

Under the Weather? Uptake of Index-Based Weather Insurance in Santa Lucia

The case of farmers' demand for the
Livelihood Protection Policy (LPP) in Saint Lucia –
Results and Policy Recommendations



Photo: CMMoore

OUR NEXT ENDEAVOUR

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If you wish to wish to comment on this paper, please write to Dr. Christina Tewes-Grادل (c.gradl@endeava.org)!

We are keen to hear your reactions.



|| Bananas are the most important cash crop of Saint Lucia. Vegetables are grown for local consumption. Strong winds and heavy rainfalls can easily destroy a complete harvest.

Photo: Marius Ehrlenspiel

Executive Summary

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Policymakers have frequently heralded index-based agricultural microinsurance as a panacea to provide farmers in developing countries with insurance against increasingly adverse weather conditions. Looking at the facts, however, tells a different tale: a large majority of smallholders in the Global South remain without a safety net in case disaster strikes. In fact, many of the costly index-based insurance schemes that were enthusiastically launched all over the developing world have since become obsolete or have encountered far less demand than initially expected.

The bulk of research on low demand for index-based weather insurance implicitly suggests that increasing demand is primarily a matter of "raising awareness" of the target group. The value of this product for the target group is rarely questioned. This bears the question: are low take-up rates for index-based insurance simply a matter of the poor not understanding the benefits of what is offered?

This study strongly indicates that low-take up rates are not merely a matter of low financial literacy and/or lack of trust, but can also be attributed to the product itself. This research shows that not buying insurance can, too, be a well-informed, rational decision. For instance, in the examined case of farmers' demand for the Livelihood Protection (LPP) in Saint Lucia, significant gaps between product characteristics and farmers' risk perceptions were revealed. While this finding is very product-specific and does not allow for extrapolation, the underlying approach is transferrable and holds crucial implications for researchers, as well as development practitioners.

Still, however, this study argues that index-based microinsurance is a promising instrument for climate change adaptation and provides a comprehensive set of policy recommendations. In addition to accounting for specific product characteristics, these recommendations also explore options to encourage community-based risk-sharing, as well as different forms of government involvement.

1 Introduction

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In the face of unprecedented challenges posed by climate change and an ever-increasing global population, the need for effective risk protection in the agricultural sector has never been greater. In this context, improving farmers' access to risk-transfer instruments, such as insurance, forms an integral part of adapting to these stressors. Yet, the vast majority of smallholders in the developing world remains without insurance against adverse weather conditions.

The international community widely recognizes the need to improve smallholders' resilience by means of insurance. This is reflected in the agendas and outcomes of both the G7 summit in Elmau and the 2015 Paris Climate Conference. The G7 Initiative on Climate Risk Insurance aims at providing insurance to an additional 400 million poor and vulnerable people in developing countries by 2020. The political will to improve smallholders' risk protection is accompanied by relatively recent advancements in the design of agricultural microinsurance products. In the past, high administration costs, moral hazard, adverse selection and minimal prospect of profits have caused many to conclude that agricultural smallholders in developing countries are simply uninsurable.

The emergence of index-based weather insurance, however, has encouraged hopes of making agricultural insurance - by design - widely available and affordable for low-income farmers in developing countries. By linking payouts to objectively verifiable data, such as rainfall, rather than farmers' individual losses, as is the case in traditional indemnity-based insurance, index-based insurance is set out to wipe away the previously outlined hindrances for both insurance companies and smallholders. As for insurance providers, client behavior no longer has the power to jeopardize the business model, and time and cost-intensive on-farm visits to assess claims are no longer necessary. Farmers are said to benefit for similar reasons. Lower administration costs on the part of the provider will ultimately be reflected in lower premiums for the target group and thus make insurance affordable for an increasing number of people. Also, smallholders need not undergo complicated and time intensive claims processing.

However, the index-based approach to weather insurance comes with a range of challenges of its own. Most notably, basis risk – the “discrepancy between measured risks at the meteorological station level and the occurrence of weather shocks at the location of the farm of the insured” (Carter et al., 2014, p.7) – is considered a major bottleneck. Despite technical challenges, index-based weather insurance has become very popular among policymakers and international donors alike, and schemes have already been implemented all over the developing world.

Applied to the case of the Livelihood Protection Policy (LPP) in Saint Lucia, this study addresses an aspect of index-based weather insurance which, in the face of widespread enthusiasm, is frequently neglected: **Thus far, most index-based weather insurance schemes have encountered low demand** (Binswanger-Mkhize, 2012).

2 Study Context

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Saint Lucia is among the 38 UN member countries that, since 1992, have been classified as Small Island Developing States (SIDS). Due to their size and location in the sea, SIDS face “(...) specific social, economic and environmental vulnerabilities (...)” (UN-OHRLS, 2011, p.2) with regard to “(...) multiple stressors, both climate and non-climate” (IPCC, 2014, p.1616). Much like other SIDS in the Caribbean, Saint Lucia’s economic vulnerability can be attributed to a high degree of trade openness, high levels of public debt, lack of economic diversification (dependence on tourism and agriculture), as well as a narrow export base (e.g. UNDP, 2010; Lashley and Warner, 2013). Regarding environmental conditions, the region has always been prone to storms, droughts and floods.

Saint Lucia’s increased environmental vulnerability is closely linked to the fact that the Caribbean and SIDS in particular are amongst those regions most affected by the adverse effects of climate change (Carabine and Dupar, 2014). This vulnerability is mainly caused by two factors. First, the biophysical conditions, including topography and its location just above sea level in the hurricane belt, expose the island to storms and floods. Second, the large majority of people and infrastructure are located in coastal areas. These factors make the island highly susceptible to “(...) sea level rise, invasive species, ocean acidification, changing rainfall patterns, and increased temperatures” (Lashley and Warner, 2013, p.2). Furthermore, Saint Lucia is likely to increasingly suffer from natural hazards. In fact, studies show that the quality of natural hazards in the region has already changed over the past decades, in terms of both frequency and intensity (ECLAC, 2011). This is echoed by the IPCC (2014) in their Fifth Assessment Report, which states with a very high degree of confidence that the adverse effects of climate change in the Caribbean go beyond mere projections and have already become a reality that will get worse.

The inextricable link between economic and environmental vulnerability manifests itself in the estimated effect on GDP. Several studies (e.g. CCRIF, 2011) suggest that climate change will detrimentally affect economic growth in Saint Lucia. Furthermore, Saint Lucia and other SIDS face disproportionately high costs, relative to the size of their economies, in their efforts to adapt to climate change (IPCC, 2014). This is due to the fact that costly infrastructural works call for “(...) large up-front overhead costs, which, in the case of small islands, cannot be easily downscaled in proportion to the size of the population or territory” (ibid, p.1626).

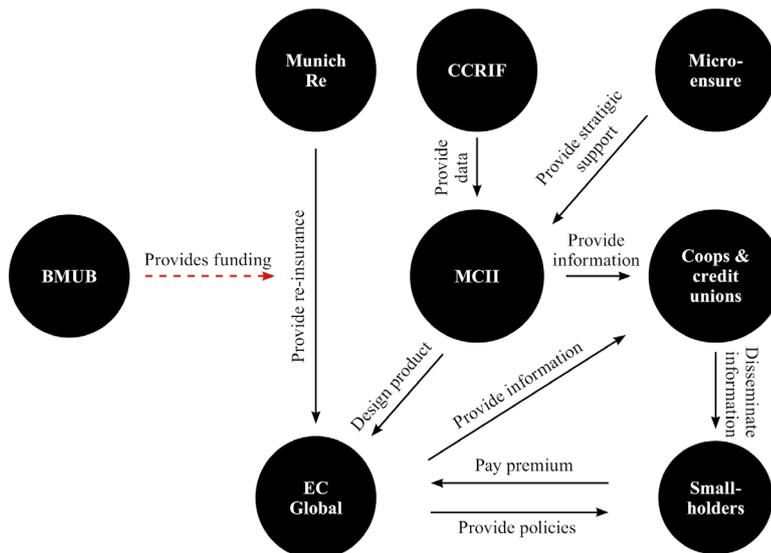
Both economic and environmental vulnerability affect the social dimension in the region in multiple ways. Most prominently, they materialize in the form of increasing poverty levels and brain drain (e.g. Lopez-Marrero and Wisner, 2012; Lashley and Warner, 2013). According to the latest Country Poverty Assessment (CAP) conducted in 2005/2006, roughly one in three Saint Lucians (30.4 percent) falls below the poverty line (Caribank, 2006). In addition, the report finds that 40.3 percent of people can be considered vulnerable to fall into poverty as a result of an unanticipated event such as an economic shock or a natural hazard. The increasing strains are also reflected in spiraling unemployment rates: while in 2005 the rate was at 15.7 percent (ibid), recent years have seen unemployment rates as high as 25.4 percent in 2014 (Saint Lucia Statistics Office, 2015).

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The Livelihood Protection Policy

Against the backdrop of this economic-environmental-social vulnerability triad, the Livelihood Protection Policy (LPP) - an index-based insurance product - was launched in Grenada, Jamaica and Saint Lucia between 2011 and 2014. The product offers insurance coverage against two perils with which the region is frequently afflicted: high-winds and flooding. Since drought has increasingly threatened agricultural production in the region, the implementing organization, Munich Climate Insurance Initiative, confirmed that efforts to include drought into the product are underway. The LPP is specifically designed for low-income populations and seeks to strengthen their resilience in the face of adverse weather conditions. While the LPP is available for anyone, farmers are the main target group, as the aftermath of disastrous weather events are arguably hardest on their livelihoods. In Saint Lucia, one policy is available for 80 East Caribbean Dollar (ECD) (approx. 30 USD) and a full payout amounts to 1000 ECD (approx. 370 USD). The maximum annual payout is 100 percent of the sum insured, irrespective of the number of disastrous events that occurred in the given year.

The organizational structure of the LPP project involves a variety of public and private sector actors. The organizational set-up, as schematically depicted in the graph below, is as follows: the project received 2,035,530 € (2,280,280 USD) funding in the frame of the International Climate Initiative (IKI) which is managed by the German Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB). The implementing organization of the project is the Munich Climate Insurance Initiative (MCII), a think tank hosted by the United Nations University Institute for Environment and Human Security (UNU-EHS). Insurers, climate change experts, NGOs, and policy researchers form MCII. Project partners, such as the Caribbean Catastrophe Risk Insurance Facility (CCRIF) and MicroEnsure, a UK-based company providing specialty insurance in Africa, Asia and the Caribbean, have provided support through strategic guidance and/or data collection. EC Global, a domestic insurance company, markets and sells the LPP. Munich Re, a multinational insurance company based in Germany, provides reinsurance. Coops & credit unions and Small-holders are the primary beneficiaries of the LPP.



Graph 1: Organizational structure
Source: Endeava

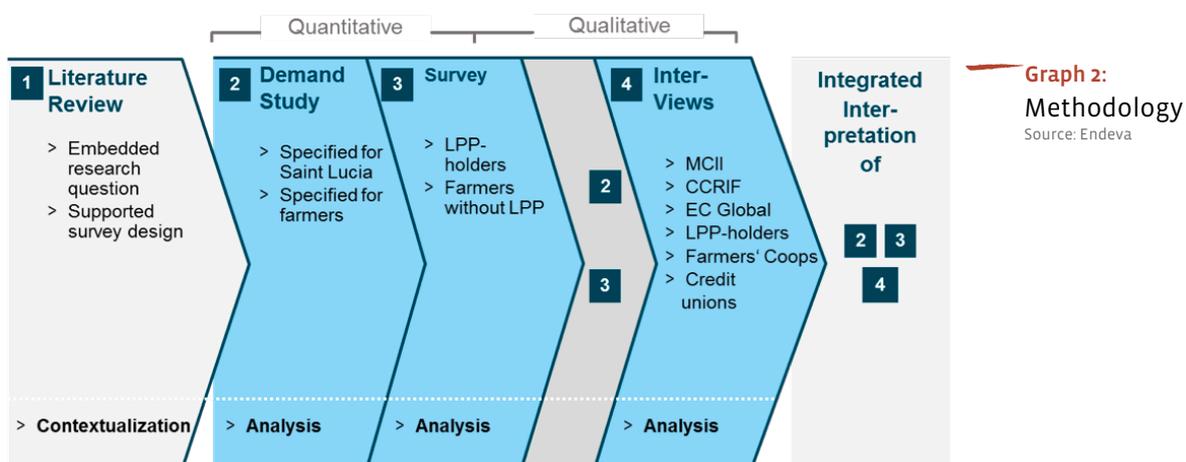
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Similar to many other index-based weather insurance schemes in the developing world, demand for the LPP amongst the target group has hitherto fallen short of expectations. In fact, data provided by EC Global shows that, in the time period between February 2013 and June 2015, only a total of 59 people purchased the LPP in Saint Lucia. This falls considerably short of the 3000 people that were envisaged. 39 percent (23 people) of policyholders worked in the agricultural sector. As some did not renew their policies, there were a total of 19 policyholders in the agricultural sector at the time field research was conducted in May and June 2015.

Research question, Theoretical framework and Methodology

The question behind this research is twofold. First, the paper seeks to explain why demand for the Livelihood Protection Policy has been rather modest thus far. Second, the research intends to identify what determines farmers' demand for the product. The underlying theoretical framework of the study largely applies the works of Outreville (2012) and Eling et al. (2013), in which determinants of demand for microinsurance are classified into three categories: economic factors, social and cultural factors and structural factors. In addition, this study scrutinizes how product characteristics of the LPP (e.g. coverage) may have affected demand. Hence, this research takes into account both household and product characteristics and thus combines the two prevailing lines of research on the demand for index-based microinsurance products.

In so doing, a mixed-methods approach that employs quantitative and qualitative data was used. Building on data from the 2011 demand study, surveys with LPP-holders and non-LPP-holders were carried out during field research. Subsequently, semi-structured interviews with relevant stakeholders were conducted in order to elaborate and triangulate the obtained findings.



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As for product price, findings suggest that price plays a significant role in explaining the low demand for the LPP. In terms of income, data shows that higher income levels correlate with demand for the LPP.

As far as basis risk and risk aversion are concerned, this study shows that risk aversion does not necessarily translate into higher insurance uptake. On the contrary, the target group frequently views purchasing insurance itself as a risk. Therefore, risk aversion in the face of basis risk is likely to have curbed demand for the LPP.

Scrutinizing the role trust plays in low demand for the LPP led to two key findings. First, the target group has little trust in the insurance industry, which negatively affects product demand. Second, farmers' cooperatives and credit unions, too, have little trust toward EC Global and are consequently reluctant to sell and promote the LPP.

Education and fatalistic worldviews do not explain low demand for the LPP. While LPP-holders have attained a higher level of education than uninsured farmers, no effects on demand were found. Similarly, the hypothesis that fatalistic worldviews explain low demand was dismantled by showing that the vast majority of surveyed farmers engages in adaptation measures other than insurance.

In terms of risk perception and past shocks, findings are ambiguous. In the 2011 sample, higher risk perception increases the demand for insurance. This, however, does not hold for the 2015 sample. In this regard, it is imperative that product coverage be considered. The product for which demand was assessed does not cover drought. In the 2011 sample farmers did not indicate that drought was an issue. By contrast, in 2015, drought was perceived as the major risk compared to flooding and high-winds. Climate change perception among the surveyed farmers is high. This does, however, not (yet) translate into demand for the LPP.

The analysis of LPP product characteristics brought to light significant gaps between LPP coverage and farmers' needs. According to this study, the fact that, under current contractual conditions, drought is not part of the policy is one of the main reasons for low-demand.

Moreover, low marketing activity and insufficient stakeholder involvement have hindered LPP-uptake. In this vein, findings suggest that marketing efforts have gradually decreased and almost come to a stalemate at the time of field research. Similarly, some stakeholders deplore that they have not been sufficiently consulted in the implementation phase and consequently lack identification with the product.

The following discusses these results in greater detail.

Economic factors

In the face of the target group's high price sensitivity, results suggest that the amount of 30 USD per policy is likely to have deterred some farmers from buying the product. Using data from the initial demand study, this study does not find a statistically significant difference between product demand for one policy at 7.40 USD* and 14.80 USD. On average, respondents indicated willingness to purchase 3.48 policies. The median is at four policies. Based upon this finding, the LPP ended up costing 30 USD annually. Measures of dispersion reveal that 36 percent of respondents in the demand study only indicated willingness to purchase one or two policies. Thus, their willingness to pay is substantially below the eventual price of the product. Similarly, 27 percent of the non-policyholders surveyed in 2015 claimed that the product being too expensive is a hindrance to their take-up. Finally, the assumption that the eventual price is likely to have deterred some from buying the product was also echoed qualitatively. To this end, interviewees either argued that even 30 USD exceeds the poor's financial means or that price becomes an issue, as one policy is insufficient for protection.

* In the 2011 demand study the price of the product for which demand was assessed was at 7.40 USD per policy.

Higher income seems to increase the likelihood of purchasing the LPP. Income among the surveyed LPP-holders is four times higher as compared to their uninsured peers. In fact, applying the criteria of the Saint Lucian National Poverty Assessment Report (2007) reveals that only 18.2 percent of the surveyed LPP-holders can be considered poor. By contrast, among the non-LPP-holders in the 2015 sample, 58.3 percent fall below the poverty line and 34.4 percent of respondents in the demand study, respectively. Moreover, correlating income levels and product demand for both samples yields a weak positive relationship between income and demand for the LPP. The analysis of the qualitative interviews confirms these findings, with interviewees arguing that the LPP is more suitable for middle-income households. In this context, it was also mentioned that the bulk of Saint Lucian farmers not only earns little income but, due to the idiosyncrasies of the agricultural sector, their income is also particularly volatile and unpredictable. Ironically, in order to improve farmers' predictability by means of insurance, steady income sources seem to be a crucial factor. Referring to said income volatility, one interviewee stated that buying a policy "can be a decision you regret next month when the money you spent on a premium could serve you better in the here and now". Finally, it can be concluded that, thus far, the LPP has encountered particularly low demand amongst those for whom it was initially designed – low-income people.

Social- and cultural factors

Concerning the relationship between risk aversion and insurance demand, interviewees frequently argued that purchasing insurance is not necessarily perceived as a risk-mitigating tool but rather as a risk itself. In fact, several interviewees and survey respondents drew the analogy between insurance and a lottery: "That problem [that insurance is perceived as a loss if the insured event does not occur] is very pervasive. Even at the highest decision-making

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levels in the country, that is how people perceive it. They are not looking at it as a risk transfer, but as a lottery, which they lose if the insured event does not occur.” In light thereof, one interviewee emphasized that this perception might be particularly strong among the low-income population. Similarly to the connection between income and LPP demand, he suggested that “risk aversion can also be viewed in another way. Initially you might think insurance is the right way, but then when your income is so inconsistent you might feel it is best to hold on to whichever amount you have and not spend it on insurance.” In this context, basis risk, which is widely considered the Achilles’ heel of index-based weather insurance, is believed to invigorate this perception. “Basis risk is a major problem. It is hard to understand that when you have insurance you still might not get paid.” In line with the literature findings regarding basis risk under the assumption of bounded rationality (Patt et al., 2009), one respondent noted: “If you decide to buy insurance against something that you are afraid of, then the idea that there is still a chance that you don’t actually get a payout is a problem and people focus entirely on that.” Risk aversion in the face of basis risk and thus the possibility of non-performance is frequently viewed as an obstacle to higher demand for the LPP.

Regarding the role of trust in the uptake of the LPP, two relationships emerged to be of significance. First, is the level of trust low-income farmers in Saint Lucia have towards insurance companies. In the demand study (2011), 27.8 percent of surveyed farmers indicated that lack of trust was one of the reasons they did not have insurance. In addition, more than one in three farmers (36.6 percent in 2011) and almost half of the respondents in 2015 (46.8 percent) either “disagree” or even “strongly disagree” with the statement “I have a high level of trust in insurance companies to pay out what was promised.” 2015 data also shows that LPP-holders trust insurance companies more than their uninsured peers. The qualitative interviews corroborate these quantitative findings. Disregarding their role, all interviewed LPP-stakeholders emphasized that lack of trust between the target group and insurance companies remains a challenge. This is reflected in the following statement: “Insurance culture is weak because of trust issues. Many people will say: I have tried insurance and it failed me.” During qualitative interviews, a second dimension of trust – that between the involved organizations – was revealed. The organizational structure of the LPP-program envisages that farmers’ organizations and credit unions, towards which the target group maintains long-lasting and trustful relationships, should be actively involved in promoting and even selling the product. However, several interviewees emphasized that the relationship between the insurance company (EC Global) and the respective farmers’ organization and/or credit union is rather characterized by distrust and prevailing reservations. The main concern in this context appeared to be that if EC Global does not deliver as promised it would ultimately reflect poorly on the member-based organization itself. As a consequence, these organizations admitted to being reluctant to fully commit themselves to promoting and selling the LPP, which ultimately means they do not fulfill their intended role as intermediary organizations.

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The present research finds no evidence that education and/or financial literacy plays a significant role in explaining the weak demand for the product. Data shows that policyholders have on average attained substantially higher degrees than the uninsured. Nonetheless, when looking at levels of demand for the product in both samples (2011 and 2015), education does not seem to have an effect. In addition, qualitative data collected in the 2015 sample of non-policyholders shows that product understanding is generally high. This finding was reiterated in interviews in which interlocutors also attested that farmers understand both the index-based approach and the LPP coverage very well. Thus, the target group's decision not to buy the LPP cannot simply be attributed to lack of understanding, but rather appears to be a well-informed decision.

Fatalistic worldviews do not seem to play a role in the decision not to buy insurance. Some interviewees attributed low demand for the LPP to a prevailing "whatever happens, happens culture," in which there is little interest to actively engage in effective risk management. In order to test this hypothesis, this study explored other adaptation measures farmers employ in the face of climate change. It was found that farmers by no means simply give in to fate and succumb to despair. On the contrary, the large majority of surveyed farmers engage in a number of risk-reducing strategies ranging from "planting trees for shading" to "changing crop varieties."

Structural factors

To gain insights on risk perception, surveyed farmers, both with and without insurance, were asked to assess their level of risk to high-winds, flooding and drought. In almost all categories, LPP-holders perceived their risk as higher, as compared to both the 2011 sample and the non-policyholders in 2015. When correlating the perceived risk exposure to high-winds and flooding – the perils against which the LPP provides coverage – with insurance demand, findings paint an inconclusive picture. The hypothesis that higher risk perception leads to increased insurance demand holds for the 2011 sample; however, it cannot be confirmed for the 2015 sample. In this context, timing of the research proved crucial. Saint Lucia experienced one of the most severe droughts in the past decades at the time of data collection. The fact that drought is not (yet) part of the LPP is thus likely to have played into these results.

Climate change awareness in Saint Lucia is exceptionally high and perceived as a real threat, to which farmers are exposed on a daily basis. In terms of how this affects demand for the LPP, data paints an inconclusive picture. Again, the perception of climate change as a threat is highest among LPP-holders, but also high among non-LPP-holders. Some interviewees argued that the fact that this has not translated into high demand for the LPP is because these new conditions are perceived as a new normality, and buying insurance is not among the coping mechanisms farmers are willing to employ. Others argued that risk perception in the face of climate change is high, and this would spur demand. Yet, the fact that the LPP does not cover drought impairs higher take-up rates, since drought is perceived as the greatest risk. Ultimately, the ways in which risk perception and climate change perception influence demand for the LPP are particularly difficult to assess given the gap between LPP coverage and farmers' perceived risk.

LPP product characteristics

Many of the determinants examined thus far implicitly assume that increasing the demand for index-based insurance products – including the LPP – is merely a matter of convincing the target group. Few of them actually address in how far the product at hand meets smallholders' needs. Therefore, this study reviews the product factors “coverage” and “marketing and stakeholder involvement” and their effect on demand.

In fact, coverage proved to be a major obstacle for uptake. First, farmers asserted that interactions between the two insured perils are not satisfactorily considered under the current terms of the policy. Even winds that do not trigger a payout can, according to smallholders, induce detrimental effects if soils are water-sodden due to rain. Second, and more importantly, interviewees deplored that the LPP does not cover drought, which marks a wide gap between product features, on the one hand, and farmers' needs, on the other hand. Farmers already perceive drought as the greatest risk to their agricultural production. In addition, forecasts project that Saint Lucia is likely to continue to suffer from serious droughts, especially in years with El Niño events. Ultimately, the analysis shows that farmers' needs may alter considerably within a relatively short period of time and thus emphasizes the necessity to continuously monitor product characteristics against the requirements of the target group: for instance, when demand for the LPP was assessed in 2011 and designed accordingly, farmers did not express that drought was a major concern.

Furthermore, marketing and stakeholder involvement of the LPP seems to be an issue that affects product demand. Here, the line of argument is twofold: first, representatives of farmers' cooperatives and credit unions, as well as farmers, feel that marketing channels ought to be amplified. Specific suggestions ranged from introducing the LPP at town hall meetings where the target group comes together to strengthening ties with the government by involving extension staff in the marketing of the product. Second, interviewees emphasized the need for continuous marketing. In this vein, it was frequently mentioned that, upon implementation, the product was actively marketed, while efforts on behalf of the insurer (EC Global) have faded ever since. Closely linked to this criticism are organizational issues that interviewees pointed to. Here, the main concern revolves around the sentiment that member-based organizations were presented with a fait accompli and had been insufficiently consulted in the design stage of the product. Consequently, they do not feel a sense of “ownership,” and are reluctant to promote the product.

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Based on the results obtained in this study, five policy recommendations can be derived. While the following is specifically designed to increase demand for the LPP, they, too, hold implications for other index-based agricultural microinsurance schemes.

Adjust product coverage to farmers' needs

In order to be attractive for farmers, the insurance product ought to provide holistic coverage against the major weather-related agricultural risks. The analysis conducted within the frame of this study shows that, since the demand study in 2011 and the field research in 2015, farmers' needs in terms of risk protection have altered considerably. Drought is now perceived as a major risk. In order to increase demand for the LPP, it is, however, imperative that the current gap between farmers' perceived needs and product coverage be kept at an absolute minimum. The results obtained in this study suggest that including drought into the LPP could considerably narrow this gap. According to the implementing organization (Munich Climate Insurance Initiative), efforts to include drought into the product are underway and once the project receives further funding the actuarial model will be adjusted accordingly. This carries important implications for the future design of the LPP. While smallholders are the main target group, the product should continue to be available for other customers as well for two main reasons. On the one hand, other low-income people in Saint Lucia also need to be given the opportunity to acquire risk protection. On the other hand, in a strict business sense, microinsurance products generally rely on a large customer base to allow for low premiums while generating reasonable profits for the insurance provider. Since drought primarily affects those involved in the agricultural sector, its inclusion into the LPP will ultimately call for a product differentiation. This could be in the form of a product that is for example labelled "LPP+" and specifically designed for farmers.

In general, coverage of weather insurance products must be reviewed regularly in order to remain relevant for the target group. The continuous monitoring of client demand and product characteristics is particularly relevant for index-based microinsurance schemes that follow a market-based approach. In order to gain an improved understanding of how the target group perceives their risk exposure and what they would expect from an insurance product, participatory methods of market research (e.g. focus groups) should be employed on a regular basis.

Build inter-organizational trust

Member-based organizations, such as cooperatives and credit unions, are important intermediaries for providing insurance. Farmers traditionally maintain long-lasting and trustful relationships with these organizations. Hence, for the LPP to work, it is imperative that these relationships be fully leveraged. The organizational set-up of the LPP intends for representatives of farmers' cooperatives and credit unions to be advocates of the LPP and familiarize the

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target group with the product. However, as shown in the present research, few representatives assume this role either due to reservations regarding the product or because of lack of trust toward the insurance provider. In this vein, issues that have caused distrust must first be reviewed rigorously. The MCII in its role as the implementing organization ought to function as an intermediary that brings together all relevant stakeholders. By organizing focus groups and round tables, trust issues can be addressed and solved in a timely and transparent manner. In order to avoid that trust issues again start to unfold subliminally, an institutionalized dialogue process that regularly brings together all relevant stakeholders ought to be implemented.

Again, this insight bears relevance for other index-based weather insurance schemes in developing countries. Most schemes build and rely on a network of partner-organizations, such as cooperatives and NGOs. The intention is to leverage trusting relationships between these organizations and the target group. This study indicates that even though official agreements have been signed, distrust may unfold subliminally and ultimately jeopardize project success. While trust issues between insurance providers and the target group are well recognized, trust issues between the organizations involved may equally affect product demand.

Bring in the government

In the face of relatively high price sensitivity among the target group, options for government assistance in the form of smart subsidies for insurance could be explored. This is particularly relevant in light of the potential expansion of LPP coverage to drought, which will also have an effect on pricing. Government subsidies could positively affect product demand in several ways. First, phase-out subsidies, which gradually decrease over time, could be a relatively cost-effective way to establish uptake and, ultimately, trust between farmers and the LPP. The government's involvement in the scheme could convey an increased sense of security among the target group that, in case disaster strikes, they will actually receive a payout. In order to make subsidies as targeted and cost-efficient as possible, the possibility of linking such subsidies to existing social security programs deserves attention. This could ensure that, in the face of restricted government funds, only those farmers in need benefit from subsidies. Beyond financial assistance, government involvement could be strengthened by integrating the LPP into existing government programs such as extension services and/or other educational programs targeted at the farming population. Again, this would address the trust issues previously outlined. In fact, increased government involvement could also be seen as an opportunity to combine various risk mitigation strategies. For example, subsidized insurance products could only be made accessible to those farmers who are willing to partake in trainings on how to implement risk-reducing strategies.

Research shows that, globally, most index-based weather insurance schemes that have reached scale are characterized by strong government involvement. One of the main reasons for strong government involvement lies in the target group's

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high price sensitivity and their subsequent inability to partake in many schemes that are strictly based on market-driven actuarial models. In fact, this also holds true for virtually all developed countries where agricultural insurance products are highly subsidized. As for developing countries, many experts have advocated for public-private partnerships in index-based microinsurance delivery because, unlike commercial insurance, they are capable of operating on a large scale for example due to their affiliation with national social security programs (Herbold, 2010). Public private partnerships that provide index-based agricultural microinsurance to low-income farmers and that are linked to social security schemes reach millions of low-income households. Examples include NAIS and mNAIS in India and CADENA in Mexico. In both cases, governments directly subsidize premiums by up to 90 percent, thus ensuring that poor and vulnerable populations are actually included. These programs are similar to traditional social protection schemes, with the difference being that governments pay the full (or a part of the) premium, while the risk is underwritten by insurance companies rather than governments. Beyond mere subsidies, some schemes have integrated innovative solutions, in terms of including the low-income target group. For example, the R4 Rural Resilience Initiative, a strategic collaboration between the World Food Programme and Oxfam America that operates in several Sub-Saharan countries, integrates an Insurance-for-Assets scheme. The scheme allows smallholders to obtain insurance coverage in exchange for their labor. Participants in the scheme work in community-identified, risk-reducing projects, such as creating compost pits to improve soil quality. Thus, even the poorest can take part in, and benefit from the index-based weather insurance product.

Continuous marketing tailored to farmers

The major bottleneck in terms of marketing the LPP at the time of field research seemed to be continuity. In fact, according to interviewees there was hardly any marketing for the product. As aforementioned, product enhancements, most notably the inclusion of drought will most likely lead to a product differentiation (LPP and LPP+). This should be considered an opportunity to re-launch marketing efforts, as it allows a more targeted approach to farmers. However, for marketing efforts to be successful, it is also critical that the previously outlined organizational issues be fixed. Again, almost all farmers in Saint Lucia are affiliated with member-based organizations, to which they maintain trustful relationships. Thus, for any of these measures to take effect, representatives of these organizations must be convinced and advocate for the product.

Index-based insurance products generally require continuous and comprehensive marketing efforts. These products are complex to communicate, especially in environments where insurance culture is weak and possibly even marked by bad past experiences. Therefore, marketing plays a key role in the success of a product. As is the case with the LPP, implementing organizations usually disseminate information via existing networks of local NGOs or member-based organizations, such as agricultural cooperatives or other farmers' associations. Potential clients usually trust these organizations, which makes them invaluable

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in marketing the insurance products. In addition, implementing organizations integrate product promotion into government extension services. Besides traditional training sessions, in which the functioning of the product is explained, many schemes have included brochures and launched advertisements that reach households via TV or radio programs. Additionally, collaboration with the target group helps to create acceptance and awareness. For example, engaging potential clients in role-playing games in the pilot phase has substantially increased product demand in the R4-initiative. Finally, research shows that the timing of marketing efforts is crucial: campaigning should start within the pilot phase and subsequently be continued on a regular basis, as providing only initial training has proven insufficient in marketing products effectively.

Set up scheme for farmers' organizations

In addition to the current policies targeted at individuals, options to set up community-based risk sharing should be explored. Like all index-based weather insurance products, the LPP carries basis risk which, according to this study, negatively impacts demand. By implementing a disaster trust fund, individual basis risk could be minimized, because, in the case of a payout, the money essentially becomes part of the community's resources. The community then distributes payouts according to actual losses. The strategy for re-allocating resources could be designed in various ways: first, independent assessors (e.g. staff of the cooperative, government extension agents, elected community member) could carry out a formalized loss assessment. In order to keep administration costs low, the costs for such an assessment must either be borne by the government or be integrated into unsalaried community services. This is crucial, as high administration costs are one of the pitfalls of traditional indemnity-based agricultural microinsurance. Second, mismatches between actual losses and the index-based payouts could be settled by the means of a discursive, participatory approach, in which consensus is reached by relying on existing community structures.

In both cases, the premium could be collected annually by the cooperative, which then proceeds to buy a bulk of policies from EC Global. This could be set to a minimum of one or two policies, with the opportunity to individually increase the number of policies. Besides less individual basis risk, a disaster fund managed by the member-based organizations is likely to positively affect demand for two reasons. First, it would epitomize the strong support and trust member-based organizations have toward the LPP. Secondly, by directly withdrawing the amount from members' savings accounts (Credit unions) or adding it to the fee (cooperatives), farmers do not need to initiate the renewal process. For member-based organizations, this could be viewed as an opportunity to extend and improve their client services: By offering a combination of insurance, on the one hand, and trainings on agricultural practices, on the other hand, member-based organizations position themselves as holistic service providers. Simultaneously, by moving toward a B2B model, the insurance provider could cut administration costs even further. The insurance provider neither markets the product nor distributes payouts to the end customer.

4 Policy recommendations

In environments where informal risk sharing arrangements are already in place, research strongly suggests that development practitioners and policy makers should consider options to combine informal and formal risk sharing mechanisms. Here, the underlying hypothesis is that in the face of basis risk formal and informal risk sharing arrangements are, by design, complementary and potentially cancel out each other's flaws. Dercon et al. (2014) and Mobarak and Rosenzweig (2012) argue that informal risk sharing arrangements on the community level are rarely capable of providing protection against aggregate risks that affect the entire community, such as drought and excessive rainfall. Formal insurance with basis risk, on the other hand, may lead to payouts not being distributed, based on severity of losses. Mobarak and Rosenzweig (2012) use national survey data from rural Indian households to test this hypothesis. They find that, in settings in which individuals are informally insured against both idiosyncratic and aggregate risk, informal insurance crowds-out market based products. In cases, however, where farmers are only informally insured against idiosyncratic risks, and aggregate risks are covered by an index-based product that carries basis risk, formal insurance products complement informal insurance. Similarly, Dercon et al. (2014) use a randomized controlled trial, in which existing informal insurance groups were randomly assigned to different risk management training curricula. They find that those groups whose leaders had received training focusing on the advantages of informally sharing basis risk are considerably more likely to buy formal index-based insurance products.



// Saint Lucia is a mountaineous and hilly island. Strong rainfall easily leads to landslides and floods.

Photo: Marius Ehrlenspiel

5 Conclusion

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Policymakers have frequently heralded index-based agricultural microinsurance as a panacea to provide farmers in developing countries with insurance against increasingly adverse weather conditions. Looking at the facts, however, tells a different tale: The large majority of smallholders in the Global South remain without a safety net in case disaster strikes. In fact, many of the costly index-based insurance schemes that were enthusiastically launched all over the developing world, have since become obsolete or have encountered far less demand than initially expected.

The bulk of research on low demand for index-based weather insurance implicitly suggests that increasing demand is primarily a matter of convincing the target group. In fact, aside from basis-risk, it is inherently assumed that index-insurance makes for a valuable contribution to improving smallholder's livelihoods. This bears the question: are low take-up rates for index-based insurance are simply a matter of the poor not realizing the value of what is offered?

This study strongly indicates that low-take up rates are not merely a matter of low financial literacy and/or lack of trust but can also be attributed to the product itself. This research shows that not buying insurance can, too, be a well-informed, rational decision. For instance, in the examined case of farmers' demand for the Livelihood Protection (LPP) in Saint Lucia significant gaps between product characteristics and farmers' risk perception were revealed. While this finding is very product specific and does not allow for extrapolation, the underlying approach is transferrable and holds crucial implications for researchers as well as development practitioners.

Still, however, this study argues that index-based microinsurance is a promising instrument for climate change adaptation and provides a comprehensive set of policy recommendations. In addition to accounting for specific product characteristics, these recommendations also explore options to encourage community-based risk sharing as well as different forms of government involvement.



|| Beekeeping and vegetable gardening are among the typical activities of farmers in Saint Lucia. At this small scale, farmers have few resources to recover from string winds and floods.

Photo: Marius Ehrlinspiel

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