan et al. (2012) and Morsink (2012) focus on the influence of claim payments within a person's social environment on micro insurance consumption. Both studies reported an increased demand for an agricultural (Karlan et al., 2012) and a bundled non-life insurance product (Morsink, 2012), if households were aware of claim payouts within their environment. This positive consumption behavior is explained by a trust building effect, arising out of their peers' experiences. In line with these findings, it is hypothesized:

> *H5: People who observed a claims settlement are more likely to demand micro life insurance. ("Trust building hypothesis")*

Informal risk sharing

Fafchamps and Lund (2003), Townsend (1994), and Udry (1994) have effectively demonstrated in their empirical studies that low-income households provide each other with informal insurance. Their social ties support consumption smoothening and give access to financial means in times of need. However, informal networks can only provide partial risk coverage due to their limited size and financial capacity, creating a scope for formal insurance. The effects of informal risk sharing strategies on micro life insurance demand are not yet fully explored. Giesbert et al. (2011) expected to observe a negative relationship between insurance uptake and informal savings or credits. Contrary to their expectations, they found out that informal savings or credits and micro life insurance complement each other. They conclude that both risk management strategies serve different needs of the target group. On the subject of agricultural insurance, a few studies have emerged in the last four years which investigate the relationship between informal risk sharing groups and agricultural insurance (Mobarak and Rosenzweig, 2012; Dercon et al., 2014; de Janvry et al., 2014; Boucher and Delpierre, 2014). They developed different theoretical models in a setting of covariate shocks and basis risks, to explain the effects of informal risk sharing on formal agricultural insurance. However, their findings are of minor relevance to the life insurance segment as basis risk is not present and life shocks are usually idiosyncratic. In another related research area that investigates public health insurance, Jowett (2013) analyzed the effects of social capital on public health participation in Vietnam. He argues that "highly cohesive communities, and those endowed with dense horizontal networks, are more prone to collective action, and thus more likely to purchase health insurance" (p. 1160). Using three measures of social capital including membership in financial networks, cohesion, and kin heterogeneity, his results are ambiguous. A negative effect on insurance uptake is observed if people are members of strong financial networks and if a community is more cohesive. Kin heterogeneity of member organizations either has a significantly positive or negative effect, depending on the geographic area under study. Following the initial crowding-out assumption of Giesbert et al. (2011), it is hypothesized that:

> *H6: Access to informal risk sharing reduces the demand for micro life insurance.*
> *("Informal risk sharing hypothesis")*

2.6.2 Religion of Islam and Micro Life Insurance Demand

2.6.2.1 Relevance of Islam for Micro Life Insurance Consumption

An interesting observation regarding micro insurance unfolds that life insurance penetration is lower in the Muslim majority countries than in non-majority ones, as presented in Figure 4. One explanation for this empirical observation could be non-compliance of conventional insurance with the Islamic principles, as explained in detail in Section 2.6.2.2. A need for insurance products which are adapted to the religious particularities of Islam may also be derived from the growth of *Takaful* which is a Sharia compliant form of insurance, based on the concept of social solidarity, cooperation and mutual indemnification (IFSB and IAIS, 2006). Access of low-income households to *Takaful* is still in its infancy. However, *Micro Takaful* which is the Islamic counterpart of micro insurance is increasingly gaining importance among insurance supervisors, the International Association of Insurance Supervisors (IAIS), and the insurance industry, particularly in the Muslim majority countries such as Indonesia.

Figure 4: Life insurance penetration in developing countries by share of Muslim population
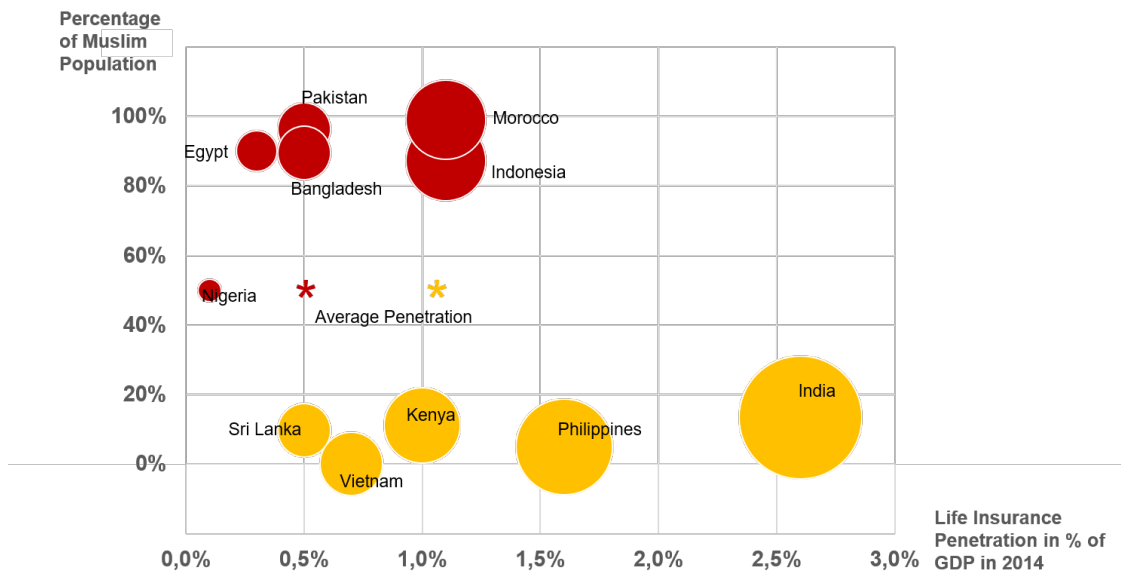
Source: Author's own illustration, data from Swiss Re (2016)

Academic knowledge about the relationship between religion and micro life consumption is mostly fragmented. Arun et al. (2012) established a significant negative effect of Hinduism on micro life insurance uptake in Sri Lanka. In a demand study for flood insurance in Pakistan, Turner et al. (2014) controlled for the influence of Islam

but did not find any effects. However, the authors replaced the term insurance with "flood protection payments" (p. 214) in their communications with the participants, to avoid possible biases or stigma about insurance. This linguistic adaptation, a simplified insurance setting and the low literacy level of the participants might have been the reason why no effects were observed.

Summarized in Chapter 2, cross-country studies on the demand for traditional life insurance also support the argument for a negative relationship between Islam and life insurance consumption. These studies find life insurance markets to be less developed in countries where Islam is the predominant religion (Browne and Kim, 1993; Outreville, 1996; Beck and Webb, 2003). Furthermore, they noted that a country's national insurance consumption decreases with an increasing share of Muslim population (Beck and Webb, 2003). Though these studies provide valuable insights, cross-country samples do not explain individual choice behavior or why the religion of Islam influences life insurance uptake.

Based on a systematic and intensive literature review, the author identified three primary mechanisms through which the religion of Islam might possibly affect life insurance demand: compliance with religious principle of (i) *riba,* (ii) mutuality, and (iii) risk aversion. All three mechanisms are discussed in detail in Section 2.6.2.3. The next section provides a summary on the general implications of Islam on micro life insurance.

2.6.2.2   Background Information on Islam and Micro Life Insurance Demand

Islamic religious law (*Sharia*[4])

This section explains the content of Islamic law (*Sharia*) and its hierarchical structure (see Figure 5: Sources of Islamic law) as *Sharia* sets the framework for insurance operations from an Islamic point of view. It legitimizes the existence of insurance practices, defines the motivation of insurance supply as well as demand, and influences

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[4] Appendix 1 provides a glossary of the Islamic terms used and their definition.

the business conduct. *Sharia* aims to safeguard people's well-being in the current life and the afterlife (Kamali, 2008: 27–28). It consists of both specific and general rulings on religious and moral matters as well on the rules of conduct. The latter are subject of Islamic jurisprudence (*Fiqh*). *Sharia* comprises the *Quran* and the *Sunnah* as the two primary sources. The *Quran* is the principal source of Islamic law. It provides guidance and instructions to the believers of Islam. It contains 6,235 Quranic verses (*Ayat*) (Kamali, 2008: 19). Between 200 and 500 verses, out of the total, deal with legal arrangements (Bekkin, 2007: 4) and 70 verses are concerned with commercial and financial activities (Kamali, 2008: 19). The *Quran's* prominent position in *Sharia* is constituted by its completeness. According to scholars, the *Quran* contains a methodology to find an answer to any question (Bekkin, 2007: 6). After the *Quran,* the second source is the *Sunnah* which is also known as the traditions of the Prophet Mohammad. It consists of *Ahadith*, the reported sayings and actions of the Prophet Mohammad as well as the accounts of his life in the ancient community of Medina. Most of the *Ahadith* reiterate, interpret and explain the *Quran*. The others provide guidelines for the issues that are not explicitly addressed in the *Quran* (Kamali, 2008: 25).

The primary sources of Sharia are complemented by the secondary sources, which are accepted by all the schools of Islamic law. The secondary sources and their verdicts are directly deducted from the primary sources either by the consensus (*Ijma*) or individual reasoning by analogy (*Qiyas*) of Islamic scholars (*Ulama*). Hence, *Ijma* and *Qiyas* are the methods of Islamic jurisprudence based on logic which allow a development of Islamic law. They cover the matters that are not explained directly in the primary sources, however the verdicts of *Ulama* must not contravene with the primary sources. Nevertheless, a diversification of rulings on same matters has evolved over time as scholars are geographically dispersed and belong to different legal schools (Bekkin, 2007: 10).

As additional sources are not acknowledged by all schools of Islamic law, they are not further considered in this research.

Figure 5: Sources of Islamic law
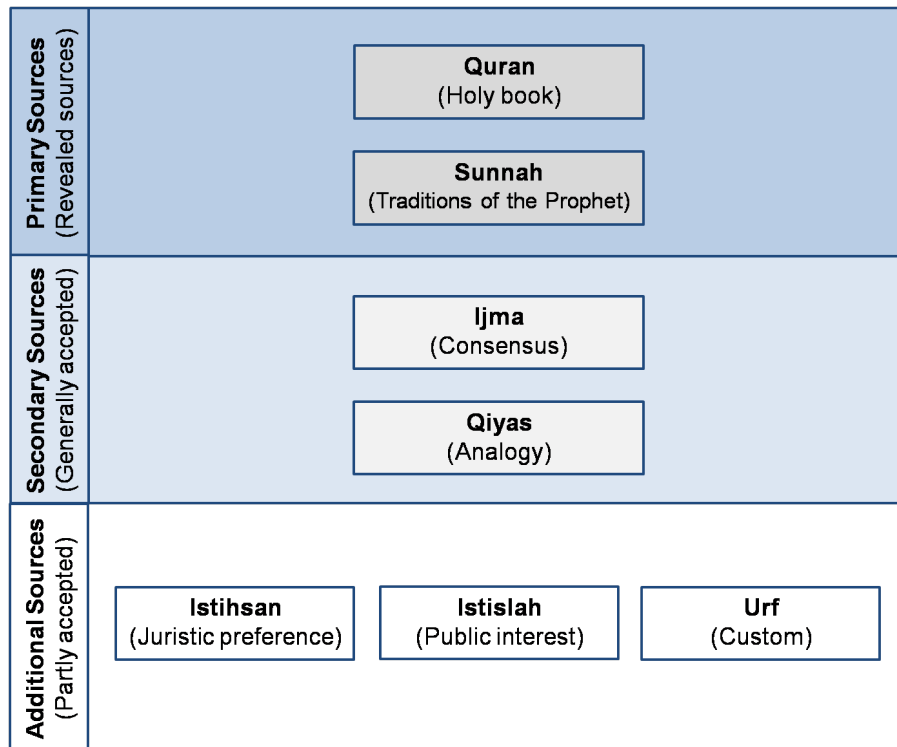
Source: Erlbeck (2010)

The conduct of insurance is mostly influenced by *Quran, Sunnah, Ijma* and *Qiyas* (Bekkin, 2007a: 5–6). However, insurance as we know of today did not exist at the time of the Prophet Mohammad. Consequently, the *Quran* and *Sunnah* do not directly refer to insurance and most of the decisions on the compliance of insurance are based on reasoning by the *Ulama,* belonging to different schools of Islamic law (Bekkin, 2007: 18). Thus, current Islamic insurance practices vary highly in their institutional set-up and operations across the globe.

Islamic jurisprudence on (micro)insurance

"Microinsurance does not meet the basic principles of Shari'ah, where elements of *Riba* (usury), *Maysir* (gambling) and *Gharar* (uncertainty) are prohibited". (IFSB and IAIS, 2015:4). To understand the objections of Islam against conventional (micro)insurance, this section explains the implications of the above stated principles of Islam for insurance undertakings: *riba* (usury), *gharar* (uncertainty) and *maysir* (gambling). These explanations are a summary of the previous work by the author (Erlbeck, 2010).

Riba is usually translated as "excess", "increase", "growth" or "addition" (Iqbal, 2007, p. 14). *Riba* bans all kinds of interest as well as any disparity between sums of money or trade exchanges (Khorshid, 2004: 38). The prohibition of *Riba* aims to prevent exploitation as well as unfair or dishonest business behavior. According the principle, income should not be earned because of an unequal capital distribution and acquisition of wealth at the expenses of others should be avoided (Hassan and Lewis, 2007: 51; Khorshid, 2004: 31). The prohibition of *riba* is one of the main influencing factors for Islamic financial activities and it profoundly impacts the conduct of insurance. Four major categories of *riba* are illustrated in Figure 6. In its traditional meaning, as explained in the *Quran*, *riba* refers to usury in debt (*riba al-nasiah*). However, Islamic scholars extend the meaning of *riba al-nasiah* to all forms of interest to be paid for debt (El-Gamal, 2006). The ban on *riba al-nasiah* is acknowledged by all schools of Islamic law and is justified by several verses of the *Quran*. Insurance is affected by *riba al-nasiah* as conventional insurance companies invest in interest bearing assets. This interest is a pure form of *riba al-nasiah* (Bekkin, 2007: 29). To avoid *riba* in investment activities, *Sharia* compliant insurers are restricted to Islamic financial instruments.

Figure 6: Categories of *riba*
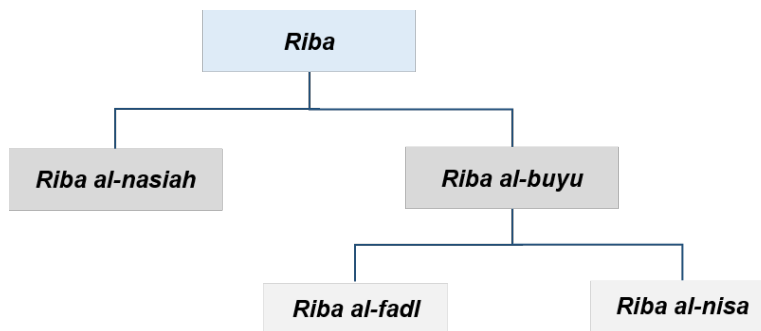
Source: Erlbeck (2010)

The second source of Islamic law after the Quran, the *Sunnah* is not only concerned with usury in debt, but also extends the concept of *riba* to sales usury (*Riba al-buyu*) (Khorshid, 2004: 34). Within *riba al-buyu,* one can differentiate between *riba al-fadl* and *riba al-nisa*. The former exists if two goods of the same kind and quality are exchanged using an unequal quantitative ratio (El-Gamal, 2006: 50; Muslehuddin, 1969: 126). Regarding life and non-life insurance some scholars argue that money exchanged between insurers and insured are not equal in quantity. Premium payments and claim payouts usually do not match each other (Khorshid, 2004: 63). In their view,

one contracting partner therewith benefits at the expense of the other partner which is not in line with *Sharia*. Moreover, it is argued that insurers acquire their wealth in an unjustified manner for pure risk covers. If there are no losses, a policyholder does not receive any financial benefit for her premium payments (Khorshid, 2004: 63). However, both arguments do not hold as they neglect the intangible benefit of protection during the insurance period. *Riba al-nisa* prohibits the exchange of identical products at different points of time as they must be traded "from hand to hand" (El-Gamal, 2001: 4; Muslehuddin, 1969: 129). This prohibition applies to insurance as there is always a time lag between premium payments and claim payouts in conventional commercial insurance (Bekkin, 2007: 28). The debate on *riba* and its consequences concludes that conventional commercial insurance is invalid in Islam because the conventional insurance contract contains elements of *riba al-nisa* in money transfers and *riba al-nasiah* in investment activities and premiums.

Gharar rules out injustice in trade caused by incomplete information and uncertainty intrinsic to the contract object (El-Gamal, 2006: 58). Both of the primary sources of Islamic law, the *Quran* and *Sunnah*, establish the prohibition of *gharar*. However, they do not explicitly define its meaning. Therefore, the understanding of *gharar* and its implications are derived from the understanding and consensus of religious scholars. In general, *gharar* refers to uncertainty but very heterogeneous opinions exist on its detailed understanding (Ayub, 2007: 58). According to Ayub (2007), *gharar* is a "sale of a thing which is not present at hand, or the sale of a thing whose '*aqibah*' (consequences) is not known or a sale involving hazard in which one does not know whether it will come to be or not". Hence, *gharar* refers to uncertainty concerning (i) obligations of the contracting parties and their ability to fulfill them, (ii) contract terms and a lack of complete information, and (iii) nature of the subject matter. In case a contract contains any of these characteristics, the agreement is void (Bekkin, 2007: 21–22). Regarding insurance, the first two conditions are eliminated by clear contract terms. However, few scholars raise concerns because it is not clear at the time of contract conclusion if, when, how many times and to which extent the policyholder will receive a financial compensation (Bekkin, 2007: 21). Moreover, claim payments are contingent on the occurrence of an unknown event. This dependency causes further debates on the validity of insurance, in the light of Islamic law. The sale of an object which is

contingent on the occurrence of a precondition invalidates a contract in Islamic law (Ayub, 2007: 58). Therefore, some scholars conclude that insurance should not be permitted under Islam as its core nature inhibits *gharar* (Rahman, 1979: 136). The opponents argue that the nature of an insurance contract is to protect against unforeseen events that cause damage or loss. The intangible benefit of security or feeling of protection constitutes the core nature of insurance and not the claims payout (Muslehuddin, 1969: 110). Consequently, the subject matter of the contract is free from uncertainty. In addition, the legitimacy of insurance is derived from the other financial contracts in Islam which inhibit uncertainty, like *Kafala* (equivalent to a conventional guarantee) and *Bai Salam* (credit for financing agricultural commodities) (Bekkin, 2007: 23; Khorshid, 2004: 62). The scholars approving of insurance conclude that businesses in Islam do not have to be free from uncertainty, as it is already accepted in some transactions. Furthermore, these scholars argue that uncertainty cannot be avoided altogether in businesses as it is a precondition for commercial activities (Bekkin, 2007: 22). Contemporary scholars, therefore, differ between various degrees of uncertainty and conclude that only contracts containing excessive *gharar (fahish)* are void. Contracts, like insurance, which include minor *gharar (yasir)* are still valid (El-Gamal, 2006: 58). In their opinion, *gharar* in insurance is minor because the nature of the contract is not based on lies. Additionally, risk occurrence and cash-flows can be well estimated for the collective levels and it is only a single insurance policy which might be affected by a high level of uncertainty. Due to the law of large numbers, it is possible to calculate claim probabilities, loss repartitions, and estimated claim payments as well as profits (Wilson, 2007: 73). Lastly, uncertainty in insurance does not put one of the contracting partners at disadvantage (Khorshid, 2004: 41, 61). This summary of a still continuing debate illustrates that *gharar* is not rejected in the same strict manner as *riba* and stated by the Islamic Financial Services Board (IFSB) though elements of *gharar* may be forgivable depending on the circumstances" (2006: 4).

Maysir refers to a game of chance which is strictly banned in Islam. *Maysir* is derived from the Arabic term "*yusr*", meaning ease and convenience. It describes the wealth which is received with ease or without an equivalent amount of effort or liability (Ayub, 2007: 61–62; Rahman, 1979: 115–116; Siddiqi, 1985: 34). According to *Quran,* the game of chance is considered to be a tool of the devil which causes enmity and distracts

from Allah. Concerning insurance, some scholars argue that conventional insurance is a form of gambling as both insurance and gambling are based on chance. A small contribution in the form premium gives the policyholders an entitlement to receive a large amount of money (claim), depending on the occurrence of an uncertain event and at least one party does not receive a benefit from its wager. If the pre-defined event happens resulting in a loss, the claim payment amounts to a multiple of premiums paid and most likely the income earned on premium is lost for the insurer on the individual level. If there is no claim, the insured does not receive any financial benefit, although she paid the premium amount, which can be interpreted as a gambling stake (Rahman, 1979: 121–123; Siddiqi, 1985: 28). The advocates of insurance disagree in this regard. In their opinion, insurance is not a form of gambling as the motivation is different. A gambler is motivated by self-interest. She would like to make a large amount of money with little or no effort. For quick and hefty profits, she voluntarily seeks out a situation of uncertainty. On the other hand, an insured opts for an insurance cover to protect her financial situation. She chooses an instrument which mitigates her risks and guarantees a compensation for unexpected losses. A policyholder has an insurable interest. In addition, claim payments usually do not lead to an increase of assets but only protect one's achieved status (Bekkin, 2007: 27–28; Siddiqi, 1985: 28–29). Furthermore, the money lost in gambling is an absolute loss while a premium payment cannot be considered as a payment without a (promised) benefit in return. Even in cases where there are no claim payments, the insured is not exposed to certain risks during an insurance term (Bekkin, 2007: 27; Siddiqi, 1985: 31). In conclusion, the prohibition of gambling has the weakest normative implication for insurance because it is difficult to establish an analogy between gambling and insurance. However, the prohibition of gambling in Islam might influence a person's attitude towards risk. This argument is further discussed in the following section.

Because of the above-discussed three principles of Islam and their proximity to conventional insurance, three positions have evolved concerning the acceptance of insurance. The first group rejects all kinds of insurance as it involves *riba*, *gharar,* and *maysir*. As all three elements are prohibited by Sharia, they void each contract (Khorshid, 2004: 50–51). The second group rejects commercial insurance as those insurers benefit from the uncertain situation of the insured and elements of *riba*, *gharar*

and *maysir* cannot be eliminated. Those scholars approve of insurance that abstains from *riba* and is based on mutuality. Consequently, they accept social insurance and *Takaful* practices (Hassan and Lewis, 2007: 419). The concept of *Takaful* is explained later in this section. The third group differentiates between insurance products and allows only indemnity insurance. In their point of view, life insurance is a gamble on the life of a person and therewith forbidden (Billah, 1998: 411). As this research concentrates on life insurance, only two views remain in the end: first, life insurance is prohibited per se. Second, social security and *Takaful* are acceptable because of their underlying principle of mutuality and abstinence from interest.

Micro Takaful: Micro insurance in Islam

Takaful is an insurance practice based on the principle of mutuality (*Ta'awun*) and gift or donation (*Tabarru*), while respecting the prohibition of *riba. Takaful* minimizes the *Sharia* concerns regarding *riba*, *gharar* and *maysir* (Wahab et al., 2007: 375). Under *Takaful* schemes, people voluntarily contribute or donate an amount of money into a general fund (*Tabarru* fund) to support those who might suffer a loss in future from a predefined peril. Risks are not transferred as in conventional proprietary insurance but mitigated cooperatively by risk pooling. Solidarity, self-help and mutual assistance (*Ta'awun*) are the primary goals, instead of profit maximization (Bakar, 2009: 31). Legally, the contract of buying and selling insurance is substituted by the unilateral gracious contract of donation (Bakar, 2009: 35). Consequently, the members give up their individual entitlements with the act of donation and the funds belong to all members (Wahab et al., 2007: 375). Indemnity is settled from the risk pool with no direct relationship to the prior donation (Bakar, 2009: 33). Thereby, the principle of *Ta'awun* eliminates the element of *maysir* in *Takaful*. Similarly, the constituents of *gharar* are resolved by the motivation of mutuality and the one-sided contract of donation. The unilateral character of *Tabarru* also removes the attributes of *Riba al-nisa* (usury in trade). In addition, *riba al-nasiah* (usury in debt) is avoided by adherence to *Sharia* conforming investments.

In a pure cooperative model, which is clearly preferred by Islamic scholars, the *Tabarru* fund is managed by the members themselves. In practice, however, management is delegated to a third party, referred to as *Takaful* operator. Hence, *Takaful* companies consist of a two-tier structure. The insurance pool (*Tabarru* fund) is institutionalized as

a co-operative, whereas management of underwriting, investments and other activities is delegated to a *Takaful* operator which is a commercial entity owned by external shareholders (Archer et al., 2009: 11). The assets of the participants and shareholders are strictly separated as insurance contributions are still in the ownership of the insured. The *Takaful* operators make their profits from risk management, instead of risk taking (Wahab et al., 2007: 376). Either, they receive a share of returns (*Mudarabah* model), a fee for the management services (*Wakala* model), or both (*Wakala Mudarabah*) (Wahab et al., 2007: 377, 381).

Takaful is either institutionalized in the form of a stand-alone insurer, as a subsidiary of another financial institution such as an Islamic bank or a conventional insurer, or as a window operated by a conventional insurer. In the latter case, *Takaful* business is delivered by conventional insurers using the same distribution channels as used for their conventional products. Nonetheless, the operations and accounting of *Takaful* are separated from the conventional products (Schoon, 2009: 53). Generally, *Takaful* companies engage in three types of insurance business: *General Takaful*, *Family Takaful*, or *Retakaful*. *General Takaful* is comparable to conventional non-life insurance, whereas *Family Takaful* resembles conventional life insurance. *Retakaful* is a Sharia compliant form of reinsurance (Obaidullah, 2005: 140–142). *Takaful* offered to the low-income population is termed as *Micro Takaful* which "is the Islamic counterpart of micro insurance, and exists in both Family and General forms." Conceptually it "does not differ from *Takaful*" but "is a subset of *Takaful*" (IFSB and IAIS, 2015: 4). Product details on the Micro Family Takaful products offered in the Eastern Province of Sri Lanka are given in Section 1.6.3.

2.6.2.3 Development of Hypotheses

Contributing to the results of cross-country studies on the demand of life insurance and the outlined Islamic principles, it is assumed that the religion of Islam negatively impacts the consumption of micro life insurance. However, the focus of this study is not to test for an effect of Islam. Instead, it aims to understand why the religion of Islam could determine micro life insurance uptake. Therefore, this study tests for the relevance of three channels through which the religion of Islam might influence insurance uptake: (i) interest (*riba*), (ii) mutuality and (iii) risk aversion. These channels have been identified based on the results of an extensive literature review. In her

literature review, the author first considered the findings and assumptions from the cross-country life insurance demand studies. Secondly, she broadened her search strategy beyond the topic of insurance and investigated how a religion affects economic behavior in general (for example, Iannaccone, 1998). Thirdly, the author searched for academic studies on the relationships of these demand factors and religion, based on the literature review of (micro) life insurance demand factors presented in Chapter 2. In sum, she found two more arguments explaining the possible impact of a religion on life insurance demand: (iv) fatalism and (v) generalized trust. However, as elaborated in the following, they are not further considered.

Prohibition of interest

Based on the explications from the previous section, it is expected that the religious prohibition of *riba* has a negative impact on conventional life insurance consumption by Muslims:

> *H7: The involvement of riba in conventional insurance negatively affects conventional micro life insurance uptake among Muslims. ("Interest hypothesis")*

Principle of mutuality

Following the argument that the principle of mutuality eliminates religious concerns about uncertainty (*gharar*) and gambling (*maysir*), it is assumed that Muslims are more likely to purchase life insurance if they understand or acknowledge its mutual character. Hence, the following hypothesis is tested:

> *H8: Muslims are more likely to purchase micro life insurance (conventional or Takaful), if it is perceived as an institutional form of supporting each other in need. ("Mutuality hypothesis")*

In the case of the 'mutuality hypothesis', it could also be argued that a mutual support in times of need is a function or benefit of a person's social capital as well. To unambiguously attribute the perception of insurance to religion, the author looks for differences between the religious groups in the quantitative analysis.

Risk aversion

In their cross-country studies on life insurance demand, Wasow (1986), Browne and Kim (1993), and Beck and Webb (2003) justify lower levels of life insurance consumption in pre-dominantly Islamic countries by differences in risk-taking attitudes or risk aversion. However, they did not test the validity of their justifications. The closest related literature explains how corporate financial decision-making relates to religious denomination and risk taking (Berry-Stölzle and Xu, 2015; Kumar et al., 2011). The main argument is that a religious acceptance or rejection of gambling shapes a person's risk appetite which determines economic choices. Kumar et al. (2011) find that the willingness to gamble is more pronounced among U.S. Catholics, compared to Protestants. These preferences are assumed to influence investment decisions. Indeed, Kumar et al. (2011) show that the investment portfolios of small to medium-sized companies in the Catholic concentrated regions are riskier compared to corporate investment portfolios in the Protestant areas. Based on the work of Kumar et al. (2011), Berry-Stölzle and Hu (2015) analyze the risk-taking behavior of life insurance companies and connect it with the share of Catholics or Protestants living in the county where each company is headquartered. Their research finds that Catholics have a more risk-tolerant culture. According to the authors, life insurers engage in riskier business activities in the counties with a higher share of Catholics (p. 4). Barsky et al. (1997) provide empirical evidence on differences in the level of risk aversion in relation with an individual's religion. They found that Protestants in the U.S. are the most risk averse, followed by Catholics and Jews (p. 550). Noussair et al. (2013) confirm that Protestants in the Netherlands are more risk averse than Catholics, using a lottery design to measure risk aversion. As stated above, these differences in risk aversion or risk-taking attitude (Kumar et al., 2011) are usually explained by opposing views and behaviors towards gambling. Due to their moral norms, Protestants are more reluctant to engage in gambling activities and assumed to be more risk averse compared to Catholics (Shu et al., 2012; Kumar et al., 2011). If one transfers these results about the relationship between different Christian religions and risk aversion to the religious group of Muslims, it can be concluded that Muslims are expected to be more risk averse because of the prohibition of gambling in Islam. Thus, the author is interested in studying if the rejection of gambling in Islam influences risk aversion, as risk aversion is one of the main theoretical concepts of expected utility theory to explain for life insurance

demand. A rejection of insurance because of its allegedly gambling nature, as put forward by some Islamic scholars, is not studied in detail. Considering the results from previous micro insurance demand studies which imply a negative correlation between risk aversion and insurance demand (Cole et al., 2012; Giesbert et al., 2011; Giné and Yang, 2007), it is argued that risk aversion reduces micro life insurance uptake. It is assumed that this negative effect is especially prevalent among Muslims because the religious prohibition of gambling might imply higher level of risk aversion. In sum, it is hypothesized:

> *H9: Risk aversion negatively affects life insurance demand for low-income Muslims (conventional or Takaful). ("Risk aversion hypothesis")*

Fatalism

Historically, Zelizer (1979) argued that religious people in the U.S. were rather reluctant to purchase insurance as it was viewed as distrust in the protection by God. This attitude may still be prevalent in Islamic societies. Beck and Webb (2003) argue similarly that insurance might be considered as "a hedge against the will of Allah" (p. 60). People might prefer accepting financial losses over insurance, if they perceive the occurrence of an unexpected event as a divine act (Park et al., 2002). These arguments imply that insurance consumption is not so much influenced by specific principles or beliefs of a religion, instead by the degree to which a person takes individual decisions to actively shape his life. Although the question if a person's degree of religiosity effects life insurance consumption is both relevant and interesting, the author of this work decided to focus on the implications of an individual's religious denomination for micro life insurance uptake in the Eastern Province of Sri Lanka. Previous empirical studies provide indications for such a relationship, but cannot explain for it. In addition, the author acknowledges the complexity of measuring for different degrees of religiosity across the four religions present in the area under study: Islam, Hinduism, Buddhism and Christianity. Further, an overall very high degree of religiosity in Sri Lanka does

not support a test for differences[5]. Hence, the argument of fatalism is not further pursued.

Generalized trust

Putnam (1993) claims that hierarchically organized religions such as Roman Catholic, Eastern Orthodox, or Islam have a negative effect on the social connectedness of communities and they discourage the formation of trust: "Vertical bonds of authority are more characteristic of the Italian church" and these vertical bonds tend to undermine "horizontal bonds of fellowship" (p. 107). Other authors empirically confirm his reasoning for the religion of Catholicism (La Porta et al., 1997; Zak and Knack, 2001; Bjornskov, 2006) and Islam (Zak and Knack, 2001; Bjornskov, 2006) based on the data from the World Values Surveys. However, overall empirical results on the effect of various religions on trust are ambiguous. Guiso et al. (2003) show that Catholicism fosters trust like Protestantism (p. 263), whereas Hinduism is negatively associated to generalized trust, using a sample of 66 countries. Using a survey and experimental method to measure trust in rural Bangladesh, Johansson-Stenman et al. find no significant differences between Muslims and Hindus in trust (2009: 469). In nutshell, the logic on how differences in trust between the various religious groups might influence life insurance consumption is long and evidence for an effect of religious denomination on generalized trust is inconclusive. Consequently, the author decided not

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[5] Initially, the author planned to measure for an effect of religiosity on micro life insurance demand. She followed the work of Huber (2007) and the interdisciplinary "Religionsmonitor" project of the Bertelsmannstiftung. In the context of the "Religionsmonitor" project, a survey and interview tool was developed to measure for religiosity. Following previous academic work, Huber first defined religiosity in five dimensions: intellect, ideology, public practice, private practice, and experience. Secondly, a religiosity index, the Centrality of Religiosity Scale, is developed that differentiates between three degrees of religiosity: highly religious, religious, not religious. A representative survey was conducted in 21 countries with 21,000 participants of all main religions aiming at understanding the current role of religions and religiosity at the level of the society and the individual. In this research's field study, even though it followed the "Religionsmonitor" approach, it turned out that it is very challenging to measure the concept of religiosity across various religions with comparable results. The variance within the answers as given by the participants was low, which is probably related to the overall high degree of religiosity in Sri Lanka. According to a Gallup Survey from 2010, in Sri Lanka religiosity is among the highest worldwide. Moreover, the author observed a correlation between the religions of Hinduism and Islam and the degree of religiosity, which suggests a measurement error.

to proceed with this line of argumentation. However, the concept of generalized trust and its effect on micro life insurance uptake is estimated in the field study, and used as a proxy to measure for social capital. This approach once more indicates that the concepts of social capital and religion are not accurately separable but related. In the process of data analysis and interpretation, these relations are discussed in more detail.

2.6.3 Summary of Hypotheses

In the conclusion of this chapter, all research hypotheses of this study are summarized in Figure 7. As described in the previous sections, when testing the hypotheses and interpreting the results, the author takes into account possible interdependencies between the various hypotheses. She is aware of first, a possible correlation between the forms of social capital: group membership and generalized trust with the functions of social capital: awareness creation, imitation, trust building and informal risk sharing. For example, organizations serve a specific purpose or function that require an institutional set-up. Second, the two concepts of social capital and religion overlap in some regards. Religious societies as a formal organization can contribute to the generation of social capital. Generalized trust, in this study defined as another form of social capital, is found to differentiate between religious groups and therefore could also explain for a religious effect. Mutuality, assigned to religion by the author, could also be attributed to social capital and its collective function of supporting each other in need. Consequently, the quantitative analysis explicitly tests for a relationship between religious denomination and mutuality.

Figure 7: Overview of hypotheses

Demand factor	Variable	Hypothesis	Effect*
Social Capital	*H1*: Group membership	*Membership in a formal organization increases micro life insurance demand.*	+
	H2: Generalized trust	*Generalized trust increases micro life insurance demand.*	+
	H3: Creation of awareness/ understanding	*People who discuss the concept of insurance within their social network are more likely to buy micro life insurance.*	+
	H4: Imitation	*People who know of a friend, relative or a neighbor who has a micro insurance policy are more likely to purchase micro life insurance cover for themselves.*	+
	H5: Trust building	*People who observed a claims settlement are more likely to demand micro life insurance.*	+
	H6: Informal risk sharing	*Access to informal risk sharing reduces the demand for micro life insurance.*	–
Religion	*H7*: Interest	*The involvement of riba in conventional insurance negatively affects conventional micro life insurance uptake among Muslims.*	–
	H8: Mutuality	*Muslims are more likely to purchase micro life insurance (conventional or Takaful), if it is perceived as an institutional form of supporting each other in need.*	+
	H9: Risk aversion	*Risk aversion negatively affects life insurance demand for low-income Muslims (conventional or Takaful).*	–

Source: Author's own
Note: *Expected effect on life insurance uptake

3 Qualitative Study

3.1 Overview

With its qualitative research approach, this section explores the factors which facilitate or hinder micro life insurance consumption in the Eastern Province of Sri Lanka. It specifically aims to enhance the understanding of the relevance of social capital and religion for micro life insurance consumption, by investigating the following research questions:

1. What explains an effect of social capital on micro life insurance consumption?
2. What mechanisms explain an influence of religion on micro life insurance consumption?

The main purpose of this chapter is to provide qualitative answers to the above research questions. Moreover, it attempts to confirm the relevance of the developed hypotheses and assign them to an overall context. The structure and content of the focus group discussions (FGDs), as presented in Appendix 2, are guided by the theoretical concepts introduced in Chapter 2 and the hypotheses derived in Section 2.6. However, the open and semi-structured format of FGDs allows for exploration of demand drivers and barriers that go beyond the ideas developed from the literature review and captured in the hypotheses. In Chapter 4, these demand factors will serve as control variables for the quantitative data analysis.

Guided group discussions are facilitated and analyzed by the method of content analysis, to generate a rich understanding of the participants' attitudes, opinions and experiences related to micro life insurance consumption. The qualitative methods of content analysis and FGDs are used widely to look "at individuals' attitudes, opinions, knowledge or beliefs" in different research areas and to ground the research on the participants' own understanding of the research topic (Wilkinson, 1998: 185; Morgan, 1997: 11). FGDs provide detailed insights into the needs and interests of the consumers and allow researchers to understand their consumption decisions in depth (Morgan, 1997: 12, 31; Morgan, 1996: 139). Furthermore, the selected qualitative data collection method helps in exploring a nascent research area, where the theory can possibly offer guidance but may not be able to explain the actual consumer behavior. As pointed out in

the literature review in Chapter 2, this is the case for micro life insurance demand research. However, a qualitative research approach cannot generate data that is representative of a greater population (Wilkinson, 1998: 187). The generation of generalizable results is the objective of the quantitative study in Chapter 4. Further, the author is aware of a possible moderator or respondent bias (Wilkinson, 1998: 186: Morgan, 1996: 139).

This chapter proceeds as follows: Section 3.2 describes the sample selection and Section 3.3 discusses the collection of data by FGDs. The collected data is analyzed by the method of content analysis which is explained in Section 3.4. Key results are presented in Section 3.5. Lastly, Section 3.6 concludes.

3.2 Sample

In August and September 2013, focus group discussions were conducted in the districts of Batticaloa and Trincomalee in the Eastern Province of Sri Lanka. The participants of FGDs were selected using a purposive sampling frame. Purposive sampling is a technique primarily used in qualitative studies. In this technique cases, for instance persons, events, or settings, are selected based on the purpose and specific interests of the research questions (Teddlie and Tashakkori, 2009: 170). To reflect the research questions under study, the sampling strategy of this study considers two characteristics of the participants to specify the composition of the focus groups. To identify the factors facilitating or hindering micro life insurance consumption, the status of micro life insurance policy ownership is a key household characteristic. To study the relevance of religion or the differences between various religious groups' insurance consumption, the second characteristic of interest is religious denomination. As detailed in Section 1.6.2, the key religions followed by the people living in the region under study include Islam, Hinduism, Buddhism, and Christianity.

Generally, the literature on the design of focus group research recommends conducting separate group discussions for each characteristic under study. The objective is to be able "to compare and contrast how certain types of people talk about an issue" (Krueger and Casey, 2009: 21). Besides, it is advised to run each combination of characteristics for three to four groups or to continue data collection until saturation is reached.

Saturation occurs if no new information can be gathered in the FGDs (Krueger and Casey, 2009: 21; Morgan, 1996: 144). For this study, the implication of these recommendations is to ideally conduct up to 32 group discussions. Eight different types of FGDs are to be considered, as four religions and two insurance policyholder statuses apply, with each combination to be run a maximum of four times. Considering the available resources of the researcher, the embedding of the focus group approach in a mixed method design and the narrow research questions, the author decided to limit the number of focus groups for each type to two FGDs. Overall, it still amounts to four groups of policyholders and non-policyholders each. In addition, it already occurred during the data collection that arguments discussed in the focus group were frequently repeated and no new information emerged.

Recruitment of participants was done by a local consultant in collaboration with a non-governmental organization (NGO) that offers microfinance services in the districts of Batticaloa and Trincomalee. The local staff of the NGO aimed to recruit the following: two groups of Hindu policyholders, two groups of Hindu non-policyholders, two groups of Muslim policyholders, two groups of Muslim non-policyholders, two groups of Christian policyholders, and two groups of Christian non-policyholders. Buddhist households are excluded from the sample because their share of the population in the area under study is less than 1 percent (Department of Census and Statistics, 2013). Due to its microfinance operations and existing customer base, the local staff could precisely nominate policyholders and non-policyholders belonging to the religion of Islam. However, sampling errors occurred for the Hindu policyholder and non-policyholder groups. Further, only one mixed group of Christian policyholders and non-policyholders could be recruited because of the low number of Christians living in the area, 4 percent of the total population (Department of Census and Statistics, 2013). In the end, the actual data was collected from: two groups of policyholders from the Islamic belief (FGD 1 and 7); two groups of Muslim non-policyholders with two participants having mandatory motor vehicle insurance (FGD 2 and 6); one group of Hindu policyholders (FGD 8); two groups of Hindu non-policyholders with two participants having mandatory cattle insurance (FGD 5 and 9); one mixed group of Hindu policyholders and non-policyholders (FGD 4); and another mixed group from the Christian belief (FGD 3).

Due to the above-mentioned sampling errors, the data analysis strategy needed to be adapted. Therefore, the characteristics and attitudes attributable to policyholders and non-policyholders across all focus groups are analyzed, instead of comparing the motivation and attitudes of policyholders and non-policyholders.

Each focus group consisted of seven to eight participants, following the general recommendation of six to ten participants in one focus group. This group size allows for a sufficient level of participant involvement (Liamputtong, 2011: 42; Morgan, 1996: 146). The composition of the groups was homogeneous as all the participants were female who are typically engaged in domestic chores, family and childrearing activities, small-scale business or agriculture and were available during day-time. As previous micro life insurance demand studies did not find a significant effect of gender on micro life insurance uptake, the author assumed that a concentration on female participants does not lead to gender biased results (Bendig and Arun, 2016; Arun et al. 2012; Bendig and Arun, 2011; Giesbert et al., 2011). Table 14 provides an overview of key characteristics of the participants.

Participation in the FGDs was voluntary. However, the participants received a compensation of LKR 300 (around EUR 1.67) at the end of the FGD, for their time and travel costs to the location. The participants were not aware of the compensation plan beforehand.

Table 14: Characteristics of focus group participants

Focus group number (#)	No. of participants	Insurance status (majority)	Religion	Years of education (mean)	Number of children (mean)
1	8	Policyholder	Muslim	10	2
2	8	Non-Policyholder	Muslim	11	4
3	8	Policyholder Non-Policyholder	Christian	10	1
4	8	Policyholder	Hindu	8	3
5	8	Non-Policyholder	Hindu	10	2
6	7	Non-Policyholder	Muslim	8	2
7	8	Policyholder	Muslim	6	2
8	8	Policyholder	Hindu	12	3
9	8	Non-Policyholder	Hindu	9	2
Total	71			8	2

Source: Author's own

3.3 Data Collection: Focus Group Discussions

One local moderator held the FGDs in Tamil (a local language), mostly at one of the participants' houses. In two cases, the FGDs were conducted in the auditorium of a local primary school. Appendix 6 provides some impressions from the focus group discussions. The discussions were semi-structured, meaning a structured set of questions was prepared to guide the interviews during the discussions. However, the moderator allowed the participants to steer the content of the discussion, wherever deemed appropriate and beneficial given the research purpose (Malshe and Sohi, 2009: 404).

The discussion guidelines reflect the hypotheses to be tested and include three sections (please refer to Appendix 2: Focus Group Discussion Guidelines for details). For each section, the semi-structured interview guidelines state the core question and its purpose, along with additional probing questions in case the discussion does not take off. The questions are sequenced in a manner that the conversation "naturally flows from one question to another" (Krueger and Casey, 2009: 38). After an introductory round, the

discussions begin with the questions about the participants' experiences with unexpected events or risks. The purpose is to encourage all participants to contribute to the discussion. The second cluster of questions asks the participants to share their understanding of and opinions on insurance with the group. After this set of transitory questions, the key questions on factors hindering or supporting the demand for conventional insurance or *Takaful* are raised. In the discussions, the researcher substituted the term *Takaful* with Islamic insurance as the participants are more familiar with this terminology. The discussions ended with a final question to reassure that all the relevant content on the topic of insurance consumption have been discussed.

The key questions always differentiated between the two insurance concepts: conventional insurance and Islamic insurance or *Takaful*. This was necessary as both the risk transfer instruments are available in the area under study and it was expected that the demand drivers and barriers for the two insurance forms differ, depending on the religious background of a person. Therefore, it was important to make it clear to the participants which the concept was under discussion for each question. This distinction and separation of the concepts under discussion was also supported by visual aids as displayed in Appendix 3: Exemplary visual aid. During the FGDs, the moderator showed four drawings to the participants: one female conventional insurance policyholder, one female member of Islamic insurance (*Takaful*), one female non-policyholder of conventional, and one female non-member of Islamic insurance (*Takaful*). The drawings did not only serve the purpose of enhancing understanding, but also enriched the discussion and kept the participants attentive and engaged. Further, a slightly different questionnaire was used for policyholders and non-policyholders as the first group could elaborate their motivations to purchase insurance, whereas the second group could explain why they do not have insurance coverage. In sum, the outline of the questionnaire guidelines closely follows the approach described by Krueger and Casey (2009: 38-41).

The questions for the discussions were formulated in a simple, local language, using minimal technical terms. They are easy to understand, short and usually open-ended (Krueger and Casey, 2009: 38). Insights from practitioners with prior experience of conducting micro insurance-centered FGDs among low-income communities were

considered while defining the core and probing questions (Sebstad et al., 2006; Hina et al., 2009; Asian Development Bank, 2006).

A pilot of the semi-structured questionnaire guide was tested during an initial field trip to Sri Lanka in December 2012. A key outcome of this pilot was reformulation of some of the questions to avoid closed-ended questions and to incorporate terminologies that are more familiar to the local population. Moreover, the order of the questions was changed to ensure that the participants of the FGDs are more engaged since the beginning.

The discussions lasted on average 30 minutes. This rather shorter time span allowed the participants to join the FGDs, despite their busy daily routines. Besides, the shorter duration helped the moderator in keeping them attentive and interested in the rather narrow topic of risk management and insurance. Consequently, the contribution of the participants to the discussions was substantial. The discussions were recorded using audio recorders and a research assistant provided written protocols, including notes on the reactions and interactions of the participants. Additionally, the author attended five FGDs herself[6] to observe the behavior, interaction and emotions of the participants. However, she did not intervene in the discussions, unless requested by the moderator.

The information gathered during the FGDs was completely transcribed in Tamil. Afterwards, the transcripts were translated into English under the supervision of the FGDs' moderator. In total, the FGDs data accumulated to 74 pages. The author of this thesis carefully read the transcripts to understand the data. Whenever the transcribed data was not clear, the researcher confirmed with the translator and moderator to limit possible mistakes in translation.

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[6] The author was not able to attend all the FGDs as her presence caught the attention of the local military unit and led to delays in conducting the research and possibly unpleasant implications for the participants. Therefore, she refrained from joining further FDGs.

3.4   Content Analysis

3.4.1   Methodology of Content Analysis

The data from the FGDs is analyzed using the method of content analysis. The content analysis enables structuring of the data as well as facilitates analysis and interpretation of reoccurring patterns (Harwood and Garry, 2003: 479). The content analysis is guided by the hypotheses and the analytical framework summarized in Section 2.5. A coding scheme is developed initially because it filters the information relevant for the research questions. The author defined the classification criteria, so-called a-priori categories (Mayring, 2010: 65), that are applied in a deductive manner to the text material. This approach towards content analysis is also termed as "*Typisierende Strukturierung*" (Mayring, 2010: 92-94; 98-101). Although the analysis is guided by a conceptual framework, other high frequency categories and relevant outliers referring to micro life insurance demand behavior are considered in the second step of the content analysis. This approach reflects the exploratory nature of the qualitative research paradigm.

In the first step, the researcher started by developing a provisional coding frame. Displayed in Table 15 below, this coding frame consists of the a-priori categories reflecting the theory-induced demand factors.

Table 15: Content analysis – A-priori coding scheme

Category	Sub-category	Definition
Social capital	Membership	Coded if statement refers to a household's membership in a formal social network[7]
	Generalized trust	Coded if statement refers to a person's general attitude of trusting others
	Creation of awareness / understanding	Coded if statement refers to an information exchange with others, a discussion about the topic of insurance or advice
	Imitation	Coded if statement refers to an imitative behavior in insurance consumption, i.e. insurance is bought because peer did
	Trust building	Coded if statement indicates that trust in insurance increases because of a peer effect, i.e. claims experience of peers
	Informal risk sharing	Coded if respondent receives support from family network in case of an unexpected financial loss because of an uncertain event
Religion	Interest	Coded if statement refers to the involvement of interest in insurance
	Mutuality	Coded if statement refers to the solidarity character of insurance
	Risk aversion	Coded if statement refers to a person's willingness to take risk
Economic factors		
Income		Coded if statement refers to a person's (labor) income
Wealth		Coded if statement refers to a person's wealth, her assets or land ownership
Price of insurance		Coded if statement refers to insurance premium or the price of

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[7] The definition of formal social networks follows the definition used in the quantitative study and includes membership in at least one of the following: village development society, women rural development society, religious society, savings group/association, agricultural association/fishery society, sports club, and political party.

		insurance
Remittances		Coded if statement refers to remittances received or paid

Demographic factors		
Bequest motive	Children	Coded if statement refers to a person's number of children
	Age	Coded if statement refers to a person's age
	Family status	Coded if statement refers to a person's family status
	Gender	Coded if statement refers to a person's gender

Social and cultural factors		
Education		Coded if statement refers to a person's education
Financial literacy		Coded if statement refers to a person's financial literacy or knowledge about insurance

Structural factors		
Access to credit		Coded if statement refers to a person's access and usage of credits
Access to savings		Coded if statement refers to a person's access and usage of savings
Social assistance		Coded if statement refers to social assistance received
Contract non-performance	Refusal of claims payments	Coded if statement refers to an insurer who refused to settle a claim
	Delay in claims payment	Coded if statement refers to an insurer who delayed claims settlement
	Solvency of the insurer	Coded if statement refers to an insurer who might go bankrupt

Risk aversion and exposure		
Risk exposure		Coded if statement refers to a person's current or previous risk exposure
Other risk management strategies	Reduced consumption	Coded if statement refers to a person who manages her unexpected losses by reducing her consumption
	Borrowing	Coded if statement refers to a person who manages her unexpected losses by borrowing
	Pawning	Coded if statement refers to a person who manages her unexpected losses by pawning

	Savings	Coded if statement refers to a person who manages her unexpected losses by drawing from savings
	Sale of assets	Coded if statement refers to a person who manages her unexpected losses by selling her assets

Source: Author's own

Furthermore, two attributes are added to every coded text passage for data analysis: (i) religious denomination: Hindu, Muslim, or Christian and (ii) the kind of insurance in focus: conventional insurance or Islamic insurance (*Takaful*), as given in Table 16. In the pilot coding of four FGDs transcripts (one policyholder and one non-policyholder group for the religion of Hinduism as well as for Islam), this provisional theory-led coding frame of the various categories and attributes was tested. To support a systematic coding process, the QSR International's NVivo software was used.

Table 16: Content analysis – Attributes of provisional coding scheme

Attributes	Characteristic	Definition
Religious denomination	Muslim	Coded if respondent is Muslim or statement refers to a Muslim
	Hindu	Coded if respondent is Hindu or statement refers to a Hindu
	Christian	Coded if respondent is Christian or statement refers to a Christian
Type of insurance	Conventional	Coded if statement refers to conventional micro life insurance
	Takaful (Islamic insurance)	Coded if statement refers to *Family Micro Takaful*

Source: Author's own

After the pilot coding, the coding frame was reassessed (Mayring, 2010: 50). So-called in-vivo codes or a-postiori categories were added, if the participants discussed demand factors beyond the a-priori defined categories (Barbour, 2007: 115-119). These categories, summarized in Table 17, were checked for their degree of differentiation in comparison with the a-priori categories and were clearly defined before addition to the coding frame.

The sub-category of 'reputation' was added to the category of social capital as Muslim participants expressed their concern that the purchase of conventional insurance could threaten their reputation within their community.

Four additional subcategories are developed for the category of religion: 'importance of Islamic insurance provider and distributor', 'religiosity', 'living according to religious rules', and 'not specified'. The first sub-category includes text references to the importance of the insurance being offered by a service provider or distribution channel which runs its business in accordance with the Islamic principles. The sub-category 'religiosity' includes general statements about a person's religiousness which cannot be attributed to one of the five dimensions of religiosity: intellect, ideology, public practice, private practice, and experience (Huber, 2007: 21), while the category 'living according to religious rules' refers to the specific dimension of religiosity of a person's public or private practice. Several respondents related their insurance consumption decision to their personal behavior of living their lives in accordance with the rules of their religion. In some cases, text material related to religion was not specific enough to be clearly assigned to a sub-category. For example, some respondents stated that there is (not) a relationship between micro life insurance uptake and religion but did not provide any further information. Therefore, the sub-category 'not specified' was introduced.

The participants frequently referred to the terms and conditions of the offered policies as a decision criterion for purchasing insurance. Hence, the category 'terms and conditions' was added to the coding frame. As the number of text references is considerably large, it was further classified into two sub-categories: (i) (dis)satisfaction with the 'benefits' of the insurance product and (ii) the 'mandatory' nature of an insurance product. The category 'mandatory' is applied, if the person either refers to vehicle and livestock insurance that is mandatory by law or credit life products where the customer is obliged to get insurance.

Several participants described their experiences with dishonest agents who defrauded them by pocketing their premium money and never sending it to the insurance company for issuance of an insurance policy in their names. To reflect this finding, an additional sub-category 'fraud by agent' was created within the main category of 'contract non-performance'. As in the case of religion, further references were made by the

participants to the context of contract non-performance. However, the information was not detailed enough to assign the text material to a separate sub-category. Therefore, it led to the introduction of the sub-category 'not specified'.

During the first coding cycle, it became obvious that errors in sampling occurred as outlined in the previous section. Usually, the groups consisted of both policyholders and non-policyholders, contrary to the initial decision to run separate focus groups. Hence, the author decided to change the data analysis strategy and introduced a third attribute to the coding frame. The purpose of this attribute is to allow for a distinction between the motivations and characteristics assigned to policyholders and non-policyholders. If a focus group participant stated a reason to support insurance consumption, the text was coded as a 'driver'. Whereas, all the statements about a characteristic or motivation that hinders uptake of micro insurance were coded as a 'barrier'. If the statement was neither positive nor negative towards insurance consumption, the author applied the code 'not specified'. In a nut shell, the following categories and attributes were added:

Table 17: Content analysis – Additions to the a-priori coding frame

Category	Sub-category	Definition
Social capital	Reputation	Coded if statement refers to a person's insurance consumption and its effect on her reputation within her social network
Religion	Importance of Islamic insurance provider and distributor	Coded if statement emphasizes the importance of an insurance supply or distribution by an institution that operates based on Islamic principles
	Living according to religious rules	Coded if respondent states that she follows religious rules in her life
	Religiosity	Coded if statement refers to a person's religiosity in general without a specific reference to the dimensions of intellect, ideology, public practice, private practice or experiences (Huber, 2007: 21)
	Not specified	Coded if statement is related to a person's religion but not specific enough for further classification
Terms and conditions	Benefits	Coded if statement refers to the benefits of an insurance product
	Mandatory	Coded if statement refers to a credit life insurance product or a cover mandatory by law, such as vehicle or livestock
Contract non-performance	Fraud by agent	Coded if statement refers to fraud by an insurance agent
	Not specified	Coded if statement is related to contract non-performance but not specific enough for further classification

Attributes	Characteristic	Definition
Insurance uptake	Driver	Coded if statement is related to a factor supporting micro life insurance consumption
	Barrier	Coded if statement is related to a factor preventing or reducing micro life insurance consumption
	Not specified	Coded if statement is related to micro life insurance consumption but its effect is unclear

Source: Author's own

Based on the revised coding framework, a coding cycle followed which included all the transcribed text materials. After the first round of coding all the focus group transcripts, the author of this study reviewed all the categories and the text materials assigned to them. If no text material could be assigned to a theory-led category, the category was dropped. This was the case for five sub-categories related to the research questions on social capital and religion including: (i) 'membership', (ii) 'generalized trust', (iii) 'trust building', (iv) 'risk aversion', and (v) 'mutuality' and another six categories suggested by the analytical framework: (i) 'remittances', (ii) 'age', (iii) 'gender', (iv) 'access to credit', (v) 'savings', and (vi) 'social assistance'. The categories with fewer references were assessed for mergers. Here, the statements assigned to the sub-categories 'refusal of claims payments' and 'delay in claims payments' were merged and the sub-category renamed as 'payment of claims'. Further, sub-categories for 'other risk management strategies' are combined. In other cases, the definitions of codes were fine-tuned and the categories were adapted, wherever necessary. For the case of the category 'number of children', most of the coded text passages referred to the motivation of purchasing insurance for the protection of children and not to the number of children. Hence, the category was renamed as 'protection for children'. The category 'price of insurance' was labeled 'mode of premium payment' and moved to the category 'terms and conditions'. To ensure an unambiguous data analysis and due to the similar nature of the two categories, 'wealth' and 'income' were merged as one category.

Moreover, the categories and their assigned text passages were reviewed for consistency. If coding errors were found, the material was recoded. All the uncoded materials were cross-checked and appropriate categories and attributes were assigned to the text passages, wherever possible.

A second coding cycle was exercised based on the revised coding framework. Lastly, the accuracy of the coded text material was double-checked during the analysis. If results appeared inconsistent or not plausible, the coded materials were reviewed. If a coding error had occurred, the transcript excerpt was recoded.

Table 18 shows the frequency counts of the final coding scheme. It also presents the different categories, sub-categories and if applicable, the number of statements made during the various FGDs and the number of sources. In some cases, subtotals presented

for a category are not equal to the sum across the sub-categories. This is caused by the quotes assigned to two subcategories, but only accounted once for the category to avoid double-counting. The next section evaluates the quality of the content analysis.

Table 18: Content analysis – Final coding scheme and frequency of statements

| Categories | No. of references | | | | No. of sources |
	Sum	Driver	Barrier	Not specified	
Social capital	25	9	5	11	6
Awareness/ understanding	*18*	*7*	*0*	*11*	*5*
Informal risk sharing	*4*	*1*	*3*	*0*	*3*
Reputation	*2*	*0*	*2*	*0*	*1*
Imitation	*1*	*1*	*0*	*0*	*1*
Religion	77	27	33	17	8
Religiosity	*6*	*4*	*2*	*0*	*4*
Living according to religious rules	*13*	*2*	*11*	*0*	*4*
Interest	*31*	*9*	*17*	*5*	*5*
Importance of Islamic insurance provider or distributor	*15*	*9*	*2*	*4*	*4*
Not specified	*13*	*3*	*2*	*8*	*6*
Income & wealth	56	15	40	1	9
Bequest motive	17	14	3	0	6
Children	*14*	*13*	*1*	*0*	*6*
Family status	*3*	*1*	*2*	*0*	*3*
Education	7	0	2	5	3
Financial literacy	7	4	3	0	4
Other risk management strategies	53	0	3	50	9
Contract non-performance	16	0	16	0	5
Payment of claims	*8*	*0*	*8*	*0*	*5*
Fraud by agent	*5*	*0*	*5*	*0*	*4*
Not specified	*3*	*0*	*3*	*0*	*5*
Risk exposure	7	4	3	0	5
Terms and conditions	38	30	6	2	7
Benefits	*31*	*24*	*5*	*2*	*7*
Mandatory	*6*	*5*	*1*	*0*	*4*
Mode of premium payment	*3*	*1*	*2*	*0*	*3*

Source: Author's own
Note: In some cases, subtotals presented for a category are not equal to the sum across the subcategories. This is caused by the quotes assigned to two subcategories, but only accounted once for the category to avoid double-counting.

3.4.2 Quality of Content Analysis: Validity, Reliability and Objectivity

The author took several measures to maintain methodological rigor and data trustworthiness. In the following section, the methodological approach is evaluated against three quality criteria of qualitative research as introduced in Section 1.5.2: (i) internal validity or more specifically construct validity, (ii) reliability, and (iii) objectivity. The criterion of reliability is further defined in terms of: a. consistency or inter-coder stability, b. stability or intra-coder reliability, and c. accuracy following the methodological literature on content analysis (Mayring, 2010; Krippendorff, 2003).

In this research, construct validity is supported by the theoretical foundations of the concepts under study. The theoretical constructs are derived from previous academic studies on social capital and religion or on the demand for life insurance and micro insurance. These categories are precisely defined and operationalized following academic standards and complemented by newly evolving ones.

The criterion of consistency refers to the reproducibility of the analysis and its results. Consistency depends on the explicitness and precision of the procedure description and can be measured by inter-coder reliability. Inter-coder reliability is the consistency of coding results across different researchers (Mayring, 2010: 120). In the setting of this dissertation, inter-coder reliability was difficult to establish because no second researcher was available to code the material. However, the process of data preparation and analysis is systematic and described in a detailed and transparent manner, allowing other researchers to replicate the results.

Stability or intra-coder reliability is given when replication of the analysis at a later point in time results in the same coding. Even though the author conducted the full coding process once only, intra-coder reliability of the results is established by constantly checking the consistency of the (sub-) categories applied, revising (sub-) categories, and eliminating coding errors.

Accuracy measures the degree to which the analysis corresponds to a given standard. It requires stability and consistency and it is the strongest measure of reliability. However, it is also the most difficult aspect to check (Mayring, 2010: 121; Krippendorff, 2003).

This criterion is ensured by precise category definitions, multiple reviews of the coded materials, and merging of ambiguous categories.

To fulfill the quality criteria of objectivity, subjective influences on the data collection and analytical process are minimized as much as possible. FGDs are guided by a set of theory-based semi-structured interview guidelines which minimizes the moderator's influence. The data is evaluated using a theory-induced coding frame, precisely defined categories and a constant plausibility check for the coded materials. For an objective analysis of the collected material, the author measured frequencies first before selecting individual (sub-) categories and references.

In summary, the data analysis is based on a theory-led coding frame and the author carefully checked for possible biases. The data preparation process is accurate and transparent. Even though the qualitative study may perform weak against the criterion of inter-coder stability, the author is confident about construct validity, reliability, and objectivity of the content analysis.

3.5   Results

This section presents the main results of the qualitative study. The objective of the section is to contribute to the main research questions of this thesis, by exploring the relevance of social capital and religion for micro life insurance demand in the Eastern Province of Sri Lanka. While summarizing the main findings, this section focuses on the results that are insightful, frequently mentioned by the participants, and have not been discussed extensively in the previous literature.

The data displayed in Table 18 show that the various demand drivers and barriers are discussed with different degrees of intensity by the focus group members. In all focus groups, the participants discussed about the relevance of income or wealth and other risk management strategies. Most frequently, the participants discussed the compatibility of insurance with Islam, current risk management practices, the role of income and wealth, and product terms and conditions. The role of social capital and contract non-performance was raised in at least half of the discussions.

The frequent statements about elements of religion and other risk management strategies might have been caused by the semi-structured design of the FGDs, as both topics were explicitly put forward to the participants by the moderator. Hence, using a simple frequency count of the various statements assigned to the different topics does not provide a realistic picture of the relative importance of the different demand factors. Nevertheless, the frequency count approach reduces the risk of 'anecdotalism' or 'cherry-picking' of the statements which are most interesting to the researcher (Barbour, 2014: 505). To further reduce the risk of such biases in the analysis, the statements are put into their context. That is, it is documented who is saying what (Barbour, 2014: 500) and contrasting opinions are presented, wherever possible. Hence, the relative importance of the demand drivers and barriers can be established from the content of the reported voices of the participants. This helps in providing deeper insights into the participant's views and opinions.

This section proceeds as following: Section 3.5.1 presents the key findings related to the role of social capital on micro insurance demand, whereas Section 3.5.2 focuses on the role of religion in general and the specific role of Islam. As the focus group study attempts to provide context to the hypotheses, Section 3.5.3 discusses other demand factors that are relevant for the uptake of micro insurance in the Eastern Province of Sri Lanka. The purpose is to provide valuable insights into the topics raised beyond the theoretically indicated demand factors, place the findings on social capital and religion into context, and to identify control variables for the quantitative analysis. Section 3.6 concludes on the main demand drivers and barriers for micro insurance in the Eastern Province of Sri Lanka. If not stated differently, the term insurance always refers to both conventional life insurance and family *Takaful* in this chapter for linguistic simplification.

3.5.1 Social Capital and Micro Life Insurance Demand

The theoretical chapter of this thesis identified six dimensions of social capital that could influence decisions concerning life insure demand: (i) membership in formal social networks, (ii) generalized trust, (iii) awareness and understanding, (iv) imitation, (v) trust-building, and (vi) informal risk sharing, whereby the first two measure for the forms of social capital and the following estimate its possible functions. This also

means that the two sets of dimensions, form and function, interrelate as the function builds upon the form. This section analyzes the relevance of these six dimensions serving as possible explanations for an effect of social capital on micro life insurance uptake.

Table 19 presents the quantitative details on the expressed views in terms of frequency. The author does not find evidence for an effect of the two forms of social capital: membership in an association, society or another organization. The same applies for the form of generalized trust and for the function of a trust-building effect related to peers' experience with insurance. However, in four group debates, the participants mentioned specific trust in insurance as a reason for having insurance coverage, whereas the lack of trust was indicated as a reason for being uninsured in two cases. This relevance of a specific trust in insurance for uptake is closely related to the risk of contract non-performance to be discussed later.

Table 19: Social capital – Frequency of statements

	No. of references	Driver	Barrier	Not specified	No. of sources (FDGs)
Social capital (total)	**25**	**9**	**5**	**11**	**6**
Membership	0	0	0	0	0
Generalized trust	0	0	0	0	0
Awareness/ understanding by	18	7	0	11	5
Family member	*9*	*5*	*0*	*4*	*4*
Religious leader	*5*	*1*	*0*	*4*	*3*
Village leader	*1*	*1*	*0*	*0*	*1*
Not specified	*3*	*0*	*0*	*3*	*2*
Imitation	1	1	0	0	1
Trust building	0	0	0	0	0
Informal risk sharing	3	1	2	0	2
Reputation	2	0	2	0	1

Source: Author's own

The participants mainly responded to the proposed awareness increasing function of social capital. In five group discussions, the participants revealed that they exchanged views with someone else or asked someone for advice before purchasing insurance. In almost all cases, a male family member was consulted for advice. It seems that the

decision to insure is a decision of both wife and husband as the female participants frequently consulted with their husbands. Only in one case, a religious or village leader was consulted:

> *"Because whatever they [insurance agent] will tell, we will not just believe them at once. We will discuss with our family or relatives regarding this."* (Bardunisa, Hindu)

> *"To be honest, it happened like this. They came and introduced the product to us. Then, based on their introduction we tried to analyze possible benefits ourselves and then after discussing with our family members, we decided to purchase it."* (Driver, Krishanthini, Hindu)

> Moderator: *"Now, there are some situations where we ask for advice or suggestions from someone else before we make a decision. It may be our siblings or anyone else. Did you ask from anyone before you purchased the insurance […]?*

> *"Yes, from [my] husband."* (Driver, Fathima, Muslim)

> *"From my husband. Not from the other neighbors."* (Driver, Jumaira, Muslim)

> *"Husband"* (Driver, Najeema, Muslim)

> *"We purchased insurance for our child from Amana [Provider of Family Micro Takaful in the region]. So, we asked for suggestions from my uncle who is one of the religious leaders."* (Driver, Zukriya, Muslim)

> *"Asked Grama Sevaka [Village Administration Officer]. He said that we can purchase."* (Driver, Jumaira, Muslim)

Evidence for an imitation effect is weak. In one focus group, a participant mentioned that insurance uptake might be influenced by the behavior of others:

> *"She may be thinking of purchasing insurance as the others also have purchased [insurance]."* (Driver, Esaniya, Muslim)

Besides this isolated statement, no other participant said that her consumption decision was driven by an imitation effect.

Evaluating the few statements regarding the relationship between informal risk sharing and insurance consumption, it seems that the participants expect family members to take care of each other in times of need. For instance, when the moderator showed a card displaying a woman without insurance and asked the participants to describe her, one of the responses was:

"Her siblings may take care of her." (Barrier, Shaheera, Muslim)

No references are made to the circumstance where micro insurance might not be of interest because family members or friends support in times of need. Hence, this study cannot provide evidence that supports the expected crowding-out effect of informal networks.

However, another topic came up in one of the dialogues. One participant is afraid that her reputation within her social network could be affected, if she, as a Muslim, purchases conventional micro life insurance:

"People do judge us on our Halal and Haram behavior." […] "We have a fear. After we die, there would be gossips among neighbors as 'she had lived a Haram life and her children also are the same way'. We are afraid of that." (Barrier, Simaya, Muslim)

This quotation also shows that the theoretical concepts of social capital (here: reputation) and religion (here: adherence to religious norms) are not always clearly distinguishable. This possible interrelation is further discussed in the quantitative study.

Based on the conducted FGDs, it can be concluded that social capital influences the decision to purchase micro life insurance mainly because of an information exchange between peers which leads to an increased awareness of and understanding about micro insurance. People consult each other especially within their family, before they decide to buy micro life insurance. Further, an imitation effect is indicated by at least one person. So far, there is no evidence for the presence of a strong crowding-out effect of informal risk sharing, a trust-building effect through peers, or for the two forms of social capital: membership in formal social networks and generalized trust. However, it

is too early to reject any of the theoretically derived hypotheses at this stage and they will be tested in the quantitative study.

3.5.2 Religion and Micro Life Insurance Demand

This section discusses how religion influences micro life insurance consumption. As lined out in Section 2.6.2, religion is operationalized in terms of religious denomination. In the context of this qualitative study, two religious denominations are of relevance: Hinduism and Islam. Due to the low number of relevant statements given by the Christian participants as shown in Table 20, the following analysis compares the views of Hindu and Muslim participants only. The analysis first discusses the possible channels through which religion affects micro life insurance demand. As described in detail in section 2.6.1 academic literature suggests three mechanisms through which religion may influence uptake: (i) religious norms, (ii) idea of mutuality, and (iii) risk aversion. Afterwards, this analysis further considers the difference between demand for conventional and *Takaful* micro insurance products, as it is assumed that the latter products specifically address the religiously motivated needs of Muslims.

Table 20: Religion – Frequency of statements

	Muslim			Hindu			Christian		
	Driver	Barrier	Not specified	Driver	Barrier	Not specified	Driver	Barrier	Not specified
Social Capital	**7**	**4**	**8**	**1**	**1**	**2**	**1**	**0**	**1**
Awareness/ understanding	6	0	8	0	0	2	1	0	1
Imitation	1	0	0	0	0	0	0	0	0
Informal risk sharing	0	2	0	1	1	0	0	0	0
Reputation	0	2	0	0	0	0	0	0	0
Religion	**26**	**32**	**6**	**0**	**0**	**5**	**1**	**1**	**6**
Interest	8	17	1	0	0	0	1	0	4
Importance of Islamic insurance provider & distributor	9	2	4	0	0	0	0	0	0
Living according to religious rules	2	10	0	0	0	0	0	1	0
Religiosity	4	2	0	0	0	0	0	0	0
Not specified	3	2	1	0	0	5	0	0	2
Income & wealth	7	16	1	6	22	0	2	2	0
Bequest motive	9	1	0	5	2	0	0	0	0
Protection for children	8	0	0	5	1	0	0	0	0
Family status	1	1	0	0	1	0	0	0	0
Education	0	2	4	0	0	0	0	0	1
Financial literacy	4	3	0	0	0	0	0	0	0
Other risk management strategies	0	2	27	0	1	22	0	0	1
Contract non-performance	0	3	0	0	13	0	0	0	0
Payment of claims	0	3	0	0	5	0	0	0	0
Fraud by agent	0	0	0	0	5	0	0	0	0
Not specified	0	0	0	0	3	0	0	0	0
Risk exposure	2	1	0	2	2	0	0	0	0
Terms and conditions	12	1	1	15	5	0	3	0	1
Benefits	8	1	1	14	4	0	2	0	1
Mandatory	4	1	0	1	0	0	0	0	0
Mode of premium payment	0	0	0	0	2	0	1	0	0

Source: Author's own

Note: In some cases, subtotals presented for a category are not equal to the sum across the subcategories. This is caused by the quotes assigned to two subcategories, but only accounted once for the category to avoid double-counting.

While comparing different motives of Muslims and Hindus to buy or not to buy micro life insurance, the overview of frequency counts presented in Table 20 clearly shows that religious reasons are mainly a cause of concern for Muslims. Primarily, they are worried about the involvement of interest in conventional insurance because *riba* (interest) is forbidden under their religious guidelines and is closely related to their attitude of living in accordance with their religion's rules. Further, Muslims prefer an insurance provider or distributor who operates on Islamic principles. Hindus mentioned the topic of religion only five times during the four FGDs, but without any specific reference to micro life insurance consumption.

As shown in Table 20 and mentioned earlier, Muslims are strongly concerned with the involvement of interest-based activities in conventional micro life insurance:

> *"Even though we feel it is needed, we fear about the interest; the problem is how do we identify Halal and Haram products." (Barrier, Hilmiya, Muslim)*

> *"Also, there is this interest issue. It is a huge barrier." (Barrier, Safeeka, Muslim)*

> *"But it involves interest. Therefore, we did not get that." (Barrier, Jumma, Muslim)*

Most of the Muslim participants believe that conventional insurance contravenes with the religious principles of Islam. The purchase of conventional micro life insurance does not seem to be an option as the participants prefer to follow their religious rules in daily lives:

> *"Mostly we dislike [insurance] because we are religious and we consider Haram and Halal principles. So, it directs most of the people to avoid getting any insurance." (Barrier, Safeeka, Muslim)*

> *"During our lives in this world, Halal practices should be followed and it will lead us to live a Halal life forever and our children will grow up in a Halal environment and we will get a satisfaction in our lives. But, if we do not consider Halal and purchase Haram goods in our lives, everything will be Haram. We will lose our happiness and start to suffer in our lives. Also, our good deeds will not be considered. Also, it will bring burden to us and sudden sickness." (Barrier, Rushana, Muslim)*

Moreover, Muslims emphasize their preference for *Micro Takaful*[8] products because these products do not involve the concept of interest:

> *"As there is no interest applicable in Islamic Insurance, we like it." (Driver, Jumaira, Muslim)*

The qualitative evidence strongly indicates that the religion of Islam may affect insurance consumption because of the religious rules that prohibit *riba*. Interestingly, it was observed that the comments of the participants on insurance and its involvement in interest are superficial. None of the participants explained in detailed how insurance and interest are related. Only one participant provides some details:

> *"The procedure is based on Islam. Therefore, no interest. It gives us the profit on Islamic basis." (Barrier, Fasmina, Muslim)*

In general, it seems that Muslim focus group participants lack a thorough understanding or comprehensive judgement of the compatibility of conventional insurance with Islamic principles. For example, religious scholars explain that conventional insurance is not a *Halal* financial product because it contravenes with the Islamic principles of uncertainty (*gharar*) and gambling (*maysir*) (e.g. Kwon, 2007). Such detailed understanding is not expressed by the participants. It rather seems that their religious views on conventional insurance are based on superficial knowledge and understanding as revealed by their general statements quoted earlier.

Related to the concepts of *gharar* and *maysir* and an implied preference for a mutual insurance scheme in Islam, the author expected to find references to the idea of mutuality and insurance. However, none of the participants mentioned the mutual character of insurance or it being an instrument of helping each other in times of need.

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[8] In this context, the participants usually used the term *Islamic insurance* when referring to *Micro Takaful*.

In line with the expectations of the author, the participants did not mention the topic of risk aversion and its relevance for insurance consumption. The abstract concept of risk aversion is difficult to articulate verbally. Therefore, in academic research, risk aversion is usually measured quantitatively either by evaluating investment choice patterns or self-statements of a person's risk willingness. This approach is followed in the quantitative study (Chapter 4).

Income and wealth, product terms and conditions and a motivation to provide for one's children affect the life insurance demand for both of the groups. However, a regular access to financial resources seems to be the main uptake barrier for Hindus as they are not concerned about any religious rules or norms. Furthermore, mainly Hindus put forward the risk of contract non-performance. However, these patterns seem to be unrelated to a household's religion. Instead, they refer to the respondent's environment and previous experiences.

When further differentiating between the two forms of micro life insurance (conventional and *Takaful)*, it is observed that awareness of *Micro Takaful* is rather low among Hindus and they have limited knowledge about it:

> *"I do not have a clear idea about Islamic Insurance." (Barrier, Bardurnisa, Hindu)*

> *"We do not know much about that… What is Islamic Insurance?" (Barrier, Thangamalar, Hindu)*

> *"I think all of us are in the same boat. We do not know about it." (Barrier, Navaneethan Keerthika, Hindu)*

The results show that people mainly refrain from buying conventional micro life insurance because of a lack of financial resources, the involvement of interest, and the risk of contract non-performance. On the other hand, people are insured if they feel their income is sufficient, if they are satisfied with the general terms and conditions, and if the insurance coverage benefits their children. Low levels of income and a general discontent with the terms and conditions of the available products were mentioned as the key reason for not considering *Micro Takaful* cover. People sign up for *Micro Takaful* because it does not involve interest, the terms and conditions are satisfactory

and their children can benefit from the policy, whereby a concern for interest is raised exclusively by Muslims. Interestingly, in the context of *Micro Takaful*, the income situation of the household seems less relevant. However, external advice on insurance consumption is sought more often in this case. Overall, the core factor which determines if people consume conventional micro insurance or *Micro Takaful* is their attitude towards interest. The next section further discusses the role of these socio-economic characteristics on micro life insurance consumption in the Eastern Province of Sri Lanka.

Concluding the above discussion, the author expects to find further evidence during the quantitative study for a relationship between religion and insurance consumption among low-income households. This relationship is most likely to be negative for the religion of Islam because of the religious rules that forbid *riba*. How risk aversion affects micro life insurance demand and if risk aversion relates to religion is yet to be studied.

3.5.3   Other Micro Life Insurance Demand Drivers and Barriers

Income and wealth

Table 18 shows that in all nine FGDs, the participants emphasize the role of income or wealth in their decisions to insure. More than 50 quotes refer to the necessity of having a sufficient income or wealth to be able to purchase micro insurance:

> *"To be honest, we would like to have insurance. But the only thing is that we do not have is sufficient money to pay for it." (Barrier, Dharmaseelan Subathra Devi, Hindu)*

> *"Because our financial situation is not so good, we are unable to purchase it." (Barrier, Fathima, Muslim)*

Bequest motive

Another factor supporting the ownership of micro life insurance is the policyholder's wish to provide protection for their children. This factor was brought forward by the participants in six focus groups:

> *"If we have got the life insurance for us or for our children, it will be useful in future for our children." (Driver, Priyadharshini, Hindu)*

"At least our children can use it to manage the expenses of our funeral." (Driver, Suranjani, Hindu)

The importance of a bequest motive is a shared finding with the work of Giesbert and Steiner on micro life insurance demand in Ghana (2015: 26).

Contract non-performance

Discussing the reasons for purchasing insurance, the participants brought up the topic of contract non-performance in five FGDs. The risk of contract non-performance refers to the likelihood that an insurance company may not fulfill its contractual obligations because of insolvency, on-going disputes about claim eligibility, prolonged delay in claim settlement (Doherty and Schlesinger, 1990) or any other reason. Within the empirical setting of this study, three different aspects of contract non-performance are brought forward. First, the participants do not trust that their claims will be paid at all:

"Further, they do not pay as they promise." (Barrier, Zukriya, Muslim)

"We cannot trust that they will pay us back." (Barrier, Valarmathi, Hindu)

Second, they do not trust that their claims will be settled in a timely manner:

"Huh! They will not pay it in time to be used for the funeral. It will take a very long time to process our claim and pay the money." (Barrier, Sarwadikari, Hindu)

"They do not give us the money immediately, even though we need it urgently." (Barrier, Kannadhasan Subathradhevi, Hindu)

Third, other households do not trust insurance providers or insurance agents as they experienced insurance frauds in past:

"There came a person saying that he is from Ceylinco insurance. So, I paid him for insurance. But I could not find him the next time I searched for him. I do not know where he has gone (Laughs)." (Barrier, Naheswari, Hindu)

"My opinion is that almost all the companies get our money by cheating us. For example, I [once] had insurance and I had been paying the premium for a few months. I think I paid about LKR 6,000 at that time and I was paying it to a boy

coming to collect that money. But, you know what happened? Once we inquired the insurance company about our payments, they said that there is no payment credited to our policy. So, I dropped from that." (Barrier, Valarmathi, Hindu).

"In addition, there are people who cheat us when selling the insurance. In the very beginning, they say that the insurance policy we purchased is for the whole family. But when one of our household members gets sick or whatever, once we ask for money, they say that the policy we purchased is only for us and you can get the money only if you face such situation. These types of cheaters are there." (Barrier, Manjubashini, Hindu)

These experiences and the fears of claim rejection, delayed settlements or frauds by insurance agents, further reduce the demand for voluntary micro life insurance products. This finding which emphasizes the importance of trust in future benefits is confirmed by a previous study on client perceptions of micro life insurance value in Ghana (Giesbert and Steiner, 2015: 24).

Terms and conditions

The demand barrier of insufficient or irregular income is closely related to the perception of the terms and conditions of the offered insurance products. The participants dislike the rather inflexible mode of premium payment:

"We do not have enough income to pay. It is compulsory to pay the insurance premium every month. If we failed to pay, we will not be able to get any money, or at least the amount we paid earlier. So, when considering our income and the payment procedure, it is not feasible for us. So, we did not purchase it." (Barrier, Nanthini, Hindu)

The participants are aware of the benefits provided by the different insurance providers and the offered coverage is mentioned in seven FGDs as one of the main consumption reasons:

"If we pay the premium every month, there will be no issue, it will help us in case of an emergency and sometimes it grants some money for the education of our children." (Driver, Valarmathi, Hindu)

The linkage between insurance cover and borrowings is named only five times as a reason for uptake. This relatively low relevance indicates that micro insurance is rather sold as a stand-alone product in the region than as a credit-bundled product:

"It came with the loan that we got for our business." (Driver, Sumaana, Muslim)

"We got the loan from Muslim Aid and insurance came with that." (Driver, Zukriya, Muslim)

At times, linking micro insurance with credit is perceived as a barrier to consumption because purchase of an insurance policy may not to be possible without borrowing.

In a nutshell, the results of the FGDs indicate that next to social capital and religion, the household income situation is a key factor influencing life insurance consumption decisions. Furthermore, demand seems to exist if the terms and conditions reflect the needs of the target group and the products provide benefits for policyholders' children. Previous negative experiences with an insurance provider or distributor in the region seem to keep people from buying micro life insurance. Additionally, the qualitative study indicates that the different level of trust in insurance might explain why micro life insurance is bought in the region.

These results on other demand factors are helpful in defining the control variables of the quantitative study and placing the derived hypotheses in context.

3.6 Chapter Conclusion

Previous research has identified wealth, education, risk aversion and the usage of other financial services as main explanatory drivers of micro life insurance demand. Indicative evidence is provided for a life-cycle effect and a bequest motive. This qualitative study validates the central role played by wealth or income in driving or impeding insurance consumption. Moreover, it suggests that the demand for micro life insurance is influenced by social capital and religious denomination, thereby contributing to the development of alternative explanatory approaches. In detail, it provides strong evidence for an increased awareness of and understanding about micro insurance because of an information exchange among peers and further offers indicative evidence for an imitation effect. Furthermore, this study observes a negative attitude of

Muslims towards conventional micro life insurance which is caused by the religiously motivated prohibition of interest. The relevance of the other two explanatory approaches of mutuality and risk aversion is still to be examined by the quantitative study.

After social capital and religion, the main demand factor appears to be the availability of financial resources required for regular premium payments. The product terms and conditions support micro life insurance consumption and consumers are motivated by a bequest motive. This research also links to the literature on contract non-performance. In our sample, insurance uptake is less likely if people are not confident in a future claims payment or timely claims settlement, or if they have been deceived before.

4 Quantitative Study

4.1 Overview

After establishing a theoretical reference framework and analyzing the possible empirical factors for micro insurance demand in the previous chapter, a household survey and a risk aversion experiment is to be carried out in this chapter, in order to test the relevance of social capital and religion for micro life insurance demand. The aim of this chapter is to demonstrate and explain the potential effects of these two demand factors. The novelty of this research work consists of a detailed discussion on the two demand factors, creating a deeper understanding and providing first quantitative evidence on their relevance based on a comprehensive new data set. In the analysis, the interactions with additional demand factors which were derived in the previous chapters are considered and put into context of the focus group results. The course of the quantitative study is divided into the following six parts that are described in the later sections: 4.2 Instrument design and pretest, 4.3 Operationalization, 4.4 Sampling strategy, 4.5 Data collection and preparation, 4.6 Sample description and summary statistics, and 4.7 Estimation strategy and 4.8 Results.

4.2 Instrument Design

4.2.1 Household Survey

"To minimize response errors" the survey and its questions are designed "in accordance with best practices" (Krosnick and Presser, 2010: 263). The household survey follows previous micro insurance demand research (Cole et al., 2013; Gaurav et al., 2011; Giné et al., 2007) and the outlined analytical demand factors framework. In August 2012, the author contacted five authors of four academic papers on micro insurance demand. She informed the authors about her research objective and her interest in the usage of their survey questionnaires for the reason of results comparability. Three of them shared their

questionnaires that have been used in a study of weather index insurance demand in India and of a composite health and funeral insurance product in Kenya[9].

In structuring the survey, the author grouped questions on the same topic. Therefore, the questionnaire is divided into six subsections:

1. A first section covers socio-economic household characteristics and the concept of financial literacy. These questions are easy to answer and help to build rapport between the respondent and researcher (Krosnick and Presser, 2010: 264).

2. The second section questions about alternative risk management strategies and leads to the main topic of insurance consumption behavior. The questions are already strongly connected to the topic of interest and increase the participants understanding about the content of the survey (Krosnick and Presser, 2010: 291).

3. The third section covers the main topic of interest and includes questions about a households' experience with insurance and its risk exposure. It ends with the risk aversion lottery. The lottery is introduced at this point to keep the participants engaged in the survey by changing the setting from a question-answer-approach to an active participation of the respondent (Prüfer and Rexroth, 2000: 4-5).

4. A fourth section measures the concept of generalized trust and social networks.

5. The fifth section captures different dimensions of religion and religiosity as commonly applied in international socio-economic surveys, e.g. the World Value Survey and the European Value Survey. This topic might be a sensitive topic to the participants making them feel uncomfortable. To reduce the risk of early termination it is placed towards the end (Krosnick and Presser, 2010: 264).

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[9] The author received the questionnaires used in the following studies:
Cole, Shawn, Xavier Giné, Jeremy Tobacman, Petia Topalova, Robert Townsend, and James Vickery (2013). Barriers to Household Risk Management: Evidence from India. American Economic Journal: Applied Economics 2013, 5(1): 104–135.
Dercon, Stefan, Jan Willem Gunning, and Andrew Zeitlin (2011). Demand for insurance under limited credibility: Evidence from Kenya. Working Paper.
Gaurav, Sarthak, Shawn Cole, and Jeremy Tobacman (2011). Marketing Complex Financial Products in Emerging Markets: Evidence from Rainfall Insurance in India. Journal of Marketing Research, Vol. XLVIII (Special Issue 2011): 150–162.

6. The last section questions about the household's income and assets. This section is placed at the end because it might be a tedious activity for the participants.

The full questionnaire is documented in Appendix 5: Household survey questionnaire. In the design and structure of the questionnaire, the author of this study aimed at keeping the motivation and concentration of the participants to answer all questions correctly. For this purpose, filter questions are used and participants are not required to respond to questions that do not apply for them (Krosnick and Presser, 2010: 264). Also, filter questions are applied in a way that interviewers do not have problems with the order or sequencing of the questionnaire (Prüfer and Rexroth, 2000: 4-5).

Further, in her question design the author considered the so-called "conventional wisdom" about optimal question design (Krosnick and Presser, 2010: 264). She tried to formulate simple, specific questions using words the respondents are familiar with, e.g. non-vehicle insurance instead of non-motor insurance. Sentence structure is very simple, without double negations, and only one matter asked at a time. Response options are exhaustive and mutually exclusive if multiple answers are not intended. There are multiple answers possible when participants are questioned about their motivations, behaviors, opinions e.g. on insurance, savings or credits. In 16 cases the author decided to use the answer category "Other" in combination with an open answer. This avoids that participants chose an answer category that does not represent their opinion, attitude or situation, leading to a distortion of results. Next to these hybrids of closed and open end questions, the survey used closed end questions in majority to avoid difficulties in coding and results interpretation. On the topic of religion, two open questions are formulated because the author believed that literature and previous surveys could not provide for an exhaustive set of answer categories. However, because all the responses had to be translated from Tamil to English, she decided at last not to include any information from the open questions or answer categories in the data preparation and analysis.

In 15 cases, rating scales are applied. Based on good practices in question design and the low literacy level of the participants the author decided for five-point Likert scales. In this case, points are more easy to verbalize than in lengthier scales enhancing respondents' "clear understanding of the meanings of the points on the scale" (Krosnick

and Presser, 2010: 270). During the survey the three scales are applied with the following ranking categories:

- Continuous scale of opinion: strongly agree, agree, neither agree nor disagree, disagree, strongly disagree
- Categorical scale of frequency: very often, often, occasionally, rarely, never
- Categorical scale of importance: very important, important, moderately, a little important, not at all important.

Even though previous methodological research on question design has proven that a "Don't know" answer option does not improve measurement (Krosnick and Presser, 2010: 282), respondents had the possibility to choose the answer category of "Don't know" in three cases: In the case of the theoretical constructs of financial literacy and trust, questions are taken from previous surveys and well established in the literature. For results comparability, the author did not want to deviate from these practices. Asking about the trustworthiness of conventional micro insurance and *Micro Takaful* providers, a "Don't know" option was offered to avoid a statement, even if the respondent does not have an opinion on the topic (avoidance of "non-attitude response error").

4.2.2 Risk Aversion Lottery

Risk aversion is measured by an ordered lottery selection design according to Binswanger (1980). This measurement approach, developed for a research in rural India, is frequently used in field studies with low-income households (Turner et al., 2014; Clarke and Kalani, 2012; Barr and Genicot, 2008). A simple lottery design ensures that participants with low levels of mathematical skills understand the game and the choices they make (Dave et al., 2010).

In the Binswanger lottery setting each participant is asked to select one out of six binary choices to play, which gradually increase in expected payoff and riskiness (measured by standard deviation of expected payoff). In each option the participant either receives a high or a low payout with a probability of fifty percent. The low payoff decreases with the progress in options for selection whereas the high payoff increases. The participant's final payoff (low or high) is determined by e.g. a coin-flip or a blind draw. This study

uses an adapted version of the Binswanger lottery as suggested by other researchers (Dave et al., 2010; Eckel and Grossman, 2008; Barr and Genicot, 2008). Their experimental designs benefit from an expected payoff linear in risk, measured by standard deviation of expected payoff. Contrary to previous work the instructors used the term of "activity" in their communication with the participants instead of "lottery" or "game" and minimize the elements of a game of chance. Therewith, the author wanted to reduce the number of non-responders or possible biases by Muslim participants as gambling is not allowed in Islam.

To control for an effect of payoff levels on risk aversion two rounds were conducted that varied in their payoffs. Participants received real monetary payouts. In the first round the maximum payoff represents an average informal worker's daily wage in Sri Lanka. In the second round, the maximum payoff amounts to his average monthly wage. Therefore, stakes are substantial and participants are expected to reveal their real risk preferences (Dave et al., 2010; Cardenas and Carpenter, 2008: 331). Due to budgetary constraints, the participants received the real payout only for one round, the first round. However, the participants did not know which round was paid out until the second round ended.

The subjects of the risk aversion lottery are the same as the participants of the household survey as the experiment is an integral part of the survey. The experiment took place at the subject's homes. The interviewers were responsible for the conduct of the experiment. They ensured that the subjects were not influenced in their choices by the presence of a third person. The interviewer carefully instructed the participants by explaining the written instructions orally including several examples. Each participant started with a hypothetical round to give him or her the opportunity to learn about the different choice options and to understand the game. Before the actual two rounds were played, every participant had the opportunity to ask any question to the interviewer.

In each round, every participant was asked to select one out of six choices as presented in Figure 8. Every alternative yields either a high or a low pay off with a probability of 50 percent as described above. To enhance the participants understanding each round and its six choices are visualized to the participants on a card board. This visualization was kindly provided by Abigail Barr who had used it in a previous field study in

Zimbabwe (Barr and Genicot, 2008) and was adapted to the Sri Lankan context in terms of payout amounts and currency by the author[10].

Figure 8: Risk aversion lottery – Visualization of choices

Round 1   **Round 2**

Source: Adapted from Barr and Genicot (2008)

The six options are labeled A to F. Every option shows a low amount of money (displayed in Sri Lankan bills) on a yellow background and the high payoffs on a blue background. The difference or variance between the low payoff and the high payoff increases with the progress. Option A is the safe option with no variance and a guaranteed payoff of LKR 140 (first round) or LKR 2.800 (second round). An extremely risk averse participant would choose this option. For the following options,

[10] In 2013 the author reached out to Abigail Barr and Daniel Clarke who had applied the risk aversion lottery design according to Binswanger in their studies and received their experimental procedures and visual aids for further usage:
Barr, Abigail and Garance Genicot (2008). "Risk Sharing, Commitment and Information: An experimental analysis" Journal of the European Economic Association, Vol. 6, No. 6: 1151–1185
Clarke, Daniel and Gautam Kalani (2012). "Microinsurance Decisions: Evidence from Ethiopia". Microinsurance Innovation Facility, Research Paper No. 19. International Labour Office, Geneva

expected return and its variance increase. Option E and F do not differ in their expected return but in their variance (Option F > Option E). Only a risk seeking person would choose option F. Further details on expected return, standard deviations and corresponding levels of risk aversion are displayed in Table 21 and 22. The intervals of constant relative risk aversion are assigned in analogy of the work of Dave et al. (2010)[11] and displayed for comparison with other studies.

Table 21: Lottery choices in Round 1

	Low payoff	Prob.	High payoff	Prob.	Expected payoff	Standard deviation	Implied CRRA range[11]
Option A	140	50%	140	50%	140	0	3,46 < r
Option B	120	50%	240	50%	180	60	1,16 < r < 3,46
Option C	100	50%	340	50%	220	120	0,71 < r < 1,16
Option D	80	50%	440	50%	260	180	0,50 < r < 0,71
Option E	600	50%	540	50%	300	240	0 < r < 0,50
Option F	0	50%	600	50%	300	300	r < 0

Source: adapted from Dave et al. (2010)

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[11] Each lottery option is representing a range of risk aversion r. The limits of these ranges, where the participant is indifferent between two options, are found by equating the expected utility of the neighboring options under consideration. For example, given a 50 percent chance of a high payoff, the utilities of option B (low payoff LKR 120, high payoff LKR 240) and option C (low payoff LKR 100, high payoff LKR 340) are:

$$\underbrace{\frac{1}{2}\frac{120^{1-r}}{1-r}+\frac{1}{2}\frac{240^{1-r}}{1-r}}_{U_B(r)} = \underbrace{\frac{1}{2}\frac{100^{1-r}}{1-r}+\frac{1}{2}\frac{340^{1-r}}{1-r}}_{U_C(r)}$$

yielding an indifferent risk aversion of r = 1.16, which demarks the lower limit of option B and the upper limit of option C. The limits between the other options are determined analogously (Dave et al., 2010).

Table 22: Lottery choices in Round 2

	Low payoff	Prob.	High payoff	Prob.	Expected payoff	Standard deviation	Implied CRRA range
Option A	2800	50%	2800	50%	2800	0	3,46 < r
Option B	2400	50%	4800	50%	3600	1200	1,16 < r < 3,46
Option C	2000	50%	6800	50%	4400	2400	0,71 < r < 1,16
Option D	1600	50%	8800	50%	5200	3600	0,50 < r < 0,71
Option E	1200	50%	10800	50%	6000	4800	0 < r < 0,50
Option F	0	50%	12000	50%	6000	6000	r < 0

Source: adapted from Dave et al. (2010)

To determine the payoff of the selected option in each round the participant drew a ball blindly with replacement from a bag. The bag contained one blue and one yellow ball, representing a 50:50 chance. If the participant drew a blue ball she received the high payoff whereas the yellow ball was associated with the low pay off. The author opted for this approach as a coin-flip could have been associated with gambling leading to possible irritations with Muslim participants. Details on the conduct of the field experiment are also described in the instructions shared with the research assistants (Appendix 4: Risk aversion lottery instructions).

4.2.3 Pretest of Instruments

For an expert validation, the researcher shared a first draft of the questionnaire with a Sri Lankan consultant who had conducted household surveys for various international organizations before and is very familiar with the target group. He was also responsible for the organization of the data collection process. His expert advice helped to improve the target group orientation of the questionnaire and transferred international best practices in survey design to the local context. For example, answer categories to the question of education and risk experiences were adjusted, a question about caste affiliation deleted.

Before proceeding with the final survey, the author pretested the questionnaire and the risk aversion lottery in the form of conventional pretesting (Krosnick and Presser, 2010: 296). The pretest aimed at receiving information and feedback on the duration or length of the questionnaire and its various sections, to identify difficulties in the processing of

the questionnaire related to the ordering of questionnaire, and to learn about ambiguous or misleading question wordings. Conventional pretesting usually involves a one-time test survey of the questionnaire after completing its design to a small sample of the population. The pretest interviews are conducted by interviewers in the field, under – as far as possible – the same conditions as the main survey. Interviewer are informed of the test character of the interviews, the respondents are not (Prüfer and Rexroth, 2000: 14; Krosnick and Presser, 2010: 296). A key weakness of the conventional pretesting is its rather passive approach. Interviewer observes participants but do not actively inquire about participants' reactions or behavior. Further, it is difficult to find out if participants understood the questions correctly (Prüfer and Rexroth, 1996: 98-99). However, as most of the questions have been used in similar settings (Cole et al., 2013; Dercon and Christiaensen, 2011, Gaurav et al., 2011), the author decided to use this cost-efficient pretesting approach.

In practice, the pretest was part of the interviewer training. Each interviewer could conduct the pretest questionnaire including the risk aversion lottery twice with participants from the target group. In total, 22 respondents participated in the pretest which fulfills the general recommendation of a pretest sample which is 10 to 200 (Prüfer and Rexroth, 1996: 97). Due to the tight schedule of the field study and the limited time resources of the researcher, she evaluated the pretest results and especially the distribution of the answer categories for 15 out of the 22 questionnaires. Out of these 15 surveys, five participants are micro life insured. Further, participants of the pretest represent the three religions: Hinduism (six people), Islam (seven people), and Buddhism (two people).

After the pretest a debriefing with the interviewer took place. For this debriefing an evaluation questionnaire was developed that focused on: (i) duration of the survey and its various sub-sections including the risk aversion lottery, (ii) clarity of the formulation of survey questions, understanding of scales and completeness of answer categories, (ii) understanding of the risk aversion lottery. The evaluation questionnaire was shared with the interviewers before the pretest survey took place to allow them to take notes on the length of the individual survey sections, observational anomalies and problems encountered. During the debriefing, the interviewers could share their experiences with each other, their supervisor and with the researcher in a group setting.

The results of the pretest evaluation and the interviewer's feedback led to minor modifications of the questionnaire. Basically, the sequencing of answer categories was changed according to their frequency of occurrence during the pretest, further categories added if named several times under the answer category "Others", and for some answer categories wording was sharpened. In the final survey, questions about insurance consumption differentiated between vehicle and non-vehicle insurance. The terms of vehicle and non-vehicle are used because respondents are more familiar with them, than with motor and non-motor.

On average interviewers needed 70 minutes to complete the questionnaire and the risk aversion lottery. However, the length highly depended on the insurance status of the participants. The survey of non-policyholders on average lasted about 60 minutes in comparison to 80 minutes if households are insured. As the interviewers, did not discuss the length of the questionnaire negatively and participants neither seemed to lose concentration nor patience, there was no obvious need to shorten the questionnaire. In sum the final survey includes 92 questions.

4.3 Operationalization of Variables

To clarify the design of survey questions, this section describes how the various theoretical constructs applied to the quantitative study are operationalized and thus measured. The dependent variable 'micro life insurance' is in general defined as voluntary micro life insurance coverage and coded one if a household currently owns a micro life insurance policy that is not credit-linked. If the operationalization of the dependent variables deviates in one of the following analyses, it is explicated and explained.

Measurement of the independent and control variables is explained in the following. Independent variables are defined as implied by the hypotheses and control variable as suggested by the analytical framework of micro life insurance demand factors (Section 2.5) and the focus group results (Section 3.6). Social capital and religion are each measured by as set of independent variables to identify the various channels through which these two factors affect micro life insurance uptake. Social capital is measured in terms of its institutional form (membership in formal organization and generalized trust)

and function (awareness, trust-building, imitation, informal risk sharing). Religion is operationalized by the variables of religious denomination, interest, mutuality, and risk aversion. For details on the origin and development of these dimensions please refer to Section 2.6.1 for social capital and to Section 2.6.2 for religion. As discussed in Section 2.6.3, the author is aware that measuring multiple of one theoretical concept might involve strong correlations between the underlying variables. Hence, during the data analysis process variance inflation factors are estimated to test for multi-collinearity.

Group membership

The variable 'group membership' is one of the two variable measuring for an institutional effect of social capital on micro life insurance consumption. The information if a household is associated to a formal social network is collected by the following question:

> In total, how many groups, associations or organizations
> does your household belong to[12]?   _____

The variable 'membership' then counts the number of reported memberships.

Generalized trust

Following the argument of Putnam (1993), social capital is further measured by the concept of generalized trust. The theoretical construct of generalized trust is difficult to measure. In the literature, there are two general approaches for the measurement of trust or more specifically generalized trust: (i) survey questions and (ii) experimental trust. To decide on the measurement approach of the present work, these two forms are discussed and evaluated in the light of the specifics of the present empirical study.

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[12] Groups, associations or organizations are in a subsequent question defined as: village development society, women rural development society, religious society, savings group/association, agricultural association/fishery society, sports club, political party, others to be specified.

Within the usual survey question approach, the General Social Survey (GSS) generalized trust question is used: *"Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?"* which allows for the following two answers *"Most people can be trusted"* or *"You can't be too careful in dealing with people"*. The General Social Survey is a U.S. American nationwide survey gathering data on contemporary society in order to monitor and explain trends and constants in attitudes, behaviors, and attributes (NORC, 2016). The usage of this attitudinal question has a long history and is included in further standardized, global surveys like the Gallup World Poll and the World Values Survey, and frequently applied in academic studies (e.g. Alesina and La Ferrara, 2002; Berggren and Bjornskov, 2011; La Porta et al., 1997a, Knack and Keefer, 1997). Some studies have slightly adopted the answer categories (Johansson-Stenman et al., 2013, 2009) or extended the set of survey questionnaires. Glaeser et al. (2000) are the first to use a trust index including the GSS question on fairness[13] and helpfulness[14]. The trust index is calculated using the normalized average of the three questions.

Others have argued that this generally applied attitudinal trust question from the General Social Survey is "unspecific", "vague, abstract and hard to interpret" (Glaeser et al., 2000: 827, 812). For example, it is not clear to the respondent whom to trust ("most people"), in which situation or under which conditions (Bjornskov, 2006: 2). Secondly, economists prefer observed, revealed behavior with monetary incentives (Johansson-Stenman et al., 2009: 436) and favor the experimental approach of the trust game introduced by Berg et al. (1995). A trust game is a two-stage game, involving a "sender" and a "receiver". The sender has a fixed amount of money she can send in total or partially to an anonymous recipient. The remaining amount can be kept by the sender. The experimenter usually triples the amount in the envelop before it is handed over to the receiver. The recipient can then decide on the share of money she/he returns

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[13] "Do you think that most people would try to take advantage of you if you got a chance, or would they try to be fair?"

[14] "Would you say that most of the time people try to be helpful, or that they are mostly just looking out for themselves?"

to the initial sender. The amount send is usually interpreted as an indicator for trust and the amount received as an indicator for trustworthiness (Johansson et al., 2009: 464).

Such experimental studies on trust are often of methodological character testing how well the standard GSS trust question predicts experimental behavior. The first studies of this nature (Glaeser et al., 2000; Fehr et al., 2003) found that the GSS questions on trust, fairness and helpfulness are not related with trusting behavior of the trust game using samples from the U.S. and Germany. Based on these results they conclude that the survey questions are not a reliable measure for trust (assuming that the amount send in the trust game is a reliable indicator for trust). On the contrary Gächter et al. (2004) provide evidence from Russia that experimental results correlate with the GSS questions on fairness and helpfulness. Results on the reliability of the survey method remain ambiguous if samples are from developing country. In Bangladesh, Johannsson-Stenman et al. (2013) do not find a strong relationship between stated trust and the amount send whereas Etang et al. (2012) report exactly the opposite results from Cameroon. Opponents of the trust experiment argue that it is not clear to which extend other factors affect the sender's behavior in the trust game. Current research has shown an influence of reciprocity and altruism (Cox, 2004; Ashraf et al., 2006) and of an individual's risk aversion (Karlan, 2005).

Given the problems described in both measurement approaches of the theoretical concept of trust, a concentration on the survey method seems to be most appropriate for the present study. Survey data is easier and cheaper to collect. Also, generalized trust is just one out of six explanatory variables for an effect of social capital. In addition, the author considered the overall length of the survey and preferred to include an experimental measurement for the risk aversion variable which is a key concept in insurance. Consequently, the author will be cautious in not over interpreting the findings based upon the survey question (Alesina und La Ferrara, 2011).

To operationalize the theoretical concept of generalized trust, the author included all three questions from the General Social Survey but decided during data preparation to focus on the trust question (Glaeser et al., 2000; Gächter et al., 2004; Etang et al., 2012):

Trust:

Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people?	▪ *Most people can be trusted* ▪ *Can't be too careful* ▪ *Don't know*

Fairness:

Do you think most people would try to take advantage of you if they got a chance or would they try to be fair?	▪ *Would take advantage* ▪ *Would try to be fair* ▪ *Don't know*

Helpful:

Would you say that most of the time people try to be helpful, or that they are mostly just looking out for themselves?	▪ *Try to be helpful* ▪ *Just look out for themselves* ▪ *Don't know*

Creation of awareness and understanding

The variable 'creation of awareness' is the first of four possible functions of social capital that might affect micro life insurance consumption. It estimates whether the dissemination of information on financial services through peers or social networks is relevant for micro life insurance consumption. Survey participants were asked:

If you make a financial decision are there people outside your household you ask for advice, e.g. village leaders, elders or religious leaders?	▪ *Yes* ▪ *No*

When people outside your household have to make financial decisions, do they come to you for advice?	▪ *Yes* ▪ *No*

The first question follows the question design by Bönte and Filipak (2012)[15], set into the broader setting of financial decisions. A second question is added to cover for both ways of communication: receiving and sending information. The dummy variable 'information' then equals one if a person turns to someone before making a financial decision or is consulted by others.

Imitation

The function of fostering imitative behavior is another role associated with social capital. If the adoption of micro life insurance is caused by an imitation of a peer's decision, is measured by:

Do you have friends, neighbors or relatives who do not live in your household that have insurance coverage?	▪ *Yes, vehicle insurance* ▪ *Yes, non-vehicle insurance* ▪ *No*

The dummy variable 'imitation' is one if a peer has life or non-life micro insurance coverage.

Trust building

To test for a trust building effect of social capital through peer's experience with micro life insurance the following question is included in the survey:

Did anyone of them [friends, neighbors or relatives] receive a payment from the claim?	▪ *Yes, vehicle insurance* ▪ *Yes, non-vehicle insurance* ▪ *No*

If the respondent could observe the benefits of micro insurance, the dummy variable 'trust building' is one and zero otherwise. This measurement is close to the approach by Morsink (2012: 51). To study for a peer effect on micro catastrophe insurance she asked households if they knew people in their personal network who had experienced a claim.

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[15] "Did you consult anybody outside your household before making savings decisions?" (p. 3403)

Informal risk sharing

The final functional dimension of social capital is operationalized by estimating the effect of informal risk sharing on the consumption of micro life insurance. A comprehensive question on current risk coping strategies was included in the questionnaire.

| How do you currently cope with the financial consequences if those risks[16] occur? | *Use cash or savings* *Withdraw from business* *Borrow from friends, relatives, neighbors* *Borrow from employer or supplier* *Borrow from moneylender* *Borrow from microfinance institution* *Get additional job* *Reduce consumption* *Pledge valuables in pawnshop* *Sell valuables* *Insurance* *Receive grant from government, NGO* *Receive donation from friends, relatives, neighbors* |

The dummy variable 'informal risk sharing' is coded one, if the respondent received financial support by a friend, relative or neighbor either by borrowing or by a donation and zero otherwise.

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[16] The previous question had introduced the following risks to the respondents: sickness of household member, loss of employment, death of household member, accident of household member, permanent disability of household member, flood or heavy rain, draught, loss of livestock, fail in harvest, theft, fire, tsunami, war.

Previous studies additionally analyzed the role of remittance payments as a tool of informal risk sharing provided by family members (Giesbert et al., 2011). However, as remittances are usually paid on a regular basis and not specifically in cases of emergencies, remittances are not interpreted as a risk management tool in this study but as an income sources.

Religion

In the literature, two approaches are taken in operationalizing the theoretical construct of religion. A first group of studies uses religious denomination as an indicator (e.g. La Porta et al., 1997a; Alesina and La Ferrara, 2002; Johansson-Stenman, 2009; Bjornskov, 2006; Shu et al., 2012; Kumar et al., 2011). A second group is interested in the influence of religion in general rather than in detecting difference between the various groups and studies the effect of religiosity. These studies consider single- or multi-item indicators or single- and multi-dimensional indices to measure for religiosity.

Single-item indicators often refer to religious practices such as church attendance or to the self-assessed importance of religion in daily life (Berggren and Bjornskov, 2011). Using data from three waves of the World Values Survey (1981-1984; 1990-1993; 1995-1997) Guiso et al. (2003) use three items to measure for religiosity: religious upbringing, frequency of church attendance and believe in God, as they are interested in the exogenous components of religion. Similar variables are employed by Noussair et al. (2013) to test for an effect of religion on risk aversion in the Netherlands: frequency of church attendance, belief in God, belief in specific Christian theological concepts and frequency of prayer outside of religious services (p. 169). Tan and Vogel (2008) opted to construct a multi-dimensional index to test for the overall relationship of religion (or better religiosity) on trust. The index captures three dimensions of religiosity: belief in theological concepts, religious experiences and rituals or religious practices as suggested by the methodological work of De Jong et al. (1976).

Unlike the cited literature, the main interest of this research is to study for different motivations between members of various religious groups, and not for religiosity. Therefore, the standard measurement approach is followed and a dummy variable is defined for each of the following religious affiliations: Islam, Hinduism, Buddhism and Christianity dependent on the answer to the question:

Which of the following religious communities do you belong to?

- *Muslim*
- *Hindu*
- *Buddhist*
- *Christian*
- *Catholic*
- *Other, specify* _____

The wording of this question is very like the last wave of the World Value Survey[17].

Interest

To measure for an effect of the Islamic principle of *riba* or a prohibition of interest, the author used the two indicators of 'interest on debt' and 'interest on savings', that both reflect the attitude of the respondent towards this norm:

Interest on debt

Do you or any member of your household pay interest or a fee for borrowing from those sources[18]?

- *Interest (%)*
- *Fee (fixed amount)*
- *Interest + Fee*
- *None*

Interest on savings

Do you or any member of your household earn interest from any of your savings?

- *Yes*
- *No*

These two questions are designed by the author of this study. The closest question to this measurement approach is a question from the Gallup World Poll when conducted in Muslim countries: "People in your country may or may not engage in the following

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[17] "Do you belong to a religious denomination?"

[18] The previous question defined borrowings as formal and informal financial credits taken from other parties for one's personal use including an agreement to repay the loan at a future time

actions. As far as you know, how many people in your country do each of the following: borrow money with interest, […]". Based on these two questions the dummy variable 'interest' is one if the respondent does not have an interest-bearing savings product or loan and zero otherwise.

Mutuality

The dummy variable 'mutuality' reflects the respondents' attitude towards insurance and its underlying principle of solidarity which is assumed to be particularly distinct among Muslims. The variable is coded based on the respondent's agreement with the following statement:

In your opinion, by buying non-vehicle insurance you support others who are in need.

- *Strongly agree*
- *Agree*
- *Neither agree nor disagree*
- *Disagree*
- *Strongly disagree*

Risk aversion

Previous research found that risk aversion correlates with a person's religion (Noussair et al., 2013; Shu et al., 2012; Kumar et al., 2011; Barsky et al., 1997). Risk aversion estimated with an ordered lottery design is used to measure for risk aversion. Using the results of the two rounds, the author calculated a measure of risk aversion for each round using a constant relative risk aversion (CRRA) function as in Binswanger, 1981. These values are further applied to the coding of the two risk aversion variables. Table 23 and 24 show the distribution of risk aversion in the sample and the average CRRA, which was used for coding. The variable 'risk aversion – small losses' represents the results of the first round, while the variable 'risk aversion – large losses' results of the second round.

Table 23: Sample distribution of risk aversion in Round 1

	Low payoff	High payoff	Expected payoff	Standard deviation	Implied CRRA range	Average CRRA	Fraction of subjects (%)
Option A	140	140	140	0	3,46 < r	3,46	11,09
Option B	120	240	180	60	1,16 < r < 3,46	2,31	20,33
Option C	100	340	220	120	0,71 < r < 1,16	0,935	24,57
Option D	80	440	260	180	0,50 < r < 0,71	0,605	30,43
Option E	600	540	300	240	0 < r < 0,50	0,25	10,43
Option F	0	600	300	300	r < 0	0	3,26

Source: Adapted from Dave et al. (2010: 225)
Note: Calculation of constant relative risk aversion (CRRA) is further described in Section 4.2.2 Risk aversion lottery.

Table 24: Sample distribution of risk aversion in Round 2

	Low payoff	High payoff	Expected payoff	Standard deviation	Implied CRRA range	Average CRRA	Fraction of subjects (%)
Option A	2800	2800	2800	0	3,46 < r	3,46	19,57%
Option B	2400	4800	3600	1200	1,16 < r < 3,46	2,31	22,39%
Option C	2000	6800	4400	2400	0,71 < r < 1,16	0,935	33,70%
Option D	1600	8800	5200	3600	0,50 < r < 0,71	0,605	17,61%
Option E	1200	10800	6000	4800	0 < r < 0,50	0,25	5,43%
Option F	0	12000	6000	6000	r < 0	0	1,30%

Source: Adapted from Dave et al. (2010: 225)
Note: Calculation of constant relative risk aversion (CRRA) is further described in Section 4.2.2 Risk aversion lottery.

Income

Acquiring precise information or an accurate estimation of a household's annual income in a low-income setting is difficult. Therefore, the author of this study decided to decompose the income into various possible income sources: employment (permanent, temporary, self-employment), agricultural production, livestock breeding, social benefits or other government transfers, remittances, other types of income. For these various sources the survey requested the average monthly income and the number of months the household received income from this source during the past 12 months. The variable 'income' represents a household's income between September 2012 and August 2013 calculated from the various income sources. As the study directly

estimates for an income effect, it does not apply the proxy variable of employment status used in previous micro life insurance demand studies (Bendig and Arun, 2016, Arun et al., 2012; Bendig and Arun, 2011; Giesbert et al, 2011).

Wealth

In a low-income setting wealth is difficult to measure in terms of monetary units. Therefore, the proxy of an index is used, which simply counts certain household assets without pricing them. The included household consumer durables are: phone, TV, radio, stove, refrigerator, electric fan, electric water pump, a (non-) motorized vehicle and the two assets: house and land ownership. The asset index is then constructed using principal components analysis. For the individual *i* the asset index is defined as:

$$A_i = \sum_k \left[f_k \frac{(a_{ik} - \bar{a}_k)}{s_k} \right]$$

Where a_{ik} is the value of asset k for household *i*, $\bar{a}_k$, is the sample mean, s_k, is the sample standard deviation, and f_k are the weights associated with the first principal component. (O'Donnell et al., 2008: 77-78). This measurement approach is in line with previous micro (life) insurance demand studies (Cole et al., 2013; Giesbert et al., 2011).

Premium

Expected utility theory, empirical work on life insurance demand and focus group results indicate that the amount of premium paid is a relevant demand factor. This effect is related to the (perceived) fairness of the insurance premium, or to a household's financial capacity. To be able to differentiate between the two aspects, respondents were asked:

Do you think the amount your household pays for your insurance is a small amount of money, just the right amount of money or a lot of money compared to the benefits you receive?

- *Little amount*
- *Just the right amount of money*
- *A lot of money*

The variable 'insurance premium' focuses is coded along the three answer categories and a household's financial capacity was measured with a second question:

> Over the past year, would you say your overall spending was less than, more than, or about equal to your income?
> - *Spending less than income*
> - *Spending more than income*
> - *Spending about equal to income*
> - *Don't know*

Lifecycle hypothesis: Age

Following the current micro life insurance literature, the lifecycle hypothesis is measured by the variable of 'age'. To receive correct information about a person's age, the survey asked for the respondent's birthday which allowed calculating the respondent's age. Interestingly, it became obvious during the field study that some participants were not aware of their birthday but had to look up their national Identity card.

Bequest motive: Age and ratio of young dependents

Previous micro life insurance demand studies used the proxies of age and number of children to test for a bequest motive. In contrast, this study follows the approach by cross-country studies and calculates the ratio of young dependents. The variable 'young dependency ratio' is computed from the number of children over the total household size. The necessary information is collected by three basic, open questions:

> How many unmarried children do you have? _____
>
> How many married children do you have? _____
>
> In total, how many people live in your household? _____

Education

To measure for the educational level of the respondent a standard multiple-choice question is included in the survey:

What is the highest level of education you have achieved?	▪ *Did not complete primary school (did not complete Grade 5)*
	▪ *Primary school (up to Grade 5)*
	▪ *Grade 10*
	▪ *Ordinary Level*
	▪ *Advanced Level*

The variable 'education' is then a categorical variable coded 0 if the respondent did not complete primary school, 1 if the responded finished primary school, 2 if the respondent finished grade 10 but not her Ordinary level, 3 if the respondent received the degree of Ordinary level and 4 if the respondent received the degree of Advanced level (equivalent to "Abitur").

Financial literacy

Financial literacy refers to a person's ability to make sound financial decisions based on her skills and knowledge about financial concepts and financial products. Micro insurance demand studies either use survey questions or an experimental design to measure for financial literacy and its effect on uptake (Cole et al., 2011; Dercon et al., 2014; Cai et al., 2015).

If a study aims at providing evidence for a positive effect of financial literacy activities on insurance uptake, usually the experimental approach is taken involving a treatment and a control group. In this setting the treatment group receives insurance literacy training or materials in contrast to the control group. The analysis of the data then focuses on differences in insurance uptake behavior of the two groups (Dercon et al., 2014; Cai et al., 2015).

The survey approach mainly draws from the work of Lusardi and Mitchel (e.g. 2006, 2008). To the authors' knowledge, Lusardi and Mitchell are the first to measure for financial literacy in a large-scale U.S. American study on retirement planning in 2004.

Their basic set of three questions captures the understanding of two rudimentary financial concepts: compound interest and inflation, as well as of risk diversification[19]. They include the understanding of risk diversification because it is crucial to make informed investment decisions. Moreover, an understanding of interest and inflation requires basic numeracy skills. In following academic studies in national and international surveys this operationalization is frequently applied, always adopted to the local context and many times complemented by further questions (Cole et al., 2013; Xu and Zia, 2012; Cole et al., 2011). In an investigation of financial literacy in India and Indonesia, Cole et al. (2013, 2011) slightly adapted the wording of the compound interest and inflation question by Lusardi and Mitchel (2008, 2006)[20]. They added a second, simpler question on the calculation on interest[21] and modified the risk diversification question to the context of agricultural low-income households[22].

This study follows the established survey measurement approach of financial literacyas financial literacy is a control variable and not main variable of interest. A risk diversification question is not included, as the initial formulation by Lusardi and Mitchell requires an understanding of stocks and mutual funds inappropriate in the Sri Lankan setting, and the proposed alternative by Cole et al. (2011) is only applicable in

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[19] Compound interest question: "Suppose you had $100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow: more than $102, exactly $102, less than $102?"
Inflation question: "Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, would you be able to buy more than, exactly the same as, or less than today with the money in this account?"
Risk diversification question: "Do you think that the following statement is true or false? 'Buying a single company stock usually provides a safer return than a stock mutual fund'"

[20] Modified compound interest question: "Suppose you borrowed Rs. 100 at an interest rate of 2% per month. After 3 months, if you had made no repayments, would you owe more than, less than, or exactly Rs. 102?"
Modified inflation question: "If you have Rs. 100 in a savings account earning 1% interest per annum, and prices for goods and services rise 2% over a one-year period, can you buy more, less, or the same number of goods in one year, as you could today?"

[21] "Suppose you need to borrow Rs. 500, to be repaid in one month. Which loan would be more attractive for you: Loan 1, which requires a repayment of Rs. 600 in one month; or Loan 2, which requires a repayment of Rs. 500 plus 15% interest?"

[22] "Is it safer to plant one single crop, or multiple crops?"

an agricultural context. Thus, only the understanding of interest and inflation is measured with the following questions:

Interest:

Suppose you borrowed LKR 10.000 from a money lender and the rate of interest or charge/fee was 2% per month. If you made no repayment for three months, how much would you owe?

- *Less than LKR 10,200*
- *Exactly LRK 10,200*
- *More than LKR 10,200*
- *Don't know*

Suppose you need to borrow LKR 50,000. Two people offer you a loan. One loan requires you pay back LKR 60,000 in one month. The second loan also requires you to pay back LKR 50,000 plus 15 percent interest or charge/fee in one month. Which loan would you prefer?

- *LKR 60,000 in one month*
- *LKR 50,000 + 15% interest*
- *Don't know*

Inflation

Imagine that you saved LKR 10,000 in a saving account, and were earning an interest rate of 1% per year. If prices were increasing at a rate of 2% per year, after one year, would you be able to buy less than, more than, or exactly the same amount as today with the money in this account?

- *Less than today*
- *Exactly as much as today*
- *More than today*
- *Don't know*

Based on the answers provided to these questions the variable 'financial literacy' is defined, totaling up to the number of correct answers to the three questions.

Contract non-performance

Theory and focus group discussion results indicated that the risk of contract non-performance might reduce micro life insurance uptake in the Eastern Province of Sri Lanka. To measure for such an effect, respondents were asked to state their level of trust in a valid claims payout:

How much do you trust in case that if an insured emergency happens to you, you will receive a payout from your insurance company?	*Very much* *Fairly* *Moderately* *A little* *Not at all*

Table 25 summarizes the definition of variables.

Table 25: Definition of variables

| Variable	Description
Membership	Number of a household's memberships in formal organizations.
Generalized trust	Dummy variable equal to 1 if the respondent says that most people can be trusted, 0 otherwise.
Awareness / understanding	Dummy variable equal to 1 if a person turns to someone before making a financial decision or is consulted by others, 0 otherwise.
Imitation	Dummy variable equal to 1 if a peer has insurance coverage, 0 otherwise.
Trust-building	Dummy variable equal to 1 if the respondent observed a claims payout, 0 otherwise.
Informal risk sharing	Dummy variable coded 1 if the respondent received financial support by a friend, relative or neighbor either by borrowing or by a donation and 0 otherwise.
Hindu	Dummy variable equal to 1 if the respondent is Hindu, 0 otherwise.
Muslim	Dummy variable equal to 1 if the respondent is Muslim, 0 otherwise.
Christian	Dummy variable equal to 1 if the respondent is Christian, 0 otherwise.
Buddhist	Dummy variable equal to 1 if the respondent is Buddhist, 0 otherwise.
Interest	Dummy variable equal to 1 if the respondent does not have an interest-bearing savings product or loan, 0 otherwise.
Mutuality	Respondent's agreement with the statement "In your opinion by buying non-vehicle insurance you support others who are in need" on a five-point Likert scale.
Risk aversion	Average constant relative risk aversion.
Young dependency ratio	No. of unmarried children relative to the total number of household members.
Age	Age of respondent.
Income	Annual household income.
Wealth	Assets (phone, TV, radio, stove, refrigerator, electric fan, electric water pump, (non-)motorized vehicle, house, land ownership) owned by the household, index created by factor analysis.
Premium	Perception of the respondent on premium amount paid for insurance
Education	School-leaving qualification.
Financial literacy	Financial literacy is the accumulation of correct answers to three financial literacy assessing questions.
Contract non-performance	Trust of the respondent in receiving a valid claims payout

Source: Author's own

4.4 Sampling Strategy

For the quantitative study the author chose the same research areas as for the qualitative study: the two districts in the east of Sri Lanka: Trincomalee and Batticaloa as located in the following map in Figure 9.

Figure 9: Location of field study
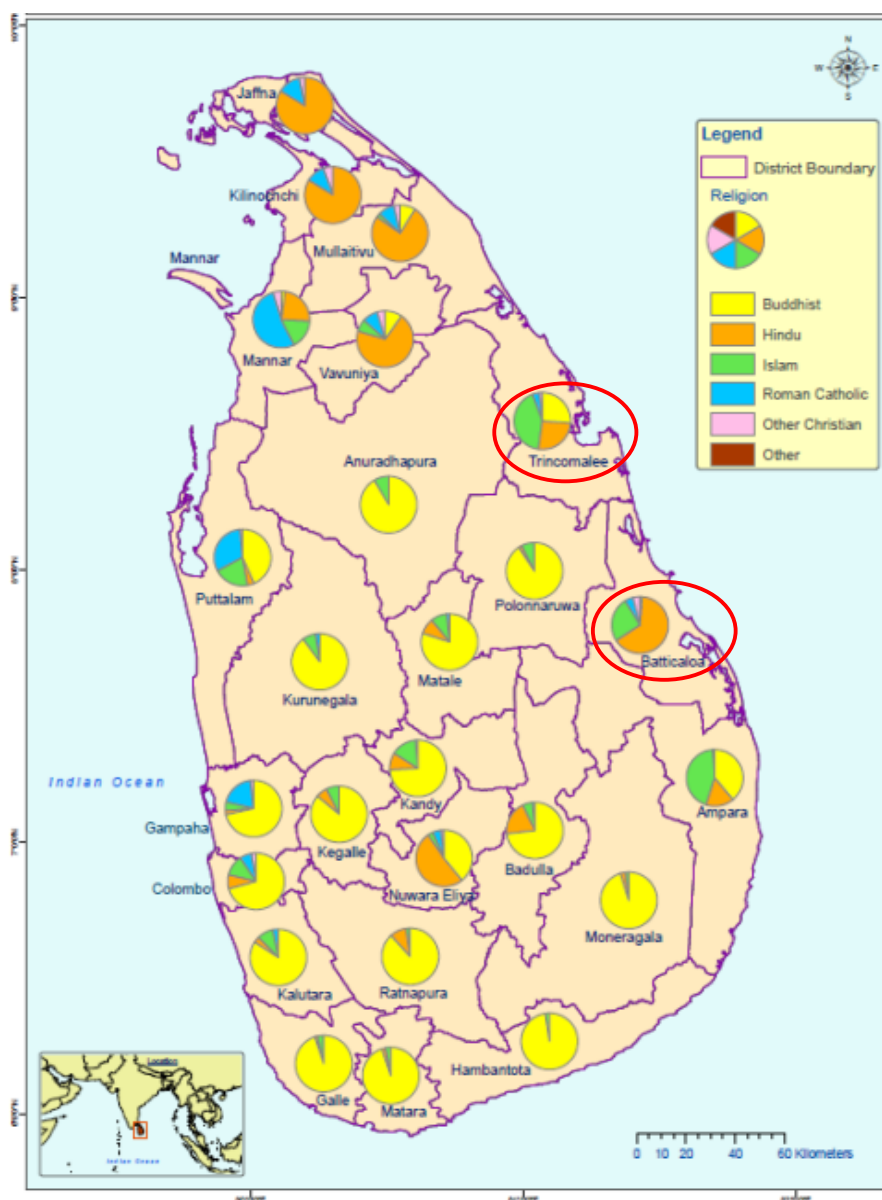
Source: Department of Census and Statistics (2014)

These districts were chosen because of their religious diversity of Hindus, Muslims, Christians, and Buddhists and a supply of micro life insurance, both conventional and *Takaful*. In total, about 169,000 people are living in these two districts per the Department of Census and Statistics (2012). Out of this population about 97,000 people

are Hindu (58 percent), 65,000 Muslim (38 percent), 7,000 Christian (4 percent) and 600 Buddhist (0 percent).

Sampling and data collection was carried out in close cooperation with a local consulting firm and the non-governmental organization Muslim Aid. The latter runs a microfinance institution and offers *Micro Takaful* products in the divisions of: Muthur, Koralai Pattu West and Central, Manmunai Pattu or Araipattai and Manmunai South and Eruvil Pattu in the two districts of Trincomalee, Batticaloa since 2011.

Sample size n is determined by from population size N and margin of error e:

$$n = \frac{N}{1 + N \cdot e^2} = \frac{169{,}800}{1 + 169{,}800 \cdot 0.05^2} = 399$$

This sample size in line with previous studies on micro life insurance demand in Ghana and Sri Lanka with a sample size of 330 participants and 350 (Giesbert et al., 2011; Bendig and Arun, 2011; 2016).

To answer this studies research questions, two parameters or household characteristics are of interest when selecting the sample: (micro life) insurance ownership and religious affiliation. Therefore, the method of stratified sampling is applied with two strata: insurance status and religion. The first stratum is applied disproportional to the total population whereas the second stratum proportionally. At the time of research, less than 7 percent of the Sri Lankan population had micro insurance (Microinsurance Network, 2016). To be able to answer the research questions a minimum and comparable number of policyholders and non-policyholders is necessary which required a disproportional sampling. In total the research aimed at the following sampling distribution in Table 26:

Table 26: Sampling strategy

	Policyholder	Non-Policyholder	Sum	% of Sample	% of Population
Hindu	114	114	228	57,3%	57,2%
Muslim	76	76	152	38%	38,1%
Buddhist	1	1	2	0,5%	0,0%
Catholic	5	5	10	2,5%	2,4%
Other Christian	4	4	8	2%	1,9%
Total	200	200	400	100%	

Source: Author's own

The group of policyholders in proportion to their religious affiliation was selected from the customer base of the microfinance institutions.

Non-policyholders were randomly selected from a list of village inhabitants provided by the village leaders. The choice of selected households from the village leader's list was then cross-checked with the customer database of the microfinance institution. Households insured with the microfinance organization were replaced. To guarantee for an optimal sample size after data preparation and clearing the author decided to oversample and to collect in total information from 450 households.

Participants had the option to decline their participation in the survey, but no household opted to do so. The households did not receive a monetary compensation for the survey itself, but the risk aversion lottery was incentivized.

4.5 Data Collection and Preparation

Interviewers were recruited locally. The team of interviewers consisted of ten students from Sri Lankan universities or colleges currently on semester break in their home villages. Prior to the data collection, the interviewer received a one-day training workshop. This training covered the topics of:

- Research ethics
- Introduction to and explanation of the research study and its objective
- Role of a research assistant

- Introduction to and explanation of the questionnaire, its questions, answers and documentation needs
- Interview process, e.g. presentation of possibilities to get in contact with the respondents, how to introduce yourself and the research

The training further involved exemplary interviews and role-plays on the conduct of the survey questionnaire and the risk aversion lottery including a feedback and discussion round.

Every day before the interviewers started with the survey, they met with their supervisor and the researcher to discuss on the difficulties in collecting data encountered the previous day. In addition, the author checked the filled questionnaires every night and provided feedback on observed inconsistencies in the response patterns or missing data of the previous day's questionnaires. She further checked for the distribution of the payouts in the context of the risk aversion lottery.

The household survey took place between September 2nd and September 20th in 2013. In the area of Muthur the data was collected until September 7th and in the district of Batticaloa from September 10th to 13th. Interviewers visited the different households during daytime. If household members were not present, the household was revisited.

Due to the low literacy level of the participants the survey was interviewer-administered instead of self-administered. Interviewers read out the questions and if applicable the answer categories to the participants. This procedure may increase the risk of social desirability response base (Krosnick and Presser, 2010: 285). However, it seemed the most appropriate manner for collecting data from the target group. Further, research indicates that concentration of the participants lasts longer in interviewer-administered surveys increasing data quality (Krosnick and Presser, 2010: 292). Due to the basic conditions of the survey setting, the data was collected by pen-paper method.

At the beginning of the data collection process the author joined one of the interviewers to get a better understanding of the respondents and to quality control the data collection process. However, in some cases her attendance let to the presence of third persons increasing the risk of response errors. Therefore, and due to further difficulties with the

local authorities she stopped her direct participation. Appendix 7 provides some impressions from the household survey.

As the household survey data was collected by paper-pencil method, the data had to be digitalized and prepared for data analysis using a software. The author scanned all 464 questionnaires for digitalization. The software *Remark office* was then used to extract the data from the digital files and to automatically transform the data into an *Excel*-based data matrix to be later uploaded into Stata. This automated process was chosen to reduce data entry errors, i.e. typing errors. However, the Remark office software can automatically extract ticked boxes but not handwritten numbers or words. Hence, the author manually added the information on: age, number of children and dependents, answers to the questions measuring for financial literacy, name of the insurance companies, number of memberships in formal social networks, income and number of livestock, and the reference information to the interviewee and interviewer. Further, the software returned some errors in reading the files that were manually corrected by adding the missing information from the hardcopy. This full process of data entry turned out to be much more time-consuming than expected. Therefore, the author decided to drop further information that she would have had to enter manually, and either provided little additional information: duration of the interview, size of land owned by the participator answers to open questions on the motivation to attend religious services or to pray. In addition, she did not enter any information that conflicted with data privacy: name of the participant, address of the participant (Döring and Bortz, 2006: 589). In total the raw data included 339 variables.

Before she extracted the data and uploaded it into Stata the author checked the data of the individual questionnaires for overall completeness. One questionnaire was dropped because of too many missing values. In this case, four pages of the questionnaire were missing.

Next, the author uploaded the data into Stata and applied the designed code plan that follows the structure and content of the questionnaire. She named and labeled the variables and applied values to the individual answer categories.

To further to secure the quality of the data she checked the data for plausibility of the given answers, missing data and for outliers (Döring and Bortz, 2016: 589-591). The

plausibility of the data was checked against: (i) consistency of answers, (ii) the range of values, and the (iii) frequency distribution of the variables. To ensure the consistency of an interviewee's answers the author cross-checked that responses conditional on a certain status are only considered if the condition is fulfilled. For example, responses that are related to insurance ownership are replaced by missing value (.n = not applicable) if the person is uninsured but provided an answer by accident. Further details on this process can be found in the respective *Stata* do-file. The minimum and maximum values of the different variables are in the predetermined range and hence it can be assumed that no data entry errors occurred on this. The frequency distribution of the variables is in line with the expectations of the author without any observed anomalies.

An analysis of missing values identified several variables not to be included in the data analysis because the number of missing values is substantial: trust-building (n = 348), premium (n = 226) and contract non-performance (n = 354). The author believes that these errors are caused by the questionnaire order and instructions to the interviewer. Interviewers might have perceived these questions as not to be applicable to the survey participants. For further variables missing values could be replaced by an answer category without affecting the informative value of the variable, i.e. if the household does not use any financial product a missing value for the variable interest can be substituted by the category of no interest payment. Further details are described in the corresponding *Stata* do-file.

At last the author checked for outliers. Using four standard measures for identifying outliers she by deleted three cases. The detailed procedure is documented in the respective *Stata* do-file.

4.6 Sample and Summary Statistics

After eliminating missing values and outliers, the complete sample includes 424 households out of 464 responses. In the sample, there are 212 Muslim households (50 percent), 173 belong to the religion of Hinduism (40 percent), 34 are Christian (8 percent), and only 5 respondents are Buddhist (2 percent). In sum, the sample distribution deviates slightly from the population distribution. Therefore, the author

decided to introduce sampling weights to ensure that the results are at least representative for the areas under study. The details on sampling weights are reported in the corresponding *Stata* do-file.

As presented in Table 27, total 174 households out of 424 currently have a micro insurance policy, whereas 250 are not covered by any kind of insurance. As 159 households in the sample (37.5 percent) have health insurance, it can be inferred that the households are most likely to have health insurance, if they are insured. In comparison, 29.5 percent or 125 of the participants have accident coverage and 25.2 percent or 108 households have life insurance. Only 26 households or 6 percent have vehicle insurance. It can also be concluded that several participants are protected against multiple risk. On average an insured respondent has 2.4 kinds of coverage.

Table 27: Micro insurance coverage of the sample

	No. of households	Percentage
Health	159	37.5%
Accident	125	29.5%
Life	108	25.4%
Vehicle	26	6.0%

Source: Author's own

Out of the 108 life insured households, a credit life product is held by 52 households. In these cases, the borrower is obliged to take up insurance coverage provided by the microfinance institution from where she would like to borrow. These cases of credit-motivated micro life insurance uptake are not the focus of this study in general as this research aims to identify intrinsic demand factors. The total number of voluntary micro life insurance policyholders included in this sample amounts to 56. Further detailing the micro life insurance ownership based on religious denomination, the author finds that out of 56 voluntary micro life insurance households in the data set, 34 are Hindus, 13 are Muslims, 8 are Christians, and only 1 is Buddhist. Overall, both forms of micro life insurance, conventional and *Takaful* are almost equally demanded and multiple policy ownership is possible as the total number of *Takaful* and conventional policies is 60 for 56 households. However, as the sampling strategy did not further distinguish between conventional micro insurance and *Micro Takaful* ownership, Muslims exclusively purchased *Family Micro Takaful* and Christians bought conventional products. In total,

voluntary *Family Micro Takaful* coverage is bought by 13 Muslims, 18 Hindus, and 1 Buddhist. Whereas, voluntary conventional micro life insurance is purchased by 20 Hindus, 7 Christians, and only 1 Buddhist. Credit-linked micro life insurance is bought by 32 Hindus, 14 Muslims, and 6 Christians. Interestingly, the people who have mandatory insurance products are more likely to have two policies than voluntarily insured people. In addition, for credit life products the percentage of *Takaful* products exceeds the share of conventional products. Hindus are more likely to have *Family Micro Takaful* coverage, whereas the uptake of either form of insurance is the same for Muslims. These numbers clearly show how life insurance ownership is impacted by the underlying credit uptake. Figure 10 summarizes the sample distribution dependent on micro life insurance status and religious denomination.

Figure 10: Sample distribution of micro life insurance ownership and religion
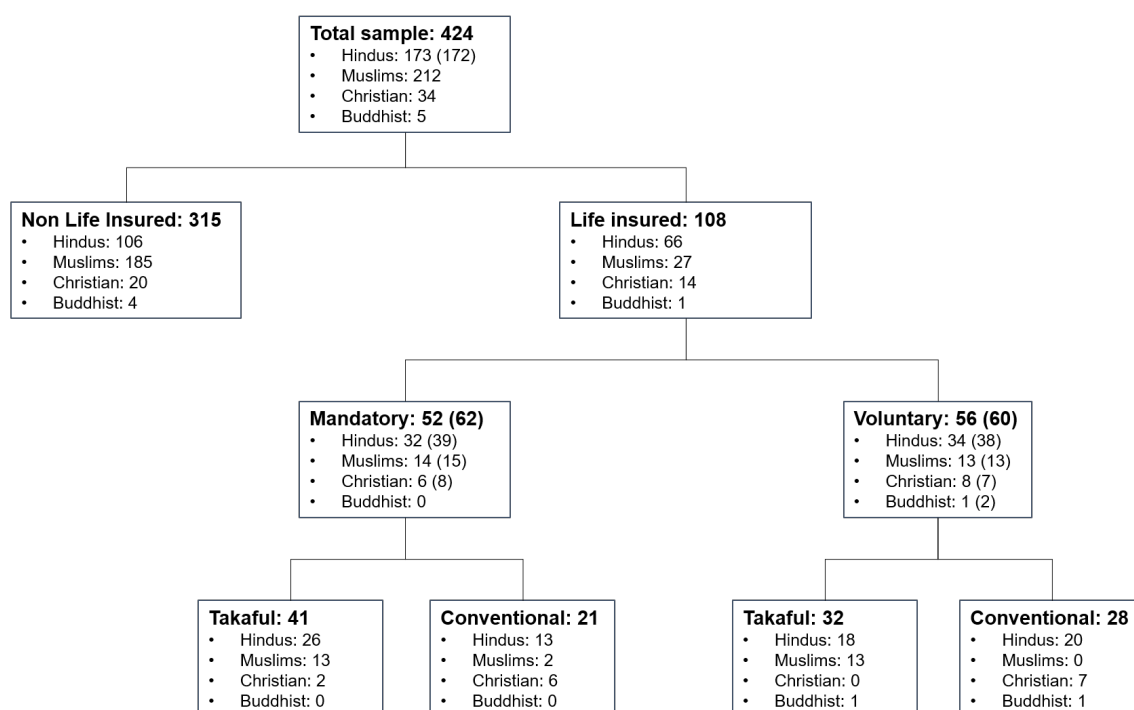
Source: Author's own illustration
Note: In some cases, subtotals presented for mandatory and voluntary micro life insurance coverage are not equal to the sum across the subcategories of *Takaful* and conventional. Totals are presented in brackets. Differences are caused by participants who have both kinds of insurance forms or if data did not allow for determining any insurance form.

Table 28 reports the summary statistics of the explanatory variables for the full sample, including micro life insurance policyholders as well as non-policyholders. As suggested by the young dependency ratio of 0.49, an average respondent's household comprises of two children and two adults, which is in line with the average household size of 3.9 in

the Eastern Province (Department of Census and Statistics, 2014: 5). An average participant is about 40 years old and earns an average annual income of LKR 223,690 (approx. EUR 1,245.63), translating to LKR 18,640 per month (approx. EUR 103.80).

Table 28: Summary statistics – Micro life insured and non-insured households (voluntary take-up)

Variable	Full sample Mean	Std. dev.	Voluntary life insured Mean (2)	Std. dev.	Non-voluntary life insured Mean (3)	Std. dev	P-Value of t-test (2) – (3)
Socio-economic characteristics							
Income	225.4021	163.6685	305.8832	232.4072	213.1549	147.1103	0.0001***
Wealth	0.0288	1.6354	0.7372	1.6072	-0.0790	1.6147	0.0005***
Ratio of young dependents	0.4943	0.2652	0.744	0.2221	.4974	0.2713	0.5467
Age	40.4859	10.4849	37.1429	10.3123	40.9946	11.0056	0.0143**
Education	2.0735	1.0619	2.2407	1.1645	2.0489	1.0455	0.2155
Financial literacy	1.2429	0.9276	1.1607	0.8692	1.2554	0.9367	0.4772
Social capital							
Membership	0.8679	0.9804	1.1071	1.1549	0.8315	0.9476	0.0499**
Generalized trust	0.5354	0.4993	0.5000	0.5045	0.5407	0.4990	0.5699
Awareness / understanding	0.7217	0.4489	0.6607	0.4778	0.7310	0.4441	0.2755
Imitation	0.3208	0.4673	0.6071	0.4928	0.2772	0.4482	0.0000***
Trust-building	0.1262	0.3325	0.2364	0.4288	0.1098	0.3128	0.0082***
Informal risk sharing	0.6887	0.4636	0.4821	0.5042	0.7201	0.4496	0.0003***
Religion							
Interest	0.5425	0.4988	0.7500	0.4369	0.5109	0.5006	0.0008***
Mutuality	2.3821	1.2586	3.2500	1.3108	2.2500	1.1983	0.0000***
Risk aversion – Small losses	1.3188	1.0429	1.3671	1.1159	1.3115	1.0327	0.7103
Risk aversion – High losses	1.6176	1.1080	1.6204	1.1170	1.6171	1.1081	0.9834
Observations	424		56		368		

Source: Author's own calculation; Note: *** p<0.01, ** p<0.05, * p<0.1

According to the National Household Income and Expenditure Survey from 2012/2013, this accounts to about two thirds of the mean monetary household income in the Eastern Province (LKR 27,477 / month or LKR 329,724 annually) and is slightly below the median annual income (Department of Census and Statistics, 2015). As displayed in Table 29, the surveyed households pertain to the lower income groups, following the national classification of income groups. The households with a mean monthly income of about LKR 21,273 (approx. EUR 118.46) belong to the poorest 40 percent and are low to mid income groups. For comparison, the lowest income group (20 percent of the cumulative population) receives a mean household monthly income of LKR 10,245 (approx. EUR 57.05) (Department of Census and Statistics, 2014: 5). The below average income situation of the survey participants is also confirmed by a slightly negative asset endowment index.

Table 29: Breakdown of household income 2012/13

	Household income quintile				
2012/2013	**Lowest**	**Low-mid**	**Middle**	**Mid-upper**	**Upper**
	1st quintile	2nd quintile	3rd quintile	4th quintile	5th quintile
Mean household income per month (LKR)	10,245	21,273	30,944	45,569	121,368
Mean household income per month (approx. EUR)	57.05	118.26	172.31	253.75	675.84
Share of income (%)	4.5%	9.3%	.13.5%	19.9%	52.9%
Cumulative share of income (%)	4.5%	13.7%	27.2%	47.1%	100%

Source: Adapted from Department of Census and Statistics (2014: 5)

The average respondent's level of financial literacy is rather low. Out of three questions, only average 1.24 correct answers are given by the participants. Mean values of the characteristics related to social capital show that the average respondent belongs to 0.87 formal organizations and about half of the respondents from the sample believe that "most people can be trusted" (54 percent), whereas the others opt for the statement that "generally speaking you cannot be too careful in dealing with people" (46 percent). Almost 72 percent of the sampled households have exchanged information with their peers on insurance, meaning that they have either consulted their friends, relatives or neighbors for advice or given advice to them. The analysis reveals that 32 percent of the

respondents know someone who has purchased insurance. Moreover, it is observed that 69 percent of the respondents usually borrow from their friends, relatives or neighbor if they are facing an unexpected event which affects their financial situation.

Concerning the demand factor of religion and potential explanations for an effect of religious denomination on micro life insurance consumption, the descriptive statistics show that more than half of the respondents (54 percent) currently pay interest on their borrowings or receive interest payments on their savings. On average, respondents do not acknowledge the mutual character of insurance because they do not perceive insurance as a form of institutionalized solidarity. Instead, they are more likely to disagree with the statement that by purchasing insurance "others in need are supported" (the mean value of a 5 point Likert is 2.35, whereby the value of 2 correspondents to "disagree" and the value 3 to "neither agree nor disagree"). On average, the respondents are severely risk averse.

When directly questioned about their lack of insurance coverage, most of the non-policyholders state that they cannot afford the regular insurance premium payment (127 responses). Religious reasons (93 responses) are ranked second, followed by a lack of information about insurance (36 responses). Furthermore, the survey participants do not trust in the performance of the insurers. They believe that processes take long or insurers do not settle claims (19 responses).

4.7 Model and Estimation Strategy

To determine the effect of social capital and religion on the consumption of micro life insurance the following binary probit model is estimated:

$$micro\ life_i = \alpha + \beta_1 \cdot social\ capital_i + \varphi_2 \cdot religion_i + \mu \cdot X_i + \epsilon_i$$

where 'micro life' is an indicator for voluntary micro life insurance coverage of respondent 'i'. 'social capital' is a vector of variables hypothesized to affect micro life insurance uptake: generalized trust, membership in formal social networks, awareness/ understanding, imitation, trust-building and informal risk sharing. 'religion' is a vector of variables explaining for an effect of religion on micro life insurance consumption: interest, mutuality, risk aversion. The vector of control variables X includes: ratio of

young dependents, age, income, wealth, education, financial literacy. ε is the independent error term.

Since the model makes use of several explanatory variables, multicollinearity might be an issue. To check for multicollinearity among the independent variables the author calculated pairwise correlation coefficients. Regarding the two concepts of social capital and religion, the correlation between the various levels of social capital as well as the relationship are of special interest. As reported in Table 30, the correlation between the various dimensions of social capital are weak for most of the variables. One exception is the modest linear relationship between a peers' insurance uptake and peer's claims experience (r = 0.5304). This correlation is explainable by the fact that a peers' claims experiences is dependent on her decision to uptake insurance. Therefore, the variable 'trust building' which is measured by a peer's positive claims experiences is excluded in the final model and the 'trust-building' hypothesis is not further considered.

Table 30: Correlation coefficients (Pearson's r) and dimensions of social capital

	Membership	Generalized Trust	Awareness	Imitation	Trust-building	Informal Risk Sharing
Membership	1.0					
Generalized Trust	-0.1363	1.0				
Awareness	0.1490	-0.1070	1.0			
Imitation	0.0924	-0.1340	0.0889	1.0		
Trust building	0.1033	-0.1081	0.1242	0.5304	1.0	
Informal risk sharing	-0.0609	0.1649	-0.0660	-0.1824	-0.0671	1.0

Source: Author's own

Further variables with a modest correlation are education and financial literacy (r = 0.3846), peers' insurance uptake and the principle of mutuality (r = 0.3922), income and wealth (r = 0.4410). Because of the correlation between income and wealth, the author decided to include wealth but not income in the model which is in line with the theoretical statements of expected utility theory and previous empirical studies (i.e. Bendig and Arun, 2016; Giesbert et al., 2011). The author further decided to include the more specific variable of financial literacy instead of education. Even though a modest

correlation exists between the two variables of peer's insurance uptake ('imitation effect') and the principle of solidarity both variables are part of the final model. In contrast to the other described correlations, the relationship is not obvious. In addition, multicollinearity was checked for by calculating variance inflation factors (Wooldridge, 2009: 99) that are reported in Appendix 7. The variance inflation factor (VIF) shows the extent to which the variance of the coefficient estimate is inflated by multicollinearity. VIFs of the explanatory variables range from 1.05 to 1.70, indicating that multicollinearity is not an issue. Literature suggests that multicollinearity is a problem if VIFs are larger than 10 (Williams, 2015). Results

To account for the requirements of the remaining eight hypotheses on sample composition and dependent variable, and considering the actual sample after data collection, the author decided to test for the effects of social capital and religion by segregated models. While sample compositions and dependent variables differ across these models, the set of explanatory and control variables is kept constant across all models to allow for an overall conclusion. For each analysis, group comparison tests are conducted first, followed by probit regressions. Group comparison tests aim to understand the data set and identify strong correlations with the main variables of interest. Afterwards, multivariate probit regressions allow simultaneous estimation of potential effects. For the interpretation of estimation results, average marginal effects are presented in the following. Firstly, this section reports the results explaining the effects of social capital on the demand for micro life insurance (Section 4.8.1). Secondly, it shares the findings on the role of religion on micro life insurance demand (Section 4.8.2).

4.7.1   Social Capital and Micro Life Insurance Demand

This section tests the remaining five hypotheses on the effects of social capital on micro life insurance demand. Based on previous theoretical and empirical research, the author identified two forms and four functions through which social capital might affect micro life insurance consumption among low-income households in the Eastern Province of Sri Lanka including: (i) membership in formal social networks, (ii) generalized trust, (iii) creation of awareness and understanding, (iv) imitation of consumption behavior, (v) trust-building, and (vi) informal risk sharing. As indicated in the previous section,

the author decided not to test the 'trust-building' hypothesis to avoid multicollinearity problems. Correlations between the variables measuring the concepts of trust-building and imitation are substantial. On the one hand, the author expects to observe a positive influence of a household's membership in formal social networks and generalized trust, as well as of the creation of awareness and understanding and the imitation effect. On the other hand, the author projects a negative effect of informal risk sharing strategies.

4.7.1.1 Descriptive Results on Social Capital

This section discusses the summary statistics before putting forward the multivariate probit analyses which test the five hypotheses related to social capital. In the following, Table 28 on page 171 reports a summary of the statistics where column (1) reports mean values and standard deviation of the individual characteristics for the entire sample. Column (2) of the table presents mean values and standard deviation for the sub-sample of voluntary micro life insurance policyholders and Column (3) reports mean values and standard deviation for the sub-sample of non-policyholders, including households with credit-life insurance. Lastly, Column (4) shows p-values of the Wald Test for the differences between policyholders and non-policyholders of voluntary micro life insurance.

In line with the 'membership hypothesis', households with voluntary micro life insurance are significantly more likely to belong to a formal social network on average, compared to uninsured households. The results also support the 'imitation effect hypothesis'. More than half of the micro life insured households know someone who has purchased insurance; a substantially larger share compared to the uninsured households. The descriptive statistics also indicate a negative relationship between informal risk sharing and micro life insurance consumption. Uninsured low-income households are markedly more likely to borrow from their friends, relatives or neighbors in times of need. The descriptive statistics neither provide strong evidence for an effect of generalized trust on micro life insurance demand nor for an awareness creation effect by peers as the differences between policyholders and non-policyholders are not significant. Interestingly, the two variables of awareness and imitation show an opposite effect which further emphasizes their mutual independency.

The young dependency ratio indicates that an average life insurance policyholder has more children than a non-policyholder and is four years younger compared to a non-policyholder. Both results are comparable to the numbers reported by Bendig and Arun (2016). In their study on micro insurance demand in Sri Lanka, the policyholders (life and non-life) are two years younger than the uninsured and usually have a slightly larger family (p. 212). In the present study, an average household with micro life insurance is significantly wealthier than the uninsured household. This result is also in line with the previous results from Sri Lanka (Bendig and Arun, 2016: 212) and further supports the influence of affordability. An insured household earns an annual income of LKR 306,000 (approx. EUR 1,703.98). A policyholder is slightly more likely to have a marginally higher educational degree, though still left school after Grade 10. Interestingly though, the policyholders are less financially literate than the non-policyholders. This result is striking because the policyholders more frequently use conventional financial products, hence are expected to be more familiar with basic financial concepts. However, according to t-tests, the differences in education and financial literacy between insured and uninsured respondents do not seem to be significant. On the contrary, the principle of mutuality seems to significantly support the decision to buy insurance. On a five point Likert-scale, the mean score of individuals that agree with the statement "by buying non-vehicle insurance, you support others who are in need" is higher for the insured than the uninsured. The insured respondents are slightly less risk averse in smaller and larger losses, as per the t-test results.

To sum up, the descriptive statistics indicate three channels through which social capital might impact micro life insurance consumption among low-income households in the Eastern Province of Sri Lanka: membership in formal social networks, imitation of peer consumption behavior, and informal risk sharing. Contrary to the hypothesis, generalized trust does not seem to determine micro life insurance consumption. Also, there is no descriptive evidence for a creation of awareness of or understanding about insurance by peers. Other relevant demand factors could be age, wealth, the principle of mutuality, and the usage of conventional, interest-bearing, microfinance products. The following multivariate analysis further relates these findings to each other and checks for interdependencies between the various independent variables.

4.7.1.2   Regression Results on Social Capital

To estimate the effects of social capital on micro life insurance demand, a probit model is run. This analysis follows the general estimation strategy outlined in Section 4.7, where the dependent variable 'micro life' is assigned a value of 'one' if the household is currently covered by a voluntary micro life insurance. The sample includes the full data set of 424 households. In the entire sample, only 56 households have voluntary micro life insurance, whereas 368 households are not covered by voluntary micro life insurance. The following Table 31 presents the average marginal effects[23] of the probit model in the specified equation.

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[23] Average marginal effect presents the outcome of a one-unit change for each of the explanatory variable on the probability of owning a micro life insurance policy.

Table 31: Probit model results of voluntary micro life insurance uptake

Variable	ME Control variables	ME Social Capital	ME Full Model
Socio-economic characteristics			
Wealth	0.0368***		0.0355***
	(0.0122)		(0.0117)
Young dependency ratio	0.00317		0.00663
	(0.0707)		(0.0740)
Age	-0.00226		-0.000440
	(0.00184)		(0.00172)
Financial literacy	-0.0159		-0.00936
	(0.0211)		(0.0203)
Social capital			
Membership		0.0545***	0.0302
		(0.0207)	(0.0195)
Generalized trust		0.0484	0.0493
		(0.0427)	(0.0405)
Awareness/ Understanding		-0.0914**	-0.146***
		(0.0448)	(0.0447)
Imitation		0.203***	0.0997**
		(0.0420)	(0.0416)
Informal risk sharing		-0.116***	-0.0714*
		(0.0430)	(0.0390)
Religion			
Interest	0.109**		0.113**
	(0.0442)		(0.0447)
Mutuality	0.0708***		0.0655***
	(0.0148)		(0.0165)
Risk aversion – Small losses	0.00453		0.00408
	(0.0189)		(0.0176)
Risk aversion – Large losses	-0.0172		-0.0183
	(0.0188)		(0.0181)
Observations	306	306	306

Source: Author's own calculation
Note: Standard errors in parentheses: *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Presented above in Table 31, the results show that social capital plays an important role in the decisions to purchase life insurance among low-income households. However, the

effects are mixed. Insurance consumption by peers serves as a reference for others' uptake ('imitation effect') and supports micro life insurance uptake, whereas an information exchange with peers on insurance ('creation of awareness and understanding') and informal risk sharing reduces the probability to insure. In contrast to the hypotheses, the form of social capital, measured as membership in formal social networks and generalized trust, does not influence micro life insurance uptake. It is the actions facilitated by social networks that matter for micro life insurance uptake, not their institutional character. A result further supported by the very correlations between these variables. The counterintuitive negative awareness effect might be a reflection of negative word-of-mouth existing in the area under study, as indicated during the focus group discussions. In line with the predictions of this study, the data provide evidence for a positive imitation effect. The households that know of a friend, relative or neighbor who has life insurance, are significantly more likely to be insured themselves. However, these results should be interpreted with caution as the direction of causality is not clear. It could be the case that the insured respondent recommended insurance to her friends or vice versa. Regression results also confirm the 'informal risk sharing' hypothesis. The households that informally support each other in times of need are significantly less likely to be life insured.

Used as control variables in this study, both age and young dependency ratio which measure a life cycle effect and a bequest motive respectively show the expected sign. As reported in previous studies, age is negatively associated with life insurance ownership and the number of young dependents in relation to the total household size has a positive relationship (Giesbert et al., 2011). However, this study cannot provide conclusive evidence for a life cycle effect as both correlations are statistically insignificant. This result is also in accordance with the previous findings from Sri Lanka (Bendig and Arun, 2016). Wealthier households are significantly more likely to buy micro life insurance which is consistent with previous theoretical and empirical literature (Bendig and Arun, 2016; Giesbert et al., 2011). Interestingly, the respondents' level of financial literacy has a negative coefficient, in contrast to previous studies on agriculture micro insurance demand which observed a positive relationship. In this sample, it might be the case that the more financial literate households are able to assess the benefits of the offered voluntary micro life insurance products, reaching the

conclusion that they are of minor value to them. In addition, the unexpected outcome might be caused by the applied measurement approach of financial literacy which is not specific to insurance. Instead, it covers the basic principles of interest and inflation. However, the reasons for this unexpected outcome are not further investigated as the effect is not significant.

The usage of conventional, interest-bearing microfinance products strongly supports micro life insurance uptake. The households that either pay interest for their loans or receive interest on their savings are more likely to have a life insurance policy. This effect might be related to the rejection of interest payments in Islam, but it may also indicate an ability to access financial services, a better understanding of financial products, or successful cross-selling by financial institutions. The following section, which discusses the role of religion in supporting or hindering micro life insurance demand, further elaborates this finding. Another important and novel insight brought forward by the empirical study reveals that the idea of mutuality significantly affects the decision to purchase life insurance. According to the results, people who perceive life insurance as a mean to support others in need have a higher preference for life insurance consumption. How this results relates to a person's religion is discussed in the next section. Against expectations, the level of risk aversion does not significantly influence micro life insurance consumption. According to the underlying expected utility model of life insurance demand, risk aversion should positively influence consumption. Nevertheless, the results of the previous studies are not conclusive on the relationship either. Bendig and Arun (2016) observed a positive effect in Sri Lanka, whereas Giesbert et al. (2011) found a negative relationship. However, their results are not fully comparable to this research because they measured risk aversion based on the self-reports of the survey participants.

4.7.2 Religion and Micro Life Insurance Demand

This section investigates if and how the religion of Islam in comparison to Hinduism impacts the demand for micro life insurance in the Eastern Province of Sri Lanka. As discussed earlier, literature review results suggest three channels through which the religion of Islam might affect micro life insurance consumption, including (i) prohibition of interest, (ii) mutuality, and (iii) risk aversion. Regarding these

hypotheses, it is necessary to differentiate between two forms of insurance: *Takaful* and conventional insurance. *Takaful*, as explained before, is a form of insurance that specifically addresses the objections of Islamic scholars against conventional insurance. It is a mutual form of insurance which avoids the involvement of interest. Life insurance is termed *Family Takaful* and non-life insurance *General Takaful* respectively. In the area under study, the insurer Amana Takaful offers *Family Micro Takaful* products that cover up to five family members against death, permanent disability, accident, hospital cash and medication in hospital as described in Section 1.6.3. In contrast, conventional insurance refers to the common retail insurance practices in industrialized countries. In this study, conventional micro life insurance and its Sharia-compliant equivalent, *Family Micro Takaful,* are considered. Due to the sample requirements for the hypotheses and the actual data set, the author decided to test the three hypotheses by four separate analyses, using two different probit models and three varying samples. This approach is further explained in the following and Table 32 provides an overview of the various independent variables and samples used.

To test the interest hypothesis[24], the sample should ideally comprise of conventional, non-credit linked micro life insurance policyholders and non-policyholders of Islamic belief. Interestingly, as the initial sampling strategy did not further stratify the cluster of micro life insurance policyholders, the group of Muslims insured with conventional, non-credit life products turn out to be non-existent. Consequently, the author decided to consider the policyholders of voluntary and credit life products in her analysis and adapted her estimation strategy. This sample consists of 108 households, whereby 27 belong to the religion of Islam, 66 to Hinduism, 14 to Christianity, and 1 to Buddhism. Still only 13 Muslims are found to be covered by conventional micro life insurance, leading to a very small sample size that does not allow a comprehensive regression analysis. Instead the author argues that if the interest variable measures a religiously motivated rejection of interest-bearing products by Muslims, an effect of this variable

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[24] The 'interest hypothesis' states that "the involvement of *riba* in conventional insurance negatively affects conventional micro life insurance uptake among Muslims.

should not be observed on *Takaful* uptake by Muslims or Hindus as well as on overall insurance demand by Hindus. Consequently, the author used two analyses: the first analysis identifies the demand factors for (i) *Family Micro Takaful* and the second analysis investigates the (ii) demand behavior among Hindus.

The sample used to analyze (i) *Family Micro Takaful* uptake consists of 73 covered households and 351 non-*Family Micro Takaful* insured households, whereby the dependent variable *i* is 'one' if the household has a valid *Family Micro Takaful* policy, credit-linked or noncredit-linked coverage. For the second analysis (ii), the sample consists of 66 micro life insured and 106 non-life insured Hindus. The dependent variable *i* includes Hindus with micro life insurance policies. The latter includes voluntary and credit life products as well as conventional micro life insurance and *Family Micro Takaful* coverage.

In a next step, using a comparison of the consumption patterns of Muslims and Hindus, it is analyzed if mutuality or risk aversion explains a religiously motivated difference in micro life insurance consumption. The focus on these two religious groups is caused by the small number of Christians and Buddhists in the data set. Separate probit models are estimated using the equation introduced in Section 4.7) for each religion. In these analyses, the dependent variable *i* is one if the respondent's household has voluntary or credit life insurance coverage, either conventional or *Takaful*. The first sample (iii) is restricted to 27 Muslim policyholders and 185 Muslim non-policyholders, leading to 212 households in total. The second sample (iv) comprises of 66 Hindus with micro life insurance and 106 Hindus without micro life insurance, adding up to172 Hindus in total.

Table 32: Overview of independent variables and samples

Analysis	Hypothesis	Independent Variable	Sample
(i)	Interest	*Family Micro Takaful* (voluntary and credit life)	Muslims, Hindus, Christian, Buddhist
(ii)	Interest	*Family Micro Takaful* and Conventional (voluntary and credit life)	Hindus
(iii)	Mutuality/Risk aversion	*Family Micro Takaful* and Conventional (voluntary and credit life)	Muslims
(iv)	Mutuality/Risk aversion	*Family Micro Takaful* and Conventional (voluntary and credit life)	Hindus

Source: Author's own

4.7.2.1 Descriptive Results on Religion

Interest and micro life insurance demand

Table 33 presents mean values of households with and without *Family Micro Takaful* as well as the results from a Wald-test. On average, a conventional microcredit or microsavings product is used by 73 percent of the *Family Micro Takaful* members, compared to 50 percent of the non-members. The difference of 23 percentage points is significant at the one percent level. This result contrasts with the author's expectations. She assumed that the demand for *Takaful* products should not be related to the usage of interest-bearing credits or savings, if the religion of Islam causes Muslims to reject conventional financial products. The observed significant effects could also indicate that the variable 'interest' might not measure the religiously motivated rejection of interest payments, but rather a household's access to and usage of financial products or its creditworthiness.

Table 33: Summary statistics – Demand of *Family Micro Takaful*

Variable	*Family Takaful* insured mean	Non *Family Takaful* insured mean	P-value of t-test
	(1)	**(2)**	**(1) – (2)**
Socio-economic characteristics			
Young dependency ratio	0.4824	0.4968	0.6736
Age	35.8630	41.4473	0.0001***
Wealth	0.9650	-0.1659	0.0000***
Financial literacy	1.3562	1.2194	0.2521
Social capital			
Membership	1.1370	0.8112	0.0098***
Generalized trust	0.4795	0.5470	0.2935
Awareness/ Understanding	0.6712	0.7322	0.2914
Imitation	0.5205	0.2792	0.0001***
Informal risk sharing	0.6164	0.7037	0.1436
Religion			
Interest	0.7260	0.5043	0.0005***
Mutuality	3.1918	2.2137	0.0000***
Risk aversion – Small losses	1.3448	1.3134	0.8155
Risk aversion – High losses	1.6632	1.6081	0.6993
Observations	73	351	424

Source: Author's own calculation
Note: *** p<0.01, ** p<0.05, * p<0.1

Turning to the second analysis, Columns (1) to (4) of Table 34 present summary statistics and t-test results for the sub-sample of Hindus with or without micro life insurance either in the form of conventional insurance products of *Family Takaful*. An interest-bearing credit or savings product is held by 74 percent of Hindus with life insurance, compared to 68 percent of those without life insurance. Based on the Wald-test results, the difference of 6 percentage points is insignificant. This finding is consistent with the author's hypothesis that the Hindu participants' insurance consumption is independent of their usage of interest-bearing financial services.

Table 34: Summary statistics – Differences in religion and insurance ownership

Variable	Hindu	Life insured Hindus	Not life insured Hindus	P-value of t-test	Muslim	Life insured Muslims	Not life insured Muslims	P-value of t-test	P-value of t-test	P-value of t-test
	(1)	(2)	(3)	(2) – (3)	(5)	(6)	(7)	(1) – (5)	(6) – (7)	(2) – (6)
Socio-economic characteristics										
Young dependency ratio	0.4415	0.4689	0.4254	0.1954	0.5341	0.5204	0.5402	0.0003***	0.7265	0.2767
Age	37.2486	35.8939	38.1604	0.1551	43.0613	38.8889	43.68	0.0000***	0.0342**	0.1600
Wealth	0.2994	0.9788	-0.1333	0.0000***	-0.2919	0.5822	-0.4195	0.0002***	0.0016***	0.2199
Financial literacy	1.2139	1.1970	1.2170	0.8999	1.2877	1.4815	1.2595	0.4442	0.2071	0.1683
Social capital										
Membership	1.0173	1.0910	0.9811	0.4841	0.70258	0.8148	0.6865	0.0000***	0.4894	0.2602
Generalized trust	0.4798	0.4697	0.4811	0.8847	0.6178	0.4815	0.6378	0.0000	0.1194	0.9188
Awareness	0.6763	0.7424	0.6321	0.1347	0.7453	0.5926	0.7676	0.7358	0.0516*	0.1561
Imitation	0.5087	0.6818	0.4057	0.0004***	0.1321	0.3704	0.0973	0.8924	0.0001***	0.0052***
Informal risk sharing	0.5491	0.5758	0.5377	0.6282	0.8396	0.7037	0.8595	0.0011***	0.0008***	0.2550
Religion										
Interest	0.6994	0.7424	0.6792	0.3806	0.3821	0.7407	0.3297	0.0078***	0.0395**	0.9867
Mutuality	2.8728	3.4394	2.5189	0.0000***	1.8113	2.4074	1.7243	0.1294	0.0000***	0.0002***
Risk aversion – Small losses	1.3651	1.5044	1.2824	0.1793	1.3347	1.0523	1.3758	0.0000***	0.1417	0.0652*
Risk aversion – High losses	1.6083	1.6476	1.5772	0.6933	1.6205	1.7385	1.6033	0.0000***	0.5578	0.7362
Observations	173	66	106	172	212	27	185	385	212	93

Source: Author's own calculation
Note: *** p<0.01, ** p<0.05, * p<0.1

As the results of these two comparisons are contradictory, the author decided to further investigate the sub-sample of Muslims who are more likely to be covered by *Family Micro Takaful*. The results are presented in Columns (5) to (7). Interestingly, interest-bearing products are used by 33 percent of Muslim non-policyholders and 74 percent of Muslim policyholders. In addition, the difference of 35 percentage points between Hindu and Muslim non-policyholders in the usage of conventional banking services is significant at the one percent level. Overall lower acceptance and usage of interest-bearing financial services among Muslims might indicate that uptake of conventional micro life insurance is hindered by the interest prohibition of Islam. However, the author refrains from further testing these sub-sample results by a regression analysis because of the small sample size, comprising of only 27 Muslim policyholders.

In sum, the descriptive statistics on the 'interest' variable are mixed. The data on *Family Micro Takaful* consumption indicates a potential measurement failure of the theoretical concept of interest. Whereas, the results on insurance uptake by Hindus supports the initial interest hypothesis. The results from regression analyses may provide additional insights.

Mutuality and micro life insurance demand

The descriptive results of the characteristics of Muslims and Hindus are presented in Table 34. Using a Wald-test, the author finds that Muslim micro life insurance policyholders are significantly more likely to perceive insurance as an institutionalized form of mutuality, compared to non-policyholders. Although, most households state that they disagree with the statement that by "buying non-vehicle insurance you support others who are in need". Interestingly and in contradiction to the hypotheses, Hindus are more likely to agree with the above-cited statement than Muslims and the difference between insured Muslims and Hindus is significant. In general, mutuality seems to be a factor determining micro life insurance uptake by Hindus as well. The differences in mutuality between Hindu policyholders and non-policyholders are significant at the one percent level. Overall, the mutual characteristic of micro life insurance seems to support its uptake with a varying degree depending on a person's religion. However, in general mutuality seems not to be a differentiating characteristic of Muslims and Hindus.

Risk aversion and micro life insurance demand

Mean values and t-test results presented in Table 34 show that the degrees of risk aversion of Muslims and Hindus are similar. Both groups can be classified as severely risk averse. However, the results on risk aversion vary between the two loss sizes investigated in this study. Hindus are slightly more risk averse to smaller losses and Muslims to larger losses. However, the differences are not significant. Comparing the characteristics of the policyholders and non-policyholders from each religious group separately, the Wald-test does not identify risk aversion as an explanatory factor for insurance coverage. The differences between policyholders and non-policyholder are insignificant for both groups. In sum, the summary statistics do not provide a rationale for a religiously motivated effect of risk aversion on micro life insurance consumption. In fact, there is no indication of any effect of risk aversion on insurance uptake among low-income households, neither Muslims nor Hindus.

Referring back to possible differences in generalized trust among various religious groups as discussed in Section 2.6.2, it can be concluded from the descriptives that in the area under study there is no such relationship.

4.7.2.2 Regression Results on Religion

Interest and micro life insurance demand

Building upon the previous results, demand drivers and barriers for the uptake of (i) *Family Micro Takaful* are estimated using the probit model equation introduced in Section 4.7 (p. 161). Table 35 reports the average marginal effects. The results show that the 'interest' variable significantly increases the probability of taking up *Family Micro Takaful* at the 10 percent level, a result in line with the descriptive statistics which do not support the author's hypothesis.

The second probit model (ii) estimates the factors that determine the demand for micro life insurance, conventional or *Takaful*, among Hindus. Table 35 presents average marginal effects. Again, the usage of conventional microfinance products significantly supports micro life insurance consumption.

To sum up the descriptive statistics and regression results, the data set weakly supports a religiously motivated effect of interest on micro life insurance consumption. However,

the analysis is limited in its estimation approach and the results indicate that the measurement of the 'interest' construct might not be without ambiguity.

Table 35: Probit model results of *Family Micro Takaful*, and micro life insurance uptake of Hindus and Muslims

Variable	Marg. Effects *Family Takaful*	Marg. Effects Hindus	Marg. Effects Muslims
Socio-economic characteristics			
Young dependency ratio	0.0398	0.260	-0.0120
	(0.0845)	(0.185)	(0.0717)
Age	-0.00499***	-0.00453	-0.00281*
	(0.00185)	(0.00351)	(0.00167)
Wealth	0.0659***	0.0839***	0.0150
	(0.0132)	(0.0200)	(0.0134)
Financial literacy	(0.0217)	-0.0119	0.0266
	0.0228	(0.0389)	(0.0218)
Social capital			
Membership	0.0125	0.0239	0.0137
	(0.0198)	(0.0347)	(0.0201)
Generalized trust	0.0343	0.111	-0.0188
	(0.0424)	(0.0684)	(0.0391)
Awareness/ Understanding	-0.139***	-0.114	-0.129***
	(0.0434)	(0.0824)	(0.0392)
Imitation	0.0401	0.160**	0.124***
	(0.0431)	(0.0733)	(0.0451)
Informal risk sharing	-0.00860	0.0779	-0.116***
	(0.0446)	(0.0755)	(0.0429)
Religion			
Interest	0.0830*	0.134*	0.119***
	(0.0456)	(0.0785)	(0.0425)
Mutuality	0.0734***	0.0988***	0.0383**
	(0.0164)	(0.0313)	(0.0176)
Risk aversion – Small losses	-0.0107	0.0215	-0.0398**
	(0.0191)	(0.0333)	(0.0193)
Risk aversion – Large losses	-0.0179	-0.0338	0.0172
	(0.0186)	(0.0334)	(0.0151)
Observations	424	183	226

Source: Own calculation
Note: Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Mutuality and micro life insurance demand

Average marginal effects of the probit analysis are presented in Table 35. The estimation of the demand factors for micro life insurance among (iii) Muslims and (iv) Hindus show that the underlying 'mutuality' principle of insurance significantly supports the demand for both religious groups. This result contradicts the developed 'mutuality' hypothesis which assumes the solidarity character of insurance to be a demand driver related only to the religion of Islam and its favor for mutual schemes. Considering effect size and level of significance, the mutuality principle is of even higher importance for Hindus compared to Muslims. The effect size for Hindus is almost three times larger and results are significant at the one percent level, compared to a five percent level for Muslims. Overall, evidence for the 'mutuality' hypothesis is weak, although the results establish the mutuality character of insurance as a demand factor. Nonetheless, the results do not provide strong evidence that this consumption motivation is related to the religion of the consumer. It is a demand factor which is associated with both of the religious groups. The 'mutuality' hypothesis is rejected as mutuality does not seem to be a differentiating factor for the insurance purchase decision of Muslims and Hindus. As in the indicated in Section 2.6., mutuality might rather measure for social capital and its dimension of collection action instead of religion.

Risk aversion and micro life insurance demand

According to the probit results and reported average marginal effects in Table 35, risk aversion does significantly determine micro life insurance consumption for (iv) Hindus. For (iii) Muslims, a partial negative effect of risk aversion is observed for small losses. As the results for the group of Muslims are inconsistent at both levels of risk aversion, the 'risk aversion' hypothesis can neither be rejected nor accepted.

4.8 Chapter Conclusion

This quantitative study contributes to the body of literature by exploring two factors that influence the demand for micro life insurance: social capital and religion. The study stands out compared to previous research in the following ways. First, it can explain how social capital affects micro life insurance uptake. Second, it establishes the relevance of the mutuality principle and indicates an effect of insurers' reputation on the

uptake of micro life insurance. Third, it is the first micro life insurance demand study that uses a lottery design to measure risk aversion, instead of relying on survey questions. The outcome of this distinct approach is a more differentiated analysis on the role of risk aversion and a need for further research. Fourth, it proves a different demand behavior of Muslims and Hindus, even though the differences seem not to be related to their religion but to their general living conditions.

In an effort to explain the role of social capital, the regression results identify three channels through which social networks influence micro life insurance consumption in the Eastern Province of Sri Lanka: (i) a positive imitation effect where insurance ownership by peers increases the probability of being insured with micro life insurance; (ii) a negative effect of information exchange about micro insurance among peers; and (iii) a crowding out effect of informal risk sharing mechanisms. The study cannot find evidence that supports an impact of the following two forms of social capital in the decisions to buy micro life insurance: formal social networks or generalized trust. Hence, it can be concluded that, in the context of micro life insurance the actions facilitated by social capital are of importance but not its institutional form.

Moreover, this study identifies three channels from the literature through which the religion of Islam might affect micro life insurance consumption: (i) involvement of interest in conventional products, (ii) the principle of mutuality, and (iii) risk aversion. This quantitative study cannot provide clear evidence for a religious background of any of the three channels. The data set does not allow the author to directly test the 'interest' hypothesis and the auxiliary estimation strategy does not provide conclusive results. To provide evidence for an effect of interest prohibition in Islam on conventional insurance consumption, the author combined the results of a micro life insurance demand model (voluntary and credit-linked products) for Hindus with the results from a *Family Micro Takaful* demand model. As the usage of interest-bearing credits or savings supports *Takaful* uptake and life insurance demand among Hindus is positively influenced by conventional banking products, she concluded that the 'interest' variable might not be a religiously motivated demand factor for micro life insurance consumption. The author recognizes that the quality of the operationalization of the interest concept might be weak and instead measuring a household's access to financial services. Despite this measurement issue, it can be observed from descriptive statistics that Muslims

preferably decide for *Takaful,* instead of conventional products and Muslim non-policyholders are significantly less likely to accept interest payments. Interestingly, the underlying principle of mutuality in insurance is one of the main drivers of life insurance demand. Contrary to the author's expectations, it cannot be related to religion as it significantly influences the uptake for both religious groups and for both insurance forms. Instead it might rather measure for a collection action dimension of social capital. There is no conclusive evidence related to the 'risk aversion' hypothesis. Hindus and Muslims do not either significantly or consistently differ in their degrees of risk aversion. While Hindus are more risk averse to large losses, Muslims are more risk averse to small losses. Even though there is no evidence for a significant difference in risk aversion between the two religious groups, there is weak evidence for an effect of risk aversion on a Muslim's micro life insurance demand as risk aversion to small losses significantly reduces their uptake. These results lead to the conclusion that overall, the 'risk aversion' hypothesis cannot be confirmed.

Even though the variables of 'interest', 'mutuality', and 'risk aversion' cannot explain the significant differences in micro insurance demand between Muslims and Hindus, the control variables support the assumption of differentiating consumption reasons. For Hindus, economic well-being in terms of asset endowment significantly supports micro life insurance uptake, while insurance demand is very much influenced by peer effects among Muslims. Information exchange with peers and informal risk sharing greatly reduces their consumption. On average, Muslims are more likely than Hindus to turn to their social networks for financial assistance in times of need, whereas the uptake decision of a peer is a supporting factor for both religious groups. In general, Hindus are three times more likely to have a peer with insurance, compared to Muslims. Overall, the demand among both groups differs owed to the role of age, wealth, information exchange and informal risk sharing. This leads to the conclusion that the differences in insurance demand of Hindus and Muslims are in general not religiously motivated. The wealth effect might relate to a better economic status of Hindus compared to Muslims in the region, as shown by the descriptive statistics. Similarly, the negative effect of information exchange on insurance might be due to a bad word of mouth, an issue which was raised during the focus group discussion by Hindus mainly. Only the enhanced informal risk sharing between Muslims might be related to their religion.

Returning to the general research objective of understanding the main demand factors of micro life insurance products, this study identifies wealth, the usage of conventional microfinance products and the social network effects of: awareness creation, imitation behavior, and informal risk sharing as well as the idea of mutuality and as key demand factors.

For the uptake of voluntary micro life insurance, the results are consistent across various models as presented in Table 31. To further check the robustness of the results, linear probability models are estimated and reported in Appendix 8. The marginal effects obtained from logit estimates are identical in terms of effect direction and level of significance. Effect sizes are also found to be very similar. To avoid omitted variable bias, the study included the main explanatory variables from previous empirical studies as control variables.

After applying the four quality criteria of quantitative research as outlined in Section 1.5.2 to this study, the author concludes that her works performs well in terms of reliability and objectivity, whereas internal validity is limited in three aspects: (i) statistical inference validity for the observed 'imitation effect', (ii) external validity related to the non-probabilistic sample, and (iii) construct validity for the 'interest' variable. With respect to the statistical inference validity and the results interpretation of an 'imitation effect', potential concerns are related to reverse causality. As this study uses a cross-sectional data set, it is not clear if the respondents bought the micro life insurance policy before or after their peers did. Only in the first case, a positive 'imitation effect' could be attributed to the demand decision of the respondents, whereas it is rather a peer referral effect in the latter case. On the one hand, external validity is supported by the conduct of the field study. On the other hand, this study required a non-probabilistic sample because micro insurance penetration in Sri Lanka is 6.9 percent by now (Microinsurance Network, 2016), which affects the transferability of the results to another context. Regarding construct validity, the results indicate that the 'interest' variable could measure for access to financial services, instead of the religious principle of prohibition of interest. Results of the quantitative study are further limited in that some of the micro life insurance products available in the area under study include personal accident and minor health benefits which could support the uptake of these products as well.

5 Conclusion

This research analyzes the effects of social capital and religion on the demand of micro life insurance. Both demand factors have received little attention in the academic literature so far although they appear important in the setting of societies in developing countries. Therefore, the aim of this work is to determine the role of the two factors and to understand the mechanisms through which they operate. By using a mixed method approach, the author finds strong and conclusive evidence for the impact of social capital on micro life consumption and indicative proof for an effect of the Islamic principle of interest prohibition (*riba*) on conventional micro life insurance uptake by Muslims. The main results of this study are also summarized in Figure 11.

At the beginning of the thesis, an analytical framework, which was derived from the literature structures previous academic results on the demand of micro life insurance and identifies research gaps. This analytical framework also serves as the research model for this work. Considering further literature, the author deduced nine hypotheses with the objective to possibly explain for the relevance of social capital and religion on micro life insurance consumption. A qualitative study served the purpose of confirming the empirical relevance of the two influencing factors, sharpening the understanding of the hypotheses and embedding them in the local context. To estimate the effects of social capital and religion quantitatively, the hypotheses were then tested by regression analysis using data from an on-site survey and from a risk aversion lottery conducted in the Eastern Province of Sri Lanka in 2013. 464 households participated in the survey, out of which 424 responses were included in the final sample.

All in all, this research finds that it is not the institutional form of social capital measured as membership in formal social networks or generalized trust that determines micro life insurance consumption, but a peer's purchasing decision. Both the qualitative and quantitative studies provide evidence that people imitate their peer's consumption behavior. Evidence for a crowding-out effect of formal micro life insurance by informal risk sharing is provided by the quantitative study. The results on the effect of an information exchange about insurance between family members, friends or neighbors are found to be mixed. During the focus group discussions, people referred to information exchanges with their peers on insurance as a supporting factor in their

consumption decision as it raises the awareness of insurance or increases their insurance understanding. However, the quantitative analysis revealed an opposite effect. This significantly negative influence of a peer exchange might be explainable by a negative word-of-mouth prevailing in the region, as indicated during some of the focus group discussions. It might also be an indication of a negative attitude towards micro life insurance among Muslims, as is enforced by peers. Interestingly, the negative information exchange effect is much stronger for the sub-sample of Muslims and the uptake of *Takaful*. Lastly, the contrasting results on information exchange found in the quantitative and qualitative study could also be related to the different samples. Focus group participants are all females whereas in the household survey 25% participants are male and 75% are female. However, according to T-test results, gender differences in awareness creation for micro life insurance are not significant.

The topic of interest and how it affects micro life insurance consumption among Muslims is studied in detail for the first time in this study. Unfortunately, the negative relationship suggested by the literature and the qualitative findings could not be tested in the quantitative study in an adequate manner. The sample of the quantitative study suggests that low-income Muslims prefer *Family Takaful* products and are less likely to use conventional microfinance services. Even though the study could not achieve its aim of providing a sound and comprehensive understanding of the mechanisms through which religion influences micro life insurance consumption by quantitative data, it can provide qualitative evidence for the relevance of interest. Future research with a more precise sampling and measurement approach might provide better insights into the role of interest in influencing the insurance consumption among Muslims. This research also discovered the central role of the mutual character of insurance in a person's decision to insure, independent of her religion but possibly attributable to a person's social capital. It further suggests that the topic of risk aversion is much more complex and worth a thorough investigation in future research as differences in risk aversion are observed between the amounts at stake. This study also confirms the importance of wealth for micro life insurance ownership.

In sum, this study benefited from the mixed method approach. A peer imitation effect in consumption is supported by the results from both of the studies, whereas the quantitative findings on a negative awareness creation effect by social networks are

only explainable with the results from the qualitative study. At last, only the qualitative study is able to provide reliable information about an effect of the prohibition of interest (*riba*) on micro life insurance uptake among Muslims because of an imprecise sampling strategy and construct definition in the quantitative study. Besides, the qualitative study hinted at two more demand factors that might be of interest for future research: the terms and conditions of a product and more interestingly, contract non-performance. The latter effect could not be tested quantitatively in this research due to large numbers of missing values caused by misleading interviewer instructions.

Figure 11: Overview of findings

Demand factor	Variable	Hypothesis	Exp. Effect	Findings Qualitative Study	Findings Quantiative Study
Social Capital	*H1*: Group membership	*Membership in a formal organization increases micro life insurance demand.*	+	No observation	No effect
	H2: Generalized trust	*Generalized trust increases micro life insurance demand.*	+	No observation	No effect
	H3: Creation of awareness/ understanding	*People who discuss the concept of insurance within their social network are more likely to buy micro life insurance.*	+	Positive effect	Negative effect
	H4: Imitation	*People who know of a friend, relative or a neighbor who has a micro insurance policy are more likely to purchase micro life insurance cover for themselves.*	+	Positive effect	Positive effect
	H5: Trust-building	*People who observed a claims settlement are more likely to demand micro life insurance.*	+	No observation	Not tested
	H6: Informal risk sharing	*Access to informal risk sharing reduces the demand for micro life insurance.*	-	No effect	Negative effect
Religion	*H7*: Interest	*The involvement of riba in conventional insurance negatively affects conventional micro life insurance uptake among Muslims.*	-	Negative effect	(Positive effect)
	H8: Mutuality	*Muslims are more likely to purchase micro life insurance (conventional or Takaful), if it is perceived as an institutional form of supporting each other in need.*	+	No observation	Positive effect for Muslims & Hindus
	H9: Risk aversion	*Risk aversion negatively affects life insurance demand for low-income Muslims (conventional or Takaful).*	-	No observation	Small losses: neg. effect Large losses: no effect
Others	Wealth / income			Positive effect	Positive effect
	Terms and conditions			Positive effect	Not tested
	Bequest motive			Positive effect	No effect
	Contract non-performance			Negative effect	Not tested

Source: Author's own illustration

Previous studies on micro life insurance identified wealth, education, risk aversion, and the usage of other financial or insurance services as main explanatory factors for micro life insurance demand. Additionally, indicative evidence is provided for a life-cycle effect and a bequest motive (Bendig and Arun, 2016; Arun et al., 2012; Bendig and Arun, 2011; Giesbert et al., 2011). Compared to previous work, this research stands out by providing evidence for a crowding-out effect of informal risk sharing and by introducing three more topics to the micro life insurance demand literature: imitative

consumption behavior in the context of social capital, the role of interest related to the religion of Islam, and mutuality. While in the case of weather insurance, Cai et al. (2015) provide empirical evidence for an effect of knowledge acquisition through social networks, but not for an imitative behavior effect. This study shows the opposite. Related to this finding, this research creates consciousness that information flows between peers are not always in favor of insurance uptake. In general, this study is the first academic work to the best of the author's knowledge that can explain how social capital affects micro *life* insurance uptake. In addition, it is first in establishing the relevance of the mutuality principle for life insurance consumption among low-income households.

From the findings of this research, several practical implications for the development of micro insurance markets can be drawn. The results call for joint industry and public sector efforts to educate the target groups on the value of insurance and consumer rights. Currently people consult with their peers on insurance consumption, and a negative word-of-mouth seems to heavily influence the demand. However, insurers could also leverage on the information exchange between peers by communicating positive insurance experiences to the communities, i.e. claims settlements, or using community advocates. Together with the observed behavior of consumption imitation it might increase uptake. Main take-away for regulators is that operations in accordance with Islamic principles could play a significant role in increasing micro life insurance penetration. Also, mutual schemes might be very well accepted by the target group. They are closer to the prevailing informal risk sharing practices and serve the notion of solidarity. Hence, regulatory frameworks could provide guidance for the sound operation of *Takaful* and mutual schemes. The results on contract non-performance emphasize the importance of sound industry practices and consumer protection guidelines to be initiated by the regulators and supported by insurance associations. Insurance providers and distributors are encouraged to offer affordable demand-oriented products as the economic situation is still a main demand barrier, and low-income households do evaluate the benefits and terms of the offered products.

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Appendix

Appendix 1: Glossary of Islamic Terms

Ahadith	Sayings and action of the Prophet
Aqibah	Consequences
Ayat	A verse of *Quran*
Bai Salam	Sale in which payment is made in advance by buyer and delivery of goods is deferred by seller
Fahish	Excessive *gharar*
Fiqh	Corpus of Islamic jurisprudence
Gharar	Uncertainty in business transactions
Halal	Everything lawful or permitted by *Shariah*
Haram	Everything unlawful or prohibited by *Shariah*
Ijma	Legal reasoning based on consensus by Islamic scholars
Istihsan	Entailing individual preference
Istislah	Legal reasoning in public interest
Kafala	Guarantee
Maysir	Game of chance
Mudarabah	Commercial contract of equity financing and profit-sharing
Qiyas	Legal reasoning by analogy
Quran	Holy book of Muslims
Riba	Excess
Riba al-buyu	Riba in sales contracts
Riba al-fadl	Form of *riba al-buyu*; exchange at different quantity
Riba al-nasiah	*Riba* in debt
Riba al-nisa	Form of *riba al-buyu*; exchange at different point in time
Sharia	Islamic law
Sunnah	Second source of Islamic law; consists of *ahadith*
Ta'awun	Mutuality
Tabarru	Donation
Takaful	Islamic Insurance based on *Tabarru* and *Ta'awun*
Ulama	Islamic scholars
Urf	Custom
Wakalah	Commercial contract of agency
Yasir	Minor *gharar*

Source: Author's own

Focus Group Discussion Guide - Customers

Welcome

- Welcome address (thank you for coming…)
- My name is … and this are my colleagues … who will assist me today in conducting this discussion
- We work for an international research project from the University of Cologne in Germany.
- This research project is trying to understand your motivation and reasons to purchase insurance (not to purchase insurance).
- Today we have invited people that have a microinsurance contract and we are very much interested why you decided to buy a policy. Thank you very much for showing up here. You will help us to understand purchasing decisions in a better way.
- Your participation in this focus group discussion is purely voluntary.
- There are no right or wrong answers in this discussion, we will simply be discussing your views, opinions and experiences, so please feel comfortable to say what you honestly feel.
- Details of the discussion and your names will be kept strictly confidential. The information we receive today will be used only for research purpose.
- During the discussion <name of assistant> will be taking notes and reminding me if I forgot to ask something. However, so that you have to worry about getting every word down on paper, we would also like to tape record our discussion. Please do not be concerned about this, the recording will remain completely confidential and will only be used for this research project. Is everyone comfortable with recording this discussion? [ensure that everyone consents to recording]
- We would like to spend about 60 to 90 minutes with you. Are there any questions before we start? Let us begin…
- Introduction round: As a first step, we should introduce ourselves. If you could tell us your name and what you do for living.

	Core Question	Probe Question	Purpose
	Introductory Question: Questions about risk		
1.	• What are the risks you or your household faces in your daily life? • What are the risks you or your household faces in your business? • Could you bring those risks in an order according to their likeliness of occurrence? *[Def. risk: the chance or possibility of a loss due to someone or something that is out of your control]*	• Did you experience something unexpected in the past that needed a large amount of money? What happened? • What risks are the most common? How often do they occur?	• Identify different risks • Clarify how often household is affected by those risks (frequency)
2.	• How do those risks affect your household?	• What are the consequences for you or your household if those risk or unexpected events happen? • How do they influence your financial situation? • Could you rank the risks according to their financial impact? • How do they influence your social life?	• Identify which risk has the highest financial impact on a household • Identify if household faces social consequences
3.	• How do you manage with the financial consequences of those risks?	• Do you make preparations for those unexpected events? If yes, could you tell them to me? E.g. do you save? • How do you raise the extra money? E.g. do you have friends, family or neighbors that support you? Can you borrow from someone? Do you sell valuables? • Is it difficult for you to raise extra money? Why/Why not?	• Learn about current risk management strategies and cluster if they are active ("minimizing risk exposure, making financial preparation before risk occurred") or reactive strategies ("dealing with the consequences after risk occurred")
	Transitory Question: Questions about insurance understanding / perception		
4.	• In your opinion, what is the idea of insurance? *[Information: by insurance I mean conventional not Islamic insurance / Takaful]*	• What do you understand by the word insurance? • What does insurance mean to you? • Can you explain how insurance works?	• Clarify understanding of insurance

5.	• In your opinion, what do you like about insurance? *[Information: by insurance I mean conventional not Islamic insurance / Takaful]*	• What are the advantages? What do you like about it best? • Why do you think these are advantages? • Does it help you in dealing with your household's risks? Please, explain	• Clarify perception and value of insurance • Clarify perception and value of insurance
6.	• In your opinion, what do you dislike about insurance? *[Information: by insurance I mean conventional not Islamic insurance / Takaful]*	• What are the disadvantages and limitations? What do you like about it? • If the insurance could be adapted to your needs and preferences, how should it be?	
7.	• Are there any negative sayings about insurance? If yes, please explain		
8.	• Could you tell me the difference between insurance and Islamic insurance (Takaful)?	• What is the idea of Islamic insurance / Takaful? • What are the advantages / benefits of the Islamic insurance? What do you like about Islamic Insurance / Takaful? • What are the disadvantages / limitations of Islamic insurance? What do you dislike about Islamic Insurance / Takaful?	• Clarify understanding of Islamic insurance / Takaful
Key Questions – Questions about demand drivers / barriers; motivation			
9.	• How would you describe a typical person that has insurance? *[Information: by insurance I mean conventional not Islamic insurance / Takaful]*	• If you compare a person that has insurance and a person who does not have, how are they different? • Gender, age, family situation, religion, education, income, job? • Does she have a lot of experience with credit or savings? • Is she a more religious person? • Is she a person that likes to take risk? • Is she a person that trusts others more? • Does she have many friends or family members that can help her in an emergency? • Is she more exposed to risks?	• Stereotype policyholder insurance
10.	• How would you describe a typical person that has Islamic insurance / Takaful?	• What are the characteristics of a person that buys Islamic Insurance / Takaful?	• Stereotype policyholder Islamic insurance / Takaful

		• Gender, age, family situation, religion, education, income, job • Is she a more religious person? • Does she ask a religious leader for advice? • Does she have a lot of experience with credit or savings? • Is she a person that likes to take risk? • Is she a person that trusts others more? • Does she have many friends or family members that can help her in an emergency? • Is she more exposed to risks?	
11.	• In your opinion, how is the person buying insurance different from the person buying Islamic insurance / Takaful?		• Check for different stereotype policyholders of Islamic insurance / Takaful and insurance
12.	• Do you have insurance? • Do you have Islamic insurance / Takaful?	• Who is providing you the insurance cover? • What are you insured against?	• Identify if people use insurance or Islamic insurance / Takaful • Identify product they have
13.	• What motivated you to buy insurance or Islamic insurance / Takaful?	• What are the reasons you have insurance or Islamic insurance / Takaful? Please, explain reasons • What made you buy this particular insurance or Islamic insurance / Takaful? Please, explain reasons	• Clarify motivation of people to buy insurance or Islamic insurance / Takaful
14.	• Tell me, how did or does your religion influence your decision to insure?	• Is it important for you that insurance is offered by a Muslim company? Why/why not? • Is it important for you that your insurance is an Islamic Finance product? Why/why not? • Are there religious reasons why you cannot buy insurance? Please, explain • Did you consult your religious leader before you decided to buy or not to buy an insurance product? Why/why not? • If yes, what did he tell you and how did it influence your decision?	• Clarify role of religion in decision-making to buy insurance

Appendix 3: Focus Group Discussion Guides – Customers and Non-Customers

Closure

- Before we close I would like to ask everybody to give a final statement on what he/she thinks is the most important reason for people to
  - buy (not to buy) insurance
  - buy Islamic insurance / Takaful
- In summary, [moderator provides short summary of major demand drivers and barriers]
  - for insurance and
  - Islamic insurance / Takaful
- We conducted this group discussion to learn about your perception of insurance and Islamic insurance / Takaful and your motivation to buy or not to buy insurance or Islamic insurance / Takaful. Have we missed anything? Is there anything that we should have talked about but didn't?
- Thank you very much

Focus Group Discussion Guide – Non-customers

Welcome

- Welcome address (thank you for coming…)
- My name is … and this are my colleagues … who will assist me today in conducting this discussion
- We work for an international research project from the University of Cologne in Germany.
- This research project is trying to understand your motivation and reasons to purchase insurance (not to purchase insurance).
- Today we have invited people that do not have a microinsurance contract and we are very much interested why you decided to buy a policy. Thank you very much for showing up here. You will help us to understand purchasing decisions in a better way.
- Your participation in this focus group discussion is purely voluntary.
- There are no right or wrong answers in this discussion, we will simply be discussing your views, opinions and experiences, so please feel comfortable to say what you honestly feel.
- Details of the discussion and your names will be kept strictly confidential. The information we receive today will be used only for research purpose.
- During the discussion <name of assistant> will be taking notes and reminding me if I forgot to ask something. However, so that you do not have to worry about getting every word down on paper, we would also like to tape record our discussion. Please do not be concerned about this, the recording will remain completely confidential and will only be used for this research project. Is everyone comfortable with recording this discussion? [ensure that everyone consents to recording]
- We would like to spend about 60 to 90 minutes with you. Are there any questions before we start? Let us begin…
- Introduction round: As a first step, we should introduce ourselves. If you could tell us your name and what you do for living.

	Core Question	Probe Question	Purpose
	Introductory Question: Questions about risk		
1.	• What are the risks you or your household faces in your daily life? • What are the risks you or your household faces in your business? • Could you bring those risks in an order according to their likeliness of occurrence? *[Def. risk: the chance or possibility of a loss due to someone or something that is out of your control]*	• Did you experience something unexpected in the past that needed a large amount of money? What happened? • What risks are the most common? How often do they occur?	• Identify different risks • Clarify how often household is affected by those risks (frequency)
2.	• How do those risks affect your household?	• What are the consequences for you or your household if those risk or unexpected events happen? • How do they influence your financial situation? • Could you rank the risks according to their financial impact? • How do they influence your social life?	• Identify which risk has the highest financial impact on a household • Identify if household faces social consequences
3.	• How do you manage with the financial consequences of those risks?	• Do you make preparations for those unexpected events? If yes, could you tell them to me? E.g. do you save? • How do you raise the extra money? E.g. do you have friends, family or neighbors that support you? Can you borrow from someone? Do you sell valuables? • Is it difficult for you to raise extra money? Why/Why not?	• Learn about current risk management strategies and cluster if they are active ("minimizing risk exposure, making financial preparation before risk occurred") or reactive strategies ("dealing with the consequences after risk occurred")
	Transitory Question: Questions about insurance understanding / perception		
4.	• In your opinion, what is the idea of insurance? *[Information: by insurance I mean conventional not Islamic insurance / Takaful]*	• What do you understand by the word insurance? • What does insurance mean to you? • Can you explain how insurance works?	• Clarify understanding of insurance

5.	• Are you aware of any organization offering insurance products?	• What do you know about the organization? • What do you know about the insurance product?	• Clarify awareness of insurance
6.	• In your opinion, what do you like about insurance? *[Information: by insurance I mean conventional not Islamic insurance / Takaful]*	• What are the advantages? What do you like about it best? • Why do you think these are advantages? • Does it help you in dealing with your household's risks? Please, explain	• Clarify perception and value of insurance • Clarify perception and value of insurance
7.	• In your opinion, what do you dislike about insurance? *[Information: by insurance I mean conventional not Islamic insurance / Takaful]*	• What are the disadvantages and limitations? What do you like about it? • If the insurance could be adapted to your needs and preferences, how should it be?	
8.	• Are there any negative sayings about insurance? If yes, please explain		
9.	• Could you tell me the difference between insurance and Islamic insurance (Takaful)?	• What is the idea of Islamic insurance / Takaful? • What are the advantages / benefits of the Islamic insurance? What do you like about Islamic Insurance / Takaful? • What are the disadvantages / limitations of Islamic insurance? What do you dislike about Islamic Insurance / Takaful?	• Clarify understanding of Islamic insurance / Takaful
Key Questions – Questions about demand drivers / barriers; motivation			
10.	• How would you describe a typical person that has insurance? *[Information: by insurance I mean conventional not Islamic insurance / Takaful]*	• If you compare a person that has insurance and a person who does not have, how are they different? • Gender, age, family situation, religion, education, income, job? • Does she have a lot of experience with credit or savings? • Is she a more religious person? • Is she a person that likes to take risk? • Is she a person that trusts others more? • Does she have many friends or family members that can help her in an emergency? • Is she more exposed to risks?	• Stereotype policyholder insurance

11.	• How would you describe a typical person that has Islamic insurance / Takaful?	• What are the characteristics of a person that buys Islamic Insurance / Takaful? • Gender, age, family situation, religion, education, income, job • Is she a more religious person? • Does she ask a religious leader for advice? • Does she have a lot of experience with credit or savings? • Is she a person that likes to take risk? • Is she a person that trusts others more? • Does she have many friends or family members that can help her in an emergency? • Is she more exposed to risks?	• Stereotype policyholder Islamic insurance / Takaful
12.	• In your opinion, how is the person buying insurance different from the person buying Islamic insurance / Takaful?		• Check for different stereotype policyholders of Islamic insurance / Takaful and insurance
13.	• What are the reasons you do not have insurance? • What are the reasons you do not have Islamic insurance / Takaful?	• In which circumstances would you see yourself taking out insurance? • If the insurance was to be adapted to your particular needs and preferences what should it be?	• Clarify motivation of people not to buy insurance or Islamic insurance / Takaful
14.	• Tell me, how did or does your religion influence your decision to insure?	• Is it important for you that insurance is offered by a Muslim company? Why/why not? • Is it important for you that your insurance is an Islamic Finance product? Why/why not? • Are there religious reasons why you cannot buy insurance? Please, explain • Did you consult your religious leader before you decided to buy or not to buy an insurance product? Why/why not? • If yes, what did he tell you and how did it influence your decision?	• Clarify role of religion in decision-making to buy insurance

Appendix 5: Focus Group Discussion Guides – Customers and Non-Customers

Closure

- Before we close I would like to ask everybody to give a final statement on what he/she thinks is the most important reason for people to
  - buy (not to buy) insurance
  - buy Islamic insurance / Takaful
- In summary, [moderator provides short summary of major demand drivers and barriers]
  - for insurance and
  - Islamic insurance / Takaful
- We conducted this group discussion to learn about your perception of insurance and Islamic insurance / Takaful and your motivation to buy or not to buy insurance or Islamic insurance / Takaful. Have we missed anything? Is there anything that we should have talked about but didn't?
- Thank you very much

Appendix 3: Exemplary Visual Aid Used in Focus Group Discussion

Source: Author's own

Appendix 4: Risk Aversion Lottery Instructions

INTERVIEWER READOUT: The activity you are about to take part in is linked to the survey you are just completing, but it does not involve me asking questions in the way we have done before. Instead, it involves two tasks. In each of those tasks you will be asked to choose one option out of six choices. The choice you make in one of the tasks determines the amount of money you will get at the end to take home. However, you will not know until the very end if your earnings of the first or second task are going to determine your pay. So, you need to take all decisions seriously. There are no "right" or "wrong" decisions. Choose the option that feels best for you. The decisions will help the research team to understand how people in Sri Lanka feel about risky situations and that, in turn, will help to design high-quality insurance products that suits Sri Lankans like you best. This is how this activity will be carried out:

- After this introduction, I will describe the first task to you. The task involves a set of six choices of which you must choose one. I will write down your choice.
- The outcome of your choice is determined by blind draw. I have one blue and one yellow ball with me, which you will be put in this little back.
- I'm going to mix the bag and ask you to make a blind choice.
- The color of the ball you choose determines the outcome of your choice. I will take note of your choice as well.
- Next, I will describe the second task to you which is very similar to the first one.
- Again, I will write down your choice and you must make another draw determining the outcome of the second task.

In both tasks, you will end up with an amount of money. But remember you will only receive one of those two amounts to take home. After you have completed both tasks we will find out which one of the two tasks determines your pay-out.

You will receive your pay-out after we have finished the questionnaire.

Let us now work through a couple of examples and you will have a chance to ask questions. It is important to you and to me that you understand the decisions you are making. So, please listen carefully. Once I feel that you understand, we will start the first task.

Appendix 4: Risk Aversion Lottery Instructions

TASK 1: DETAILED EXPLANATION

Take a look at this card (presented at below). It shows six options labeled A to F

[INTERVIEWER INSTRUCTION: point and count, 1, 2, 3, 4, 5, 6].

Every option shows a low amount of money, which is presented on a yellow background and a high amount of money, which is presented on a blue background. The difference between the low amount of money (yellow background) and high amount of money (blue background) increases with the numbering. You will either earn the low or high amount of money of the option you chose. Whether you will earn the low or high amount of money from that option is going to be determined by another blind decision of yours.

Let me explain to you what I mean by "blind decision of yours". I have one yellow and one blue ball with me. One of us can put both balls in the little bag. I will mix the bag and then, you should take one of the balls out of the bag. If you choose the blue ball, you earn the amount of money shown on the blue side of the picture. If you choose the yellow ball, you receive the amount of money shown on the yellow side of the picture.

But remember, you will only take home the amount you earn in one of the two tasks. After we have finished both tasks, I will hand an envelope to you that tells us which one of your outcomes will be paid out in cash.

Before we go any further, what do you think is more likely, that you find the blue ball or the yellow ball?

[INTERVIEWER INFORMATION: Correct answer – neither, they are equally likely. If they got it wrong, explain correct answer to them.]

[INTERVIEWER INSTRUCTION: While teaching the task, refer to the card all the time. Point to the appropriate images on the card and make sure that the interviewee is looking, seeing, and concentrating.]

Appendix 4: Risk Aversion Lottery Instructions

So, if you decide on option B and then you choose the blue ball you receive LKR 240. If you decide on option B and you choose the yellow ball you receive LKR 120.

So, if you decide on option C and then you choose the blue ball you receive LKR 340. If you decide on option C and you choose the yellow ball you receive LKR 100.

So, if you decide on option D and then you choose the blue ball you receive LKR 440. If you decide on option D and you choose the yellow ball you receive LKR 80.

So, if you decide on option E and then you choose the blue ball you receive LKR 540. If you decide on option E and you choose the yellow ball you receive LKR 60.

So, if you decide on option F and then you choose the blue ball you receive LKR 600. If you decide on option F and you choose the yellow ball you receive LKR 0.

If you decide on option A and then you choose the blue ball you receive LKR 140. If you decide on option A and then you choose the yellow ball in you receive LKR 140. So, in option A you receive LKR 140 whatever happens.

So, now let us work through some examples together.

First, imagine that you choose D. Then you take out a ball [get them to take out one of the balls out of the little bag]. You took out a yellow (blue) one so you earn how much? [Correct answer is LKR 80 (LKR 440)]

And what if you took out a blue (yellow) one, how much would you earn then? [Correct answer is LKR 440 (LKR 80).]

Second, imagine that you choose F. Then you take out a ball [get them to take out one of the balls out of the little bag]. You took out a yellow (blue) one so you earn how much? [Correct answer is LKR 0 (LKR 600)]

And what if you took out a blue (yellow) one, how much would you earn then? [Correct answer is LKR 600 (LKR 0).]

Appendix 4: Risk Aversion Lottery Instructions

Third, imagine that you choose A. Then you take out a ball [get them to take out one of the balls out of the little bag]. You took out a yellow (blue) one so you earn how much? [Correct answer is LKR 140 (LKR 140)]

And what if you took out a blue (yellow) one, how much would you earn then? [Correct answer is LKR 140 (LKR 140).]

Fourth, imagine that you choose C. Then you take out a ball [get them to take out one of the balls out of the little bag]. You took out a yellow (blue) one so you earn how much? [Correct answer is LKR 100 (LKR 340)]

And what if you took out a blue (yellow) one, how much would you earn then? [Correct answer is LKR 340 (LKR 100).]

Fifth, imagine that you choose E. Then you take out a ball [get them to take out one of the balls out of the little bag]. You took out a yellow (blue) one so you earn how much? [Correct answer is LKR 60 (LKR 540)]

And what if you took out a blue (yellow) one, how much would you earn then? [Correct answer is LKR 60 (LKR 540).]

At last, imagine that you choose B. Then you take out a ball [get them to take out one of the balls out of the little bag]. You took out a yellow (blue) one so you earn how much? [Correct answer is LKR 120 (LKR 240)]

And what if you took out a blue (yellow) one, how much would you earn then? [Correct answer is LKR 240 (LKR 120).]

TASK 1: DECISION-MAKING

Now, it is time for you to make your choice. Which option do you choose, A, B, C, D, E, or F?

[INTERVIEWER INSTRUCTION: Record the answer in the questionnaire.]

Appendix 4: Risk Aversion Lottery Instructions

To determine your possible earnings from this task I would like to ask you to a blindly choose one of two balls.

[INTERVIEWER INSTRUCTION: Please ask the participant to put the a yellow and a blue ball in the bag or if she is reluctant to, do it yourself, mix the balls, and let the participants take out one ball]

Please, choose one of balls and take it out from the bag.

[INTERVIEWER INSTRUCTION: After participant has decided, please record the color of the ball in the questionnaire.]

Congratulations, from this task you would earn _____ LKR

[INTERVIEWR INSTRUCTION: Please, tell the amount of money that corresponds to the choice of the participant and the color of the ball. Record the outcome in the questionnaire.]

Now, let's move on to the **Second task.**

TASK 2: DETAILED EXPLANATION

Again, we ask you to choose one option out of six. But this time the amount of money you might earn is higher.

Take a look at this card (presented at below) and I will explain the different choices to you.

So, if you decide on option B and then you choose the blue ball you receive LKR 4,800. If you decide on option B and you choose the yellow ball you receive LKR 2,400.

So, if you decide on option C and then you choose the blue ball you receive LKR 6,800. If you decide on option C and you choose the yellow ball you receive LKR 2,000.

Appendix 4: Risk Aversion Lottery Instructions

So, if you decide on option D and then you choose the blue ball you receive LKR 8,800. If you decide on option D and you choose the yellow ball you receive LKR 1,600.

So, if you decide on option E and then you choose the blue ball you receive LKR 10,800. If you decide on option E and you choose the yellow ball you receive LKR 1,200.

So, if you decide on option F and then you choose the blue ball you receive LKR 12,000. If you decide on option F and you choose the yellow ball you receive LKR 0.

If you decide on option A and then you choose the blue ball you receive LKR 2,400. If you decide on option A and then you choose the yellow ball in you receive LKR 2,400. So, in option A you receive LKR 2,400 whatever happens.

TASK 2: DECISION MAKING

Now it is time for you to make your choice. Which option do you choose, A, B, C, D, E, or F?

[INTERVIEWER INSTRUCTION: Record the answer in the questionnaire.]

To determine your possible earnings from this task I would like to ask you to a blindly choose one of two balls.

[INTERVIEWER INSTRUCTION: Please ask the participant to put the a yellow and a blue ball in the bag or if she is reluctant to, do it yourself, mix the balls, and let the participants take out one ball]

Please, choose one of balls and take it out from the bag.

[INTERVIEWER INSTRUCTION: After participant has decided, please record the color of the ball in the questionnaire.]

From this task, you would earn _____ LKR

Appendix 4: Risk Aversion Lottery Instructions

[INTERVIEWR INSTRUCTION: Please, tell the amount of money that corresponds to the choice of the participant and the color of the ball. Record the outcome in the questionnaire.]

PAY-OUT

Now, let's find out which amount of money you receive to take home. I have an envelope here that contains a card which states the number of the task that determines your pay out. Have a look!

[INTERVIEWER INSTRUCTION: Please, hand envelope to the participant and ask participant to show the card to you.]

Congratulations, from this activity you earned _____ LKR

[INTERVIEWER INSTRUCTION: name the amount of the first task;

INTERVIEWER INFORMATION: due to budget constraints, we will always pay-out the earnings of the first task, but never give this information to the participant!].

I will pay the amount to you after we have completed the questionnaire.

University of Cologne

Department of Risk Management and Insurance
Albertus-Magnus-Platz
50923 Cologne, Germany

_____

RELIGION AND RISK MANAGEMENT –
INFLUENCE OF ISLAM ON INSURANCE DEMAND OF
LOW INCOME PEOPLE IN SRI LANKA

My name is _____. I'm a research assistant and we are conducting a study with researchers from University of Cologne, Germany. The purpose of this study is to understand how you and your household manage your risks and what motivates you to purchase insurance.

If any member of your household has an insurance policy, I would like to talk to that person. If no one in your household is insured, I would like to talk to the person of your household that is responsible for making the households' financial decisions.

In the study, you will be asked to answer a series of questions about yourself and your household. To learn about your living conditions I will ask you some general questions about your household and your economic situation. We would like to understand how you manage risks, e.g. dealt with the chance or possibility of a loss due to someone or something that is out of your control. Hence, I will ask you about your savings, credits and insurance coverage. To understand your motivation to buy or not to buy insurance we are going to ask you about your exposure to risks, your attitude on religion and your trust in others. Next to those questions, I would like to give you a simple task which will help us in understanding your risk behavior better. In this task you can earn some money.

Your participation in this survey will take approximately one hour. Your participation in this study is purely voluntary, and you may withdraw your participation or your data at any time without any penalty to you. You may decline to answer any question. Please also remember there are no right or wrong answers and only your honest opinions are important for us.

Your data will be kept completely confidential. It will be combined with the information from other respondents and used to develop adequate insurance services for you. Those results may be made available to other researchers, again without any personally identifiable information.

If you have any questions about the study, please ask me.

Do you want to Participate in the survey?

☐ Yes [PLEASE CONTINUE WITH SECTION A]

☐ No [END]

Number of Interview [filled by Anja] □□□

SAMPLING INFORMATION

Name of respondent _____

Address of respondent _____

Name of village / urban township _____

Region

□ Rural
□ Urban

Name of Grama Niladhari Divison _____

Name of Divisional Secretariat

□ Muthur
□ Kaluwanjikkudi
□ Arayampathi
□ Koralaipattu Central
□ Koralaipattu West
□ Attulugama

Name of district („Disa")

□ Trincomalee
□ Batticaloa
□ Kalutara

Name of province

□ Eastern
□ Western

ORGANIZATIONAL INFORMATION [filled by interviewer]

Date of Interview □□.□□.2013

Interview lasted _____Minutes

Name of Interviewer _____

Interviewer number □□

Number of Interview of Interviewer □□□

A. GENERAL INFORMATION

1) GENDER [INTERVIEWER INFORMATION: Please tick box by yourself]

    ☐   Female

    ☐   Male

2) What is your birthday? (Day/month/year)   ☐☐-☐☐-☐☐☐☐

    [INTERVIEWER INFORMATION: please calculate age and state ☐☐ years]

3) What is your family status?

    ☐   Married

    ☐   Widowed

    ☐   Separated

    ☐   Divorced

    ☐   Single

4) What is your household position?

    ☐   Head of household

    ☐   Spouse of head of household

    ☐   Other, specify _____

5) How many unmarried children do you have?   ☐☐

6) How many married children do you have?   ☐☐

7) In total, how many people live in your household?   ☐☐

8) Which of the following religious communities do you belong to? [INTERVIEWER INFORMATION: do not read out the responses indicated here. Tick as mentioned by the respondent.]

    ☐   Muslim

    ☐   Hindu

    ☐   Buddhist

    ☐   Christian

    ☐   Catholic

    ☐   Other, specify: _____

9) What is the employment status of the household head? [INTERVIEWER INFORMATION: multiple answers possible]

- ☐ Employed (private or government)
- ☐ Self-employed
- ☐ Temporary worker / Casual laborer
- ☐ Agriculture
- ☐ Livestock breeding
- ☐ Unemployed
- ☐ Other, specify _____

10) What is the employment status of the spouse? [INTERVIEWER INFORMATION: multiple answers possible]

- ☐ Employed (private or government)
- ☐ Self-employed
- ☐ Temporary worker / Casual laborer
- ☐ Agriculture
- ☐ Livestock breeding
- ☐ Unemployed
- ☐ Other, specify _____

11) What is the highest level of education you have achieved? [INTERVIEWER INFORMATION: multiple answers possible]

- ☐ Did not complete primary school (did not complete Grade 5)
- ☐ Primary school (up to Grade 5)
- ☐ Grade 10
- ☐ Ordinary Level
- ☐ Advanced Level
- ☐ Religious Qualification
- ☐ Vocational training
- ☐ Diploma
- ☐ Bachelor
- ☐ Master
- ☐ Other, specify: _____

B. MATH AND FINANCIAL SKILLS

[INTERVIEWER READOUT: I would like to ask you some questions about your understanding of financial decisions and some simple math calculations.; INTERVIEWER INFORMATION: respondents are allowed to use pen and paper but mobile phone is **not** allowed.]

1) How much is 35 + 82? ☐☐☐

       ☐ Don't know

2) Suppose you want to buy a bag of rice that costs 37 LKR. You only have 100 LKR. How much change will you get?

       ☐☐ LKR

       ☐ Don't know

3) What is 3 multiplied by 6? ☐☐

       ☐ Don't know

[INTERVIEWER INFORMATION: please **do not** change the wording of the next question. The purpose of the question is to find out about math skills. If you use easier terms to explain the question the answers of two respondents are not comparable.]

4) What is one-tenth of 400? ☐☐

       ☐ Don't know

5) Suppose you borrowed LKR 10.000 from a money lender and the rate of interest or charge/fee was 2% per month. If you made no repayment for three months, how much would you owe? [INTERVIEWER INFORMATION: For data comparability do not tell the interest of 200 LKR to the participants]

    ☐ Less than LKR 10,200

    ☐ Exactly LRK 10,200

    ☐ More than LKR 10,200

    ☐ Don't know

6) Suppose you need to borrow LKR 50,000. Two people offer you a loan. One loan requires you pay back LKR 60,000 in one month. The second loan also requires you to pay back LKR 50,000 plus 15 percent interest or charge/fee in one month. Which loan would you prefer?

    ☐ LKR 60,000 in one month

    ☐ LKR 50,000 + 15% interest

    ☐ Don't know

7) Imagine that you saved LKR 10,000 in a saving account, and were earning an interest rate of 1% per year. If prices were increasing at a rate of 2% per year, after one year, would you be able to buy less than, more than, or exactly the same amount as today with the money in this account?

☐   Less than today

☐   Exactly as much as today

☐   More than today

☐   Don't know

8) Over the past year, would you say your overall spending was less than, more than, or about equal to your income?

☐   Spending less than income

☐   Spending more than income

☐   Spending about equal to income

☐   Don't know

C. ALTERNATIVE RISK MANAGEMENT STRATEGY

[INTERVIEWER READOUT: Now I would like to ask you some questions about financial services that your household uses. By financial services I mean your savings and credits.]

1) Do you or any member of your household currently have a bank account ("general savings account")?

☐   Yes

☐   No   [→ please go to Q3]

2) What are the three main reasons you or any member of your household have this bank account? [INTERVIEWER INFORMATION: multiple answers possible; do not read out the responses indicated here. Tick as mentioned by the respondent.]

☐   Save money for emergency needs

☐   Save money to buy household assets

☐   Save for dowry

☐   Save for children

☐   Gain access to loan

☐   Transfer money

☐   Pay bills

☐   Being asked by employer for salary transfer

☐   Earn interest / return

☐   Security reasons, keep money safe

☐   Other, specify _____

☐   *Not applicable to respondent*

3) Do you or any member of your household do any of the following kinds of savings?
   [INTERVIER INFORMATION: multiple answers possible]

   ☐   Jewelry, silver or gold

   ☐   Land

   ☐   Saving cash at home

   ☐   Savings with savings group or savings association

   ☐   Savings with microfinance institution

   ☐   Savings with post office

   ☐   No savings   [→ please go to Question 7]

4) Do you or any member of your household earn interest from any of your savings?

   ☐   Yes

   ☐   No   [→ please go to Question 5]

   ☐   *Not applicable to respondent*

5) What do you or any member of your household do with the interest?

   ☐   Withdraw and spend for consumption

   ☐   Withdraw and donate

   ☐   Do not withdraw / Reinvest

   ☐   Other, specify _____

6) What are the three main reasons you or any member of your household have those savings? [INTERVIEWER INFORMATION: multiple answers possible; do not read out the responses indicated here. Tick as mentioned by the respondent.]

   ☐   Save for emergency needs

   ☐   Save to buy household assets

   ☐   Save for dowry

   ☐   Save for education of children

   ☐   Security reasons, keep money safe

   ☐   Gain access to loan

   ☐   Earn interest / return

   ☐   Other, specify _____

   ☐   *Not applicable to respondent*

[INTERVIEWER READOUT: Now I would like to ask you some questions about your debt. With debt I mean money you borrowed from another party. In other words, debt includes all the formal and informal financial credits you have taken from other parties for your personal use and have an agreement between you and the other party to repay the loan at a future time.]

7) Do you or any other member of your household currently have outstanding debt for any purpose?

    ☐   Yes

    ☐   No   [→ please go to Question 10]

8) What is the primary use that was actually made of this debt? [INTERVIEWER IN-FORMATION: multiple answers possible; do not read out the responses indicated here. Tick as mentioned by the respondent.]

    ☐   Business expenditure, e.g. buying business supplies / inputs

    ☐   Investment expenditure, such as building or renovating a house, buying land

    ☐   To purchase animals or livestock

    ☐   Consumption expenditure, such as food, personal items, travel

    ☐   Schooling of children

    ☐   Emergency need, e.g. hospitalization

    ☐   Repay other debt

    ☐   Party, traditional ceremony, funeral

    ☐   Other, specify _____

    ☐   *Not applicable to respondent*

9) Do you or any member of your household pay interest or a fee for borrowing from those sources?

    ☐   Interest (%)

    ☐   Fee (fixed amount)

    ☐   Interest + Fee

    ☐   None

    ☐   *Not applicable to respondent*

10) Have you or any member of your household experienced that a loan application of yours was denied? (If never apply for the loan, it is "*Not applicable to respondent*"

    ☐   Yes

    ☐   No

    ☐   *Not applicable to respondent*

11) If your household has an emergency and need financial support are there people outside your household you can ask for financial support?

    ☐   Yes

    ☐   No

12) Have you or any member of your household received any financial support from people outside your household in the last year?

☐ Yes

☐ No

13) Have you or any member of your household given any financial support to people outside your household during the last year?

☐ Yes

☐ No

D. INSURANCE DEMAND

[INTERVIEWER READOUT: I would like to ask you some questions about your understanding and familiarity with insurance. By insurance I mean an agreement in which you make periodic payments in exchange for a payment that you receive in the event of a future loss, such as death or accident or in case of sickness.]

1) Have you or any member of your household had insurance coverage in the past?

☐ Yes, still have

☐ Yes, in the past but not now

☐ No   [→ please go to Q13]

2) What is the name of the insurance company? _____

3) What is or was the insurance for? [INTERVIEWER INFORMATION: multiple answers possible; do not read out the responses indicated here. Tick as mentioned]

☐ Health/Sickness, e.g. hospitalization, medication

☐ Accident / Disability

☐ Death

☐ Vehicle (motorbike, tricycle)

☐ Other, specify _____

☐ Don't know

☐ *Not applicable to respondent*

4) What are the three main reasons you or the other household members have or had insurance? [INTERVIEWER INFORMATION: multiple answers possible; do not read out the responses indicated here. Tick as mentioned by the respondent.]

- ☐ To have protection in case of emergency
- ☐ To live without worry
- ☐ The agent was a good sales person
- ☐ Having insurance is prestigious
- ☐ To help others who are in need
- ☐ Insurance came together with my credit (Compulsory)
- ☐ Mandatory to have insurance for vehicle
- ☐ Other, specify _____
- ☐ *Not applicable to respondent*

5) What was the main criterion you or any member of your household decided on a specific insurance product? [INTERVIEWER INFORMATION: multiple answers possible]

- ☐ Agent
- ☐ Product features
- ☐ Islamic Insurance
- ☐ Premium / price
- ☐ Service quality
- ☐ *Not applicable to respondent*

6) Do you think the amount your household pays for your insurance is a small amount of money, just the right amount of money or a lot of money compared to the benefits you receive?

- ☐ Little money
- ☐ Just the right amount of money
- ☐ A lot of money
- ☐ *Not applicable to respondent*

7) How did you or any member of your household become acquainted with insurance?

- ☐ Insurance agent
- ☐ Muslim Aid
- ☐ Advertisement
- ☐ Friend, relative, neighbor
- ☐ Other, specify _____
- ☐ *Not applicable to respondent*

8) Have you or any member of your household ever made a claim? [INTERVIEWER IN-FORMATION claim: a request for payment of an insured loss]

☐ Yes

☐ No   [→ please go to Q10]

☐ *Not applicable to respondent*

9) Have you or any member of your household receive any payment from the claim?

☐ Yes

☐ No

☐ *Not applicable to respondent*

10) [INTERVIEWER INFORMATION: skip this question if household still has insurance] Why are you or any member of your household not insured anymore? [INTERVIEWER INFORMATION: multiple answers possible; do not read out the responses indicated here. Tick as mentioned by the respondent.]

☐ I cannot raise money for premium

☐ I cannot raise money for premium on a monthly basis

☐ Insurance came together with my credit and I don't have a credit at the moment

☐ Insurance was mandatory for vehicle and I don't have vehicle at the moment

☐ I can manage emergencies by myself

☐ My religion does not allow me to buy insurance

☐ Insurance agents are too far from where I live

☐ Insurance agent is not available anymore

☐ Insurance is to expensive

☐ Product is not worth it for me

☐ Insurance did not pay benefits

☐ Not at risk anymore

☐ Other, specify _____

☐ *Not applicable to respondent*

11) How much do you trust in that case that if an insured emergency happens to you, you will receive a payout from your insurance company?

Very Much	Fairly	Moderately	A little	Not at all
1	2	3	4	5
☐	☐	☐	☐	☐

12) In case no insured emergency happens to you this year, do you expect to receive money from your insurance company?

☐ Yes

☐ No

☐ *Not applicable to respondent*

13) [INTERVIEWER INFORMATION: skip this question if household has purchased insurance] You said no member of your household ever had insurance. Why has your household never bought insurance? [INTERVIEWER INFORMATION: multiple answers possible; do not read out the responses indicated here. Tick as mentioned by the respondent.]

☐ I would need more information about insurance

☐ I cannot raise money for premium

☐ I cannot raise money for premium on monthly basis

☐ I can manage emergencies myself

☐ There's not need to worry in advance and budget for emergency

☐ In case of emergency God takes care about me

☐ Religious reasons

☐ Insurance is for rich people

☐ Insurance is too expensive

☐ Insurance agents are too far from where I live

☐ It's a long process to realize a claim

☐ Insurers do not pay benefits

☐ I don't trust insurers

☐ Insurers are not stable financially and can go bankrupt easily

☐ No need for insurance

☐ Other, specify _____

☐ *Not applicable to respondent*

[INTERVIEWER INFORMATION: Please ask the following questions to ALL participants of the study]

14) Do you have friends, neighbors or relatives who do not live in your household that have insurance coverage? [INTERVIEWER INFORMATION: if respondent has friend with vehicle and non-vehicle insurance please tick both boxes]

☐ Yes, vehicle insurance

☐ Yes, non-vehicle insurance

☐ No   [→ please go to Q17]

15) Did anyone of them made a claim? [INTERVIEWER INFORMATION: claim: a request for payment of an insured loss]

☐ Yes, for vehicle insurance

☐ Yes, for non-vehicle insurance

☐ No

☐ *Not applicable to respondent*

16) Did anyone of them receive a payment from the claim?

☐ Yes, from vehicle insurance

☐ Yes, from non-vehicle insurance

☐ No

☐ *Not applicable to respondent*

17) In your opinion, by buying vehicle insurance you support others who are in need.

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1	2	3	4	5
☐	☐	☐	☐	☐

18) In your opinion, by buying non-vehicle insurance you support others who are in need.

Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
1	2	3	4	5
☐	☐	☐	☐	☐

19) If you make a financial decision are there people outside your household you ask for advice, e.g. village leaders, elders or religious leaders?

☐ Yes

☐ No

20) Did you consult your religious leader for advice on buying insurance?

☐ Yes

☐ No

21) When people outside your household have to make financial decisions do they come to you for advice?

☐ Yes

☐ No

22) Have you heard about Islamic Finance?

- ☐ Yes
- ☐ No

23) How important is it for you that your insurance is an Islamic Finance product?

Very important	Important	Moderately	A little important	Not at all important
1	2	3	4	5
☐	☐	☐	☐	☐

24) In your opinion is an Islamic insurance company more trustworthy than a non-Islamic insurance company?

- ☐ Yes
- ☐ No
- ☐ Don't know

E. RISK
[INTERVIEWER READOUT: I would like to ask you some questions about the risks you and your household members face. By risk I mean the chance or possibility of a loss due to someone or something that is out of your control.]

1) How do you see yourself: are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?

Very much avoid risks	Avoid risks	Neither avoid nor take risks	Willing to take risks	Very much willing to take risk
1	2	3	4	5
☐	☐	☐	☐	☐

2) Which risk has your household / a member of your household been affected by during the last three years?

- ☐ Sickness of household member
- ☐ Loss of employment
- ☐ Death household member
- ☐ Accident of household member
- ☐ Permanent disability of household member
- ☐ Flood or heavy rain
- ☐ Draught
- ☐ Loss of livestock
- ☐ Fail in harvest
- ☐ Theft
- ☐ Fire
- ☐ Other, specify _____
- ☐ None

3) Which event has your household / a member of your household been affected by during the last three years?

- ☐ Religious / cultural festival
- ☐ Child Birth
- ☐ Wedding
- ☐ Death of household member
- ☐ Girl attaining age (puberty)
- ☐ Housewarming
- ☐ Alms giving
- ☐ None

4) If you think of those risks and events, could you name the three risks or events that had the highest impact on your household financial situation during the last three years?

- ☐ Sickness of household member
- ☐ Loss of employment
- ☐ Death household member
- ☐ Accident of household member
- ☐ Permanent disability of household member
- ☐ Flood or heavy rain
- ☐ Draught
- ☐ Loss of livestock
- ☐ Fail in harvest
- ☐ Theft
- ☐ Fire
- ☐ Religious / cultural festival
- ☐ Child Birth
- ☐ Wedding
- ☐ Girl attaining age (puberty)
- ☐ Housewarming
- ☐ Alms giving
- ☐ Other, specify _____
- ☐ None

INTERVIEWR READOUT: Now, I am going to present you a number of risks that could happen to you and your household members. I would like to ask you to rank those risks. Please only rank the risks you think at least one your household members could be affected by.

15

5) The first ranking should reflect how **likely** you think it is that this risk might happen to at least one of your household members during the next three years. The risk that you think is most likely to happen to your household should be ranked first. [INTERVIEWER INFORMATION: Please write down the number according to the ranking position.]

☐ Sickness of household member
☐ Loss of employment
☐ Death household member
☐ Accident of household member
☐ Permanent disability of household member
☐ Flood or heavy rain
☐ Draught
☐ Loss of livestock
☐ Fail in harvest
☐ Theft
☐ Fire
☐ Tsunami
☐ War
☐ Other, specify _____
☐ None

6) The second ranking should reflect how you evaluate the **impact** of a risk on your households' financial situation. The risk that has the highest impact on your households' financial situation should be ranked first. [INTERVIEWER INFORMATION: Please write down the number according to the ranking position.]

☐ Sickness of household member
☐ Loss of employment
☐ Death household member
☐ Accident of household member
☐ Permanent disability of household member
☐ Flood or heavy rain
☐ Draught
☐ Loss of livestock
☐ Fail in harvest
☐ Theft
☐ Fire
☐ Tsunami
☐ War
☐ Other, specify _____
☐ None

7) How do you currently cope with the financial consequences if those risks occur? Please rank your answers according to your behavior. The action you do first should be ranked first. Please only rank the activities would you do.

- ☐ Use cash or savings
- ☐ Withdraw from business
- ☐ Borrow from friends, relatives, neighbors
- ☐ Borrow from employer or supplier
- ☐ Borrow from moneylender
- ☐ Borrow from microfinance institution
- ☐ Get additional job
- ☐ Reduce consumption
- ☐ Pledge valuables in pawnshop
- ☐ Sell valuables, e.g. jewelry, livestock or agricultural products
- ☐ Insurance
- ☐ Receive grants from Government, NGO
- ☐ Receive donation from friends, relatives, neighbors

INTERVIEWR READOUT: Now, I would like to give you a simple task which will help me in understanding your risk behavior better. INTERVIEWER INSTRUCTION: Please use separate instructions at this point .but document the decision of the participant and here:

8) Task 1: Option

- ☐ A
- ☐ B
- ☐ C
- ☐ D
- ☐ E
- ☐ F

9) Task 1: Draw

- ☐ Low pay out (yellow token)
- ☐ High pay out (blue token)

10) Task 2: Option

- ☐ A
- ☐ B
- ☐ C
- ☐ D
- ☐ E
- ☐ F

11) Task 2: Draw

- ☐ Low pay out (yellow token)
- ☐ High pay out (blue token)

F. TRUST

[INTERVIEWER READOUT: the following questions are about trust. I am going to ask you some general questions about your trusting attitude before we talk about your behavior in some specific situations. Please choose one answer that matches your opinion most.]

1) Generally speaking would you say that most people can be trusted or that you can't be too careful in dealing with people?

   ☐   Most people can be trusted

   ☐   Can't be too careful

   ☐   Don't know

2) Do you think most people would try to take advantage of you if they got a chance or would they try to be fair?

   ☐   Would take advantage

   ☐   Would try to be fair

   ☐   Don't know

3) Would you say that most of the time people try to be helpful, or that they are mostly just looking out for themselves?

   ☐   Try to be helpful

   ☐   Just look out for themselves

   ☐   Don't know

G. RELIGION

1. How often do you take part in congregational prayer or religious service?

Very often	Often	Occasionally	Rarely	Never
1	2	3	4	5
☐	☐	☐	☐	☐

2. What is your main motivation to attend congregational prayer or religious service?

   _____

3. [INTERVIEWER INFORMATION: For this question there are different questions for Non-Buddhist and Buddhist people]

   3a. [INTERVIEWER INFORMATION: please ask this question to Muslim and Hindu]: How often do you pray obligatory prayer?

Very often	Often	Occasionally	Rarely	Never
1	2	3	4	5
☐	☐	☐	☐	☐

3b. [INTERVIEWER INFORMATION: please ask this question to Buddhist]:
How often do you go to the temple on full moon poya day?

Very often	Often	Occasionally	Rarely	Never
1	2	3	4	5
☐	☐	☐	☐	☐

4. How often do you pray private prayer?

Very often	Often	Occasionally	Rarely	Never
1	2	3	4	5
☐	☐	☐	☐	☐

5. What is your main motivation to pray?

_____

6. How often do you discuss questions regarding your religion with others or yourself?

Very often	Often	Occasionally	Rarely	Never
1	2	3	4	5
☐	☐	☐	☐	☐

7. How important is God, deities or something divine for your everyday life?

Very much	Much	Moderately	A little	Not at all
1	2	3	4	5
☐	☐	☐	☐	☐

8. Do you have practices or behaviors which are not in line with the principles of your religion?

Very often	Often	Occasionally	Rarely	Never
1	2	3	4	5
☐	☐	☐	☐	☐

9. To what extend do you believe that God, deities or something divine exists?

Very much	Much	Moderately	A little	Not at all
1	2	3	4	5
☐	☐	☐	☐	☐

10. To what extend do you believe in an afterlife, e.g. immortality of the soul, resurrection of the dead or reincarnation?

Very much	Much	Moderately	A little	Not at all
1	2	3	4	5
☐	☐	☐	☐	☐

11. How often do you experience situations in which you have the feeling that God, deities or something divine allows for intervention in your life?

Very often	Often	Occasionally	Rarely	Never
1	2	3	4	5
☐	☐	☐	☐	☐

12. All in all: how religious would you describe yourself to be?

Not at all religious	A little	Moderately	Fairly	Very religious
1	2	3	4	5
☐	☐	☐	☐	☐

H. SOCIAL NETWORK

1) Are you or anyone in your household a member of any group, association or organization?

☐   Yes

☐   No   [→ please go to Section I]

2) In total, how many groups, associations or organizations does your household belong to?

☐☐ Organizations

3) What kind of group, association or organization do you belong to? [INTERVIEWER INFORMATION: multiple answers possible; please tick as mentioned by respondent]

☐   Village development society

☐   Women rural development society

☐   Religious society

☐   Savings group / association

☐   Agricultural association, Fishery society

☐   Sports club

☐   Political party

☐   Other, specify: _____

☐   *Not applicable to respondent*

I. INCOME AND WEALTH

[INTERVIEWER READOUT: finally, I would like to ask you some questions on the sources of your households' income during the past 12 months and the assets you own.]

1) How many members of your household generate income? ▢▢ People

[INTERVIEWER READOUT: now, I will read out different sources of income. Please tell me, during the last 12 months did your household receive income from the following jobs and how much?]

2) a. **Permanent job** with an enterprise, company or government?
   ▢   Yes
   ▢   No   [→ please go to Question 3]

   b. During how many months in the past 12 months did your household receive income from this source?   ▢▢ Months

   c. What was the average income per months from this source?   ▢▢▢▢▢ LKR

3) a. **Temporary job / Casual labor**?
   ▢   Yes
   ▢   No   [→ please go to Question 4]

   b. During how many months in the past 12 months did your household receive income from this source?   ▢▢ Months

   c. What was the average income per months from this source?   ▢▢▢▢▢ LKR

4) a. **Self-employment**, e.g. trader, shopkeeper, baker, dressmaker?
   ▢   Yes
   ▢   No   [→ please go to Question 5]

   b. During how many months in the past 12 months did your household receive income from this source?   ▢▢ Months

   c. What was the average income per months from this source?   ▢▢▢▢▢ LKR

5) a. **Agricultural production** (crops, vegetables, fruits and its processing)?
   ▢   Yes
   ▢   No   [→ please go to Question 6]

   b. During how many months in the past 12 months did your household receive income from this source?   ▢▢ Months

   c. What was the average income per months from this source?   ▢▢▢▢▢ LKR

6) a. **Livestock breeding** (including selling meat, milk and other processing)?

☐ Yes

☐ No [→ please go to Question 7]

b. During how many months in the past 12 months did your household receive income from this source? ☐☐ Months

c. What was the average income per months from this source? ☐☐☐☐☐ LKR

7) a. **Social benefits or other government transfers, e.g. pensions**?

☐ Yes

☐ No [→ please go to Question 8]

b. During how many months in the past 12 months did your household receive income from this source? ☐☐ Months

c. What was the average income per months from this source? ☐☐☐☐☐ LKR

8) a. **Money received** on a regular basis from someone living and working abroad?

☐ Yes

☐ No [→ please go to Question 9]

b. During how many months in the past 12 months did your household receive income from this source? ☐☐ Months

c. What was the average income per months from this source? ☐☐☐☐☐ LKR

9) a. **Money received** on a regular basis from someone living and working in Sri Lanka?

☐ Yes

☐ No [→ please go to Question 10]

b. During how many months in the past 12 months did your household receive income from this source? ☐☐ Months

c. What was the average income per months from this source? ☐☐☐☐☐ LKR

10) a. Did you or any other member of your household receive **any other type of income** that we have not already listed?

☐ Yes

☐ No [→ please go to Question 11]

b. During how many months in the past 12 months did your household receive income from this source? ☐☐ Months

c. What was the average income per months from this source? ☐☐☐☐☐ LKR

11) Does your household own… ?   Yes   No

  a. the place you live in?   ☐   ☐

    size of household land   _____acre _____perch

  b. any additional land, e.g. agricultural land?   ☐   ☐

    size of agricultural land   _____acre _____perch

  c. telephone (landline / mobile) ?   ☐   ☐

  d. TV?   ☐   ☐

  e. radio / tape?   ☐   ☐

  f. stove (electric, gas, kerosene)?   ☐   ☐

  g. refrigerator / freezer?   ☐   ☐

  h. electric fan?   ☐   ☐

  i. electric water pump?   ☐   ☐

  j. non-motorized vehicle (bicycle, boat)?   ☐   ☐

  k. motorized vehicle? (motorbike, motor boat?)   ☐   ☐

  l. livestock (e.g. cattle, chicken, goat, sheep)?   ☐   ☐

      # of cattle   ☐ ☐ ☐

      # of chicken   ☐ ☐ ☐

      # of goat   ☐ ☐ ☐

      # of sheep   ☐ ☐ ☐

      # of other   ☐ ☐ ☐

RECEIPT

[INTERVIEWER INSTRUCTION: Please complete after finishing the questionnaire together with participant)

I _____ (NAME OF THE RESPONDENT)

received a sum of _____LKR as the amount earned in the task.

DATE_____

PLACE_____

SIGNATURE_____

Appendix 6: Impressions from the field study

Team of Data Collectors

Source: Author's own pictures

Training of Data Collectors

Source: Author's own pictures

Household Survey and Risk Aversion Lottery

Source: Author's own pictures

Appendix 6: Impressions from the field study

Household Survey and Risk Aversion Lottery

Source: Author's own pictures

Focus Group Discussions

Source: Author's own pictures

Appendix 7: Variance inflation factors for explanatory variables

Explanatory variable	Model			
	Social Capital	**Muslims**	**Hindus**	**Takaful**
Young dependency	1.05	1.07	1.20	1.47
Age	1.16	1.18	1.29	1.47
Wealth	1.24	1.27	1.32	1.35
Financial literacy	1.10	1.08	1.25	1.30
No of social network memberships	1.11	1.22	1.08	1.61
Generalized trust	1.14	1.17	1.10	1.33
Information exchange with peers	1.08	1.11	1.24	1.68
Peers with insurance	1.26	1.14	1.17	1.30
Informal risk sharing	1.13	1.08	1.16	1.35
Interest	1.20	1.19	1.18	1.19
Solidarity	1.34	1.18	1.29	1.70
Risk aversion – small stake	1.16	1.22	1.21	1.55
Risk aversion – large stake	1.16	1.23	1.27	1.70

Source: Author's own calculation

Appendix 8: Logit model results

Variables	Marginal effects Probit model Social Capital	Marginal effects Logit model Social Capital	Marginal effects Probit model Hindus	Marginal effects Logit model Hindus	Marginal effects Probit model Family Takaful	Marginal effects Logit model Family Takaful
	(1)	(2)	(3)	(4)	(5)	(6)
Socio-Economic						
Young dependency	0.00663	0.00460	0.260	0.251	0.0398	0.0357
	(0.0740)	(0.0750)	(0.185)	(0.195)	(0.0845)	(0.0902)
Age	-0.000440	-0.000637	-0.00453	-0.00450	-0.00499***	-0.00503***
	(0.00172)	(0.00177)	(0.00351)	(0.00351)	(0.00185)	(0.00190)
Wealth	0.0355***	0.0357***	0.0839***	0.0817***	0.0659***	0.0673***
	(0.0117)	(0.0118)	(0.0200)	(0.0198)	(0.0132)	(0.0132)
Financial literacy	-0.00936	-0.0137	-0.0119	-0.0121	0.0125	0.0131
	(0.0203)	(0.0210)	(0.0389)	(0.0401)	(0.0217)	(0.0225)
Social Capital						
Membership	0.0302	0.0318	0.0239	0.0202	0.0228	0.0241
	(0.0195)	(0.0201)	(0.0347)	(0.0350)	(0.0198)	(0.0203)
Generalized trust	0.0493	0.0529	0.111	0.106	0.0343	0.0367
	(0.0405)	(0.0404)	(0.0684)	(0.0695)	(0.0424)	(0.0430)
Information	-0.146***	-0.159***	-0.114	-0.116	-0.139***	-0.142***
	(0.0447)	(0.0484)	(0.0824)	(0.0860)	(0.0434)	(0.0450)
Imitation	0.0997**	0.0987**	0.160**	0.160**	0.0401	0.0371
	(0.0416)	(0.0437)	(0.0733)	(0.0745)	(0.0431)	(0.0436)
Informal risk sharing	-0.0714*	-0.0683*	0.0779	0.0799	-0.00860	-0.00996
	(0.0390)	(0.0395)	(0.0755)	(0.0767)	(0.0446)	(0.0457)
Religion						
Interest	0.113**	0.115**	0.134*	0.132*	0.0830*	0.0786*
	(0.0447)	(0.0468)	(0.0785)	(0.0796)	(0.0456)	(0.0453)
Solidarity	0.0655***	0.0687***	0.0988***	0.101***	0.0734***	0.0743***
	(0.0165)	(0.0170)	(0.0313)	(0.0318)	(0.0164)	(0.0168)
Risk aversion – small losses	0.00408	0.00707	0.0215	0.0197	-0.0107	-0.00916
	(0.0176)	(0.0183)	(0.0333)	(0.0344)	(0.0191)	(0.0198)
Risk aversion – large losses	-0.0183	-0.0171	-0.0338	-0.0336	-0.0179	-0.0168
	(0.0181)	(0.0191)	(0.0334)	(0.0340)	(0.0186)	(0.0197)
Observations	306	306	183	183	424	424

Source: Author's own calculation; Note: Standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Curriculum Vitae

Anja Erlbeck

Professional Experience

Apr 2017 – present	**Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Bangkok** *Project Manager Crop Insurance: Remote-sensing based Information and Insurance for Crops in Emerging Economies (RIICE)*
Jan 2014 – Mar 2017	**Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), Eschborn** *Technical Advisor and Portfolio Management – Financial Systems Development and Insurance*
Apr 2012 – Dec 2013	**Central Krankenversicherung, Cologne** *Corporate Development – Strategic Project Portfolio Management*
Oct 2010 – Mar 2012	**International Graduate Program, Generali Deutschland**
Aug 2001 – July 2003	**Full Bank Training, WestLB AG, Düsseldorf**

Education

Apr 2010 – Mar 2017	**University of Cologne** *Department of Risk Management and Insurance – Associated PhD Student*
Apr 2004 – Mar 2010	**University of Cologne** *Diploma in Economics and Social Sciences*

Research Grants

Jul 2013 – Jul 2014	**Deutscher Verein für Versicherungswissenschaften**