



Appendix 1: Guidelines for indicators

Karla Henning and Andreas Landmann



Introduction

These guidelines are intended as a helpful tool for readers of *The Practical Guide to Impact Assessments in Microinsurance* who are evaluating microinsurance products based on the core indicators described in chapter 10 of the Practical Guide. The main focus of the guidelines is on generating data for quantitative methods, as they are described in chapters 5 and 6 of the Practical Guide. However, this is not meant to exclude other ways to define, measure, and analyse data. Rather, we want to present *possibilities* when analysing questions related to microinsurance. In general, this work is a collection of illustrations, research ideas, hints, and warnings. As such, it might (hopefully) be helpful for some without being misleading for others.

Initially, we always present a definition of the indicator, using intuitive language. Alternative definitions may exist, and we leave it to the readers to choose what is appropriate in their context. Next, we lay out potential reasons explaining why the indicator could be affected by microinsurance.

Thinking about explanations can help to form expectations about which type of insurance should affect the indicator most. We list all plausible candidates (emphasising the most obvious in bold font) from the following list of insurance types: health insurance, life insurance, livestock insurance (indemnity or index), crop insurance (indemnity or index), property insurance, and other. We provide examples of how to measure these indicators quantitatively, mostly drawn from well-established global surveys such as the Living Standards Measurement Survey (LSMS) and the Demographic and Health Surveys (DHS) from the World Bank. This ensures comparability with other data sets and applicability of items in a wide range of geographic settings. For the analysis, we propose details, such as subgroup analysis to identify heterogeneous treatment effects, whenever our theoretical considerations lead us to suspect such effects. We finally hint at combinations between the indicator and other measures that might be interesting to analyse jointly.

Outcome: Risk taking behaviour

Indicator: Productive investment as percentage of total income of the household

Definition of the indicator

The indicator measures the share of total income of a household that is not saved or consumed but invested for future production and income generation. Productive investment usually takes place in the context of entrepreneurial activity, and typically consists of investment in more sophisticated productive assets, yielding higher returns.

Theory of expected effects

In theory, high consumption risk deters households from investing in riskier but more profitable activities (Rosenzweig and Binswanger 1993; Dercon and Cristiaensen 2011). Following this argument, microinsurance should enable those with insurance coverage to make higher return investment decisions. In this case, insurance can enhance the productivity and total household income in the long term as a consequence of the change in risk taking behaviour. Cai et al. (2009) state that clients of a Chinese government livestock insurance scheme significantly increase their acquisition of sows, both regarding quantity and quality of the seeds.

Applicable type of risk coverage

- Health insurance
- Life insurance
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- Property insurance
- Other

As productive investment is strongly connected to entrepreneurship, and agricultural production is the main entrepreneurial activity in developing countries, risk coverage by livestock or crop insurance are obvious candidates for creating impact on productive investment. Of course, other types of insurance could also affect the willingness to invest, but their effect channels are less salient.

Measurement

- How much did you spend last week/month to buy tools, equipment, buildings, land, vehicles, fertiliser, seeds, livestock, etc., for your business or agricultural production?

Note: For more precise results, separate question for every input of productive investment, ask for different

periods of the year (cropping seasons): e.g., How much did you spent in total for [include roster with options] during the last cropping season?

Analysis

As this indicator is strongly connected to entrepreneurship and agricultural production, the analysis should mainly focus on economically active individuals. It also may be interesting to analyse heterogeneous effects by risk aversion because the decisions of risk averse individuals should be more affected by insurance. Furthermore, in the analysis of this indicator, income and wealth differences should be controlled for

because these differences could be prevalent factors in higher productive investment. For instance, farmers with more land may be more inclined to buy insurance and also invest more in productive inputs as they are likely to be more affluent and may lose more. As their higher investment in productive inputs could be due to their affluence and not to insurance, it could be interesting to control for the size of landholding or the number of livestock (or business size in case of non-agricultural entrepreneurship).

Combine with

- Total amount of loans taken
- Total amount of saving

Outcome: Risk taking behaviour

Indicator: Total amount of loans taken

Definition of the indicator

The total amount of loans taken captures the current indebtedness of the individual. Loans can be taken from various formal and informal sources (different sources should be clearly identified in the analysis). The indicator refers to the total monetary amount of the loans as well as to the number of outstanding loans.

Theory of expected effects

As a direct effect it is expected that in the context of ex-post risk mitigation, fewer loans are taken up to cushion the shock. As microinsurance is intended to encourage riskier but also potentially more profitable production decisions, a higher amount of loans taken for productive investment in the (agricultural) business could be an indirect effect of microinsurance. Nevertheless, in contrast to this assumption, Gine and Yang (2007) found that rainfall indexed insurance reduced farmer's take-up of loans for purchasing more productive, higher-yielding hybrid maize and better groundnut seeds. As a potential explanation for this unexpected observation, it can be argued that the effects of microinsurance might take longer to materialise

for low-income and more risk averse households, and why more risk seeking or wealthier households may adapt their risk taking behaviour in a shorter period of time (Radermacher et al. 2012).

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

Livestock and crop insurance can lead to a change in risk taking behaviour and a higher take-up rate of loans to invest in riskier, but also more efficient, production. On the other hand, a decrease of loan take-up, a method formerly used to compensate losses in agricultural production, can be expected as the risk is then covered by the insurance. Health and life insurance are expected to lead to higher take-up rates of loans, as in case of illness or death, the debt is not transferred to other family members and installments can still be covered due to the insurance pay out, compensating a loss in household income.

Measurement

- How many loans do you currently have (from informal lenders/formal lenders)?
- What is the total amount of your current debts?
- What was the amount of your loan repayments last week/month?
- For what purpose did you obtain the loan (esp. distinguish between business/farm use and personal use)?

Analysis

In the analysis of this indicator, it should be well identified for what purpose the loans are taken up. If they are taken as an insurance substitute (particularly in case of illness, death, crop failure, death of livestock, etc.), it is expected that the take-up of microinsurance leads to a decrease on the total amount

of loans taken. In the direct context of risk taking though, it is expected that insured individuals take up more and higher loans as uninsured individuals as insurance encourages them to engage in riskier and presumably more profitable production. The analysis should take account of a differentiation of contexts in which the loan was taken up. An important distinction has to be drawn between borrowing under stress (ex-post shock) and borrowing preemptively as part of an investment decision (Radermacher et al. 2012). Similar to instances of productive investment, it can be interesting to analyse heterogeneous effects by risk aversion.

Combine with

- Total amount of savings
- Productive investment as percentage of total household income

Outcome: Risk taking behaviour

Indicator: Total amount of savings

Definition of the indicator

The total amount of savings is the amount of household income not spent on consumption or investment but put aside for future use to cover recurring costs, unexpected expenditures, or consumption planned ahead (wedding, dowry, funeral, health costs, education expenses, farming inputs, etc.).

Theory of expected effects

Savings are an important risk mitigation tool for low-income households to protect themselves against shocks and stabilise cash flow. With insurance, precautionary savings are expected to decrease, whilst funds are expected to be preserved by insurance if a shock happens.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

All types of insurances listed are applicable in this case as savings can be intended to decrease a household's risk of suffering a financial shock in many dimensions (health, agriculture, property, etc.).

Measurement

- How much of weekly/monthly household income do you not consume or invest but put aside and save for future use? Provide roster with type of saving (private, institutional, savings group, etc.) and amount and purpose of savings (National Bureau of Statistics, Nigeria 2010).
- What is the amount of your current savings stocks?

Analysis

Due to the expected change in risk taking behaviour it may be interesting to analyse heterogeneous effects by risk aversion. Furthermore, different purposes and intentions behind the saving behaviour should be taken into consideration in the analysis as well as the form of saving (informal, institutional, savings group, etc.,).

Combine with

- Total amount of loans taken
- Productive investment as percentage of total household income
- Total amount of savings (ex-ante risk management strategy)
- Total amount of savings (ex-post risk management strategy)

Outcome: Risk management strategies (ex-ante)

Indicator: Total amount of savings

Definition of the indicator

The total amount of saving is the amount of household income not spent on consumption or investment but put aside for future use to cover recurring costs, unexpected expenditures, or consumption planned ahead (wedding, dowry, funeral, health costs, education expenses, farming inputs, etc.).

Theory of expected effects

Because vulnerable households are often reluctant to invest excess income productively, they often accumulate funds that can be accessed in the event of a shock. Savings are an important tool for low-income households to mitigate risk. With money set aside, households protect themselves against shocks and stabilise cash flow. Nevertheless, these precautionary savings yield only limited returns compared to savings that are invested on productive physical capital. With insurance, precautionary savings are expected to decrease, whilst funds are expected to be preserved by insurance if a shock happens.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

All types of insurances listed are applicable in this case as savings can be intended to decrease a household's risk of suffering a financial shock in many dimensions (health, agriculture, property, etc.).

Measurement

- How much of weekly/monthly household income do you not consume or invest but put aside and save for future use? Provide roster with type of saving (private, institutional, savings group, etc.) and amount and purpose of savings and aggregate amounts.
- What is the total stock of savings you currently have? (National Bureau of Statistics, Nigeria 2010).

Analysis

Due to the expected change in risk taking behaviour, it may be interesting to analyse heterogeneous effects by risk aversion. Furthermore, different purposes and intentions behind the saving behaviour should be taken into consideration in the analysis as well as the form of saving (informal, institutional, savings group, etc.).

Combine with

- Amount of liquid assets
- Number of income sources per household
- Number of memberships in Rotating Savings and Credit Associations (ROSCAs), Accumulating Savings and Credit Associations (ASCAs) and other informal savings networks per household

Outcome: Risk management strategies (ex-ante)

Indicator: Amount of liquid assets

Definition of the indicator

Liquid assets are either cash or assets that can be converted into cash in a very short time period and with a minimum loss of value. They can also be considered as a form of saving, which is rapidly disposable. For a facilitated conversion into cash an important prerequisite is the relative ease in transfer between different ownerships.

Theory of expected effects

Liquid assets are an important tool of low-income households' risk-mitigation – to protect themselves against shocks and stabilise cash flow. With insurance, liquid assets intended for risk mitigation are expected to decrease, whilst funds are expected to be preserved by insurance if a shock happens.

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

All forms of formal risk coverage via insurance can be applicable in this case if liquid assets are seen as an ex-ante risk management strategy. As they are by definition easily and quickly transferable into cash, they can compensate shocks that occurred due to all sorts of risks such as health, life, agriculture, or property.

Measurement

- Provide a roster with types of liquid assets, such as cash, bonds, deposits, gold, silver, minerals, etc., and consider culturally specific liquid assets, the current value of the [ITEM] the household owns, value of [ITEM] a year ago.
- How much has the household received from [ITEM] in the past 12 months (interest, dividends, profit, payments, etc.)? (National Bureau of Statistics, Nigeria 2010).

Analysis

One effect could be that insured individuals hold fewer liquid assets and use them for productive investment, savings, or other, more future related financial activities. In this context, it could be interesting to analyse heterogeneous effects by risk aversion, as the

risk averse might still hold on to informal ex-ante risk management strategies. Furthermore, it could be interesting to analyse heterogeneous effects with regards to the purpose of liquid assets, i.e., the intended use within a household for insured and uninsured (ex-ante risk management, funds of out-of-pocket expenses, savings, etc.).

Combine with

- Total amount of savings
- Number of income sources per household
- Number of memberships in ROSCAs, ASCAs, and other informal savings networks per household

Outcome: Risk management strategies (ex-ante)

Indicator: Number of income sources per household

Definition of the indicator

This indicator captures all sources of income in the household. These sources can be of both formal and informal nature. Potential sources could be jobs with regular or irregular wages, income from farming and livestock or from asset ownership (renting, borrowing, etc.).

Theory of expected effects

A common ex-ante risk management strategy of households is to diversify the risk of income shocks by increasing the number of income sources of the household. Thus, deficiency of one income source does not have catastrophic consequences for household income and the income shock remains rather small. Insurance should make income diversification less necessary.

Applicable type of risk coverage

- **Health insurance**
- Life insurance
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- Property insurance
- Other

All forms of formal risk coverage via insurance can be applicable in this case if a high number of income sources is seen as ex-ante risk management strategy. The highest applicability is given for those insurance types which cover risks that occur on a frequent basis with high probability (health insurance, crop and livestock insurance) rather than as a onetime future event (life insurance, funeral insurance, etc.).

Measurement

- Please list all sources of income of this household [provide roster by household members and sources of income] (National Statics Directorate Caicoli, Dili, Timor Leste and World Bank 2001).

Analysis

Under the assumption that informal ex-ante risk management strategies become crowded out by formal insurance, it might be that insured individuals reduce the number of income sources and focus on the most efficient ones with the highest revenue. Furthermore it can be expected that individuals are more willing to focus on rather risky and unstable jobs,

promising higher earnings rather than diversifying the risk of income loss by numerous jobs. Heterogeneous effects regarding the type of jobs could, thus, be an interesting issue for analysis. The number of income sources may, however, also depend on the characteristics and capabilities of the local labour market and the type of jobs available. In this regard, households displaying a particularly high or low degree of income source

diversification may also do this as a reaction to the structure of the job market and not due to their risk taking behaviour.

Combine with

- Total amount of savings
- Total amount of liquid assets
- Number of memberships in ROSCAs, ASCAs and other informal savings networks per household

Outcome: Risk management strategies (ex-ante)

Indicator: Number of membership in ROSCAs, ASCAs and other informal savings networks per household

Definition of the indicator

The indicator captures the number of memberships in different forms of savings networks per household. An informal savings group is a social organisation formed to help community members save money for specific purposes (either individual or community-level). The two most common examples are Rotating Savings and Credit Associations (ROSCAs) or Accumulated Savings and Credit Associations (ASCAs). ROSCAs function by taking monthly deposits from each member of a group and then giving the whole monthly sum to one member of the group. The recipient of the monthly sum is based on a predetermined rotation, ensuring each participant will eventually receive a large payout. ASCAs also require group members to make regular contributions. Instead of rotating payouts, the ASCA group fund is used to make loans that are paid back with interest. Loans are made either to group members or trusted third parties. After a certain period of time, the group fund and its interest are paid back to the original members (Anderson and Baland 2002).

Theory of expected effects

Informal savings networks are an important tool of low-income households' risk-mitigation – to protect themselves against shocks and to stabilise cash flow. With insurance, membership in these informal networks becomes less important in the context of risk management. Nevertheless, if membership is based on other intentions than risk mitigation, the number of memberships will rather remain stable.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

All forms of formal risk coverage via insurance can be applicable in this case if (numerous) membership(s) in informal savings association is seen as ex-ante risk management strategy.

Measurement

- Is anyone in your household member of an informal savings group? If yes, who and in which savings groups? Consider providing a roster with locally prevalent options.

Analysis

It could be interesting to analyse a potential change of purpose of memberships in informal savings networks under insurance as the savings left with the group may not be a part of

an ex-ante risk management strategy, anymore but rather a form of investment and financial diversification. In this context, it could be also interesting to control for heterogeneous effects regarding the amount of money put in the savings group.

Combine with

- Total amount of savings
- Total amount of liquid assets
- Number of income sources per household

Outcome: Risk management strategies (ex-post)/coping strategies in case of shocks

Indicator: Amount of formal loans taken in case of shock events

Definition of the indicator

This indicator captures the amount of formal loans taken up to mitigate a household shock. It, thus, refers to actions households take in order to cope with shocks after they have actually materialised. The indicator can refer to the monetary amount of the loans taken up in the context of a shock as well as to the quantity of loans.

Theory of expected effects

Alternative ex-post responses to shocks, like borrowing, can drain households of existing resources and place demands beyond the cash flow and savings capacity. Coping strategies involving borrowing and, thus, often exacerbate the pressures of debt. As a direct effect it is expected that, in the context of ex-post risk mitigation, fewer loans are taken up to cushion the shock under insurance. This assumption is due to the fact that loans are no longer needed (at least to the same extent) as a risk mitigation mechanism if the income shock can be cushioned by insurance. Thus, the intent of microinsurance here is to turn reactive ex-post risk management

practices into a proactive strategy of risk mitigation.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

All types of risk coverage listed can be applicable here as the indicator refers to ex-post risk management based on various risks. The take-up of loans after a shock occurred is a particularly relevant indicator in situations requiring relatively quick and high coverage of involved costs (health-care services, funeral costs, recovery of property, buying new agricultural inputs for the next cropping season, etc.).

Measurement

- Remember the last shocks that occurred to your household. What kind of loans did you take up after the shock happened? Provide

a roster with shock event, source of loan, amount of loan.

Analysis

The analysis should focus on households that experienced a shock. Ex-post borrowing in case of a shock is also referred to in the literature as “borrowing under stress” (Radermacher et al. 2012). In contrast to ex-ante borrowing, the purpose of ex-post borrowing is quite straight forward—the coverage of incurred costs. It is expected that the take-up of microinsurance leads to a decrease of the total amount of loans in both amount and quantity. As the decision to take up a loan and under which conditions can vary with regard

to the particularities of the shock event and its severity, the analysis should take account of the particular contexts in which the loans are taken up.

Combine with

- Amount of savings used in case of shock
- Amount of informal loans used in case of shock event
- Difference of total household expenditures before and after shock events (without paying back of loans and interest)
- Food intake (self-reported quality and quantity)
- Percentage of children taken out of school due to shock event

Outcome: Risk management strategies (ex-post)/coping strategies in case of shocks

Indicator: Amount of savings used in case of shock

Definition of the indicator

The amount of savings used in case of shocks refers to the part of total savings used to cope with the incurred expenses of the shock after it materialised.

Theory of expected effects

Alternative ex-post responses to shocks, like the use of savings, can drain households of existing resources and place demands beyond the cash flow and savings capacity. Savings are an important tool of low-income households' risk mitigation – to protect themselves against shocks and to stabilise cash flow. With insurance, savings are expected to be preserved if a shock happens. Thus, savings can be stabilised and used for more productive purposes.

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

Numerous types of insurance are applicable as savings and can be intended to decrease the severity of a financial shock in many dimensions (health, agriculture, property, etc.).

Measurement

- How much of your savings did you use to fund the shock?
- What is the amount of your current savings stocks? (National Bureau of Statistics, Nigeria 2010).

Analysis

Due to the expected change in risk taking behaviour, it might be interesting to analyse heterogeneous effects by risk aversion. Furthermore, different purposes and intentions behind the saving behaviour should be taken into consideration in the analysis as well as the form of savings (informal, institutional, savings group, etc.).

Combine with

- Amount of (formal) loans taken in case of shock
- Difference of total household expenditures before and after shock events (without paying back of loans and interest)

- Food intake (quality and quantity, self-reported)
- Percentage of children taken out of school due to shock event

Outcome: Risk management strategies (ex-post)/coping strategies in case of shocks

Indicator: Difference of total household expenditures before and after shock events (without paying back of loans and interest)

Definition of the Indicator

The indicator captures changes in total household expenditures due to a shock event. The difference between household expenditures before and after a shock event also sheds light on the intensity of the incident. Expenses for paying back loans and interest are not included.

Theory of expected effects

Consumption-smoothing is a typical household coping strategy in a household shock event. With insurance, expenditures are expected to remain stable if a shock happens, as there is no longer a need to reduce them as part of a risk management strategy. Absorbing the major costs of the shock events, micro-insurance avoids a sharp decrease of household expenditures, which could lead to a descent into (deeper) poverty.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**

- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

This indicator is applicable to all insurable risks and types of risk coverage as a change in expenditure can be a reaction to all sorts of shocks in order to compensate for the costs incurred.

Measurement

To measure this indicator, it would be ideal to compare data collected before, as well as after, the occurrence of the shock event. As this is rather an ideal setting, it may be more feasible to rely on precise memorisation of household expenditure before and after the shock by providing a roster with relevant options for expenditures in order to reach the highest level of accuracy possible.

Analysis

As changes in household expenditures are expected to vary according to the severity of the shock event and the amount of incurred costs, it could be advisable to control for and cluster

different types of shocks. Furthermore, it could be interesting to take a more detailed look into subcategories of total expenditures in order to retrieve relevant information about which types of expenditures/consumption change in particular.

Combine with

- Amount of formal loans taken in case of shock
- Amount of savings used in case of shocks
- Food intake (quality and quantity, self-reported)
- Percentage of children taken out of school due to shock event

Outcome: Risk management strategies (ex-post)/coping strategies in case of shocks

Indicator: Food intake (quality and quantity, self-reported)

Definition of the indicator

The indicator captures the households' self-reported food intake in both quality and quantity.

Theory of expected effects

As consumption-smoothing is a common mechanism of household risk mitigation in cases of income or health shocks, food security is a closely connected issue. As a consequence of a household shock, individuals have to cope with the expenses related to the respective event *and* continue to meet ongoing household needs of which expenditure for food ranks on the top. This double burden can easily lead to the decision to eat fewer meals or eat less nutritious food. This effect is particularly relevant for poor households that do not make use of any other coping mechanisms, and, thus, would need to reduce their consumption and their food expenditures in a shock event. As microinsurance aims at stabilising household income in a shock event, food intake in quantity and quality is expected to stay stable ex-post shock.

Applicable type of risk coverage

- **Health insurance**
- Life insurance
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- Property insurance
- Other

Health insurance can be an applicable type of risk management here, particularly if the insurance product encompasses additional interventions related to nutrition. Furthermore, in the case of self-subsistence of the household, agricultural insurance schemes such as crop or livestock insurance could be applicable. Agricultural schemes mitigate the risk of crop failure and/or livestock death, both which could have a negative impact on nutrition.

Measurement

Because self-reported and aggregated information of quantity and quality of food can be inaccurate, it is common practice to measure food consumption in the form of an extensive roster,

covering each food item separately by amount/quantity and price.

Example questions:

- I want to ask about all food consumed by your household, regardless of which person ate it. Has your household consumed [FOOD] during the past 7 days? Please exclude from your answer any [FOOD] purchased for processing or resale (National Statics Directorate Cai-coli, Dili, Timor Leste and World Bank 2001).
- In the past year, was there any month when your household food needs were not met?

Analysis

As consumption-smoothing, particularly smoothing of food expenses, is a mechanism usually only applied when there are no other alternatives, it mostly affects poor households. Thus, it could be interesting to analyse across different levels of poverty. It could be also interesting to analyse heterogeneous effects for different types of household

members, assuming that, in a shock event, a poor household would smooth food expenditures differently for its members, depending on their particular needs (especially for those household members with increased health risks such as pregnant women, children, elderly people, and sick individuals). Additionally, the analysis should differentiate between food quality and quantity, as these subindicators can lead to different assumptions.

Combine with

- Other indicators of risk management strategies (ex-post)/coping strategies in case of shock
- Total expenditures on food per person per week
- Frequency of eating vegetables or fruit (number per week)
- Frequency of eating meat (if people eat meat at all) (number per week)
- Average number of meals eaten per day in last month
- Number of days when food was insufficient for the household in last month

Outcome: Risk management strategies (ex-post)/coping strategies in case of shocks

Indicator: Percentage of children taken out of school due to shock event

Definition of the indicator

The indicator measures the percentage of children who have been taken out of school by their family in order to cope with the consequences and expenses of the shock event.

Theory of expected effects

In the case of a lack of alternatives to cope with a shock event, households may be forced to not only use their financial but also physical assets to cope with the corresponding consequences. Taking children out of school can be based on two intentions. One is to save money, if school fees and other expenses are needed to keep the children in school; the other intention is to take children out of school in order to put them to work in order to cope with the consequences of the shock. Seen from a long term perspective this coping mechanism is inefficient, as it impedes the educational and skill development of the children, which are essential for the future socioeconomic situation of a household. Under insurance, it is expected that

children remain in school after a shock event as educational expenses can still be covered and no additional manpower and support is needed in the household.

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

Numerous types of insurance are applicable in this case as taking children out of school can be a reaction to all sorts of shock events, placing the household in a difficult economic situation.

Measurement

The indicator can be measured both on the household level by survey questions as well as on the community/school level by using official statistics of school dropout rates after shock events took place.

Analysis

Taking children out of school is a typical coping mechanism used by poor to very poor households which lack alternative coping mechanisms. This indicator implies not only financial but also physical coping in the form of putting the children to work. Furthermore, it could be interesting to control for the age and sex of the children taken out of school. Taking children out of primary school, for example, can be more devastating for their educational

development than at a later stage of school. For some countries, studies show that girls are more likely than boys to be taken out of school to support the household, as the girls' educational prospects are less valued.

Combine with

- Other indicators of risk management strategies (ex-post)/coping strategies in case of shock
- Child labour measures

Outcome: Sale of assets for managing expenses related to shock event

Indicator: Total value of sold assets in case of shocks

Definition of the indicator

The indicator captures the total value of all assets sold in the event of shocks. All sorts of assets are relevant for this indicator.

Theory of expected effects

In order to cope with the corresponding effects and consequence of a household shock, selling assets is a common strategy. These assets can be both liquid and illiquid assets. Particularly high importance in this context can be attributed to productive assets (such as machinery, livestock, etc.) as the sale of these kind of assets has direct negative consequences for the households income opportunities. As the poorer have fewer (and only essential) assets that can be sold in order to cope with a shock, they suffer from a particularly high degree of vulnerability. Under insurance it is expected that the total value of sold assets is lower, as less or no assets need to be sold to cover the expenses incurred.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

Numerous types of insurances are applicable in this case as the sale of assets can be a reaction to all sorts of shock events, placing the household in a difficult economic situation.

Measurement

- Which assets did you sell after the last shocks? (Provide a roster with column for different shock events, assets sold and their values)

Analysis

For the analysis of this indicator, it can be interesting to compare the actual value of the assets and the received price during sale in the context of the shock, as this is expected to be much lower than the normal market price. Furthermore, it is advisable to distinguish between rather liquid assets and productive assets, as the sale of the latter can have extensive consequences for the household regarding its productive and, thus, future income potential.

Combine with

- Percentage of assets recovered/replaced after being sold in case of shock six months after shock event
- Amount of liquid assets
- Level of assets—housing conditions

Outcome: Sale of assets for managing expenses related to shock event

Indicator: Percentage of assets recovered/replaced after being sold in case of shock six months after shock event

Definition of the indicator

This indicator refers to the part of sold assets after the shock event that are recovered or replaced six months after the incident i.e., some land/livestock may be repurchased after insurance pay out, houses may be repaired.

Theory of expected effects

In order to cope with the corresponding effects and consequences of a household shock, selling assets is a common strategy. These assets can be both liquid and illiquid assets. Particularly high importance in this context can be attributed to productive assets (such as machinery, livestock, etc.) as the sale of these kind of assets has direct negative consequences for a household's income opportunities. As poorer households have fewer assets (or only essentials) that can be sold in order to cope with a shock, they suffer from a particularly high degree of vulnerability. The ability to recover or replace these (productive) assets within a certain time frame after a shock event occurred is thus an interesting indicator of the household's ability to recover and its degree of vulnerability.

Assuming that fewer assets have to be sold in a shock event to cover incurred costs under insurance, fewer assets might need to be recovered as, selling them in the first place had been prevented. If assets had to be sold despite insurance, it is expected that a higher percentage of those assets can be recovered or replaced as insurance decreases the degree of vulnerability and supports a household's ability to recover from the shock within a short time period. This effect could be even stronger if fewer productive assets need to be sold, so a household's production and income potential remains stable.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

Numerous types of insurances are applicable in this case as the sale of assets and their recovery can be a reaction to all sorts of shock events,

placing the household in a difficult economic situation.

Measurement

- Of the assets you sold after the shock, how many have you been able to replace/recover within six-months of the shock event?

Analysis

For the analysis of this indicator, it can be interesting to compare the actual value of the assets and the received price during sale in the context of the

shock, as this is expected to be much lower than the normal market price. Furthermore, it is advisable to distinguish between the replacement (or recovery) of rather liquid assets and productive assets, as the recovery of the latter can have extensive consequences for a household regarding its productive and, thus, future income potential.

Combine with

- Total value of sold assets on case of shock
- Level of assets—housing conditions

Outcome: Reliance on informal risk sharing networks

Indicator: Total amount of borrowing for shock-related expenditures from informal networks

Definition of the indicator

The indicator captures the total amount of loans that are taken from informal networks and directly related to expenditures of the shock event. Thus, by definition, it only refers to borrowing conducted after the shock event and not before the respective incident. Informal networks can be self-help groups, saving networks such as ROSCAs or ASCAs, or family, friends, and other acquaintances. In many cases, informal risk sharing networks entail only partial risk protection as default of group members can occur if they are not able to repay into the risk sharing pool (Besley and Coate 1995).

Theory of expected effects

Borrowing from informal networks in a shock event might create social obligations and expectations. It may, in fact, result in costs for a household depending on the specific characteristics of an informal network. Informal networks composed of family and/or close friends are often rather altruistic and do not contain any strings attached. However, risk management via informal networks may be more

unreliable than formal mechanisms, as they depend on the liquidity and willingness to pay of the other network partners, who could suffer from a similar financial shock. Under insurance, a direct effect expected is that, in the context of ex-post risk mitigation, less borrowing from informal networks is conducted to cushion the shock (Dercon et al. 2012). However, not only a demand side effect can be expected but also a decrease in the supply of informal support for risk mitigation as with insurance in place, other individuals might be generally less willing to help (Hintz 2010).

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

All types of risk coverage listed are applicable in this case as borrowing from informal networks can be a reaction to all sorts of shock events, placing the household in a difficult economic situation.

Measurement

- How much did you borrow in total from informal networks (relatives, friends, local groups) in order to cover expenses related to the shock event? Provide a roster covering shock events, source of loan, amount of loan, and additional costs involved (interest or other obligations and expectations).
- The measurement of this indicator could also be conducted in a roster covering all forms of coping mechanisms used in informal risk management networks.

Analysis

It could be interesting to control for different informal sources of borrowing (could be more than one) and, if possible, the particular risk of default of the underlying networks. Furthermore, controlling for formal lending could also be of interest to find out more about the lending practice of a household (informal or formal) and whether the choice is due to independent preferences or lack of access to formal mechanisms.

Combine with

- Loans given to others
- Other indicators for reliance on informal risk sharing networks
- Total amount of loans taken (risk taking behaviour)

Outcome: Reliance on informal risk sharing networks

Indicator: Total amount of borrowing for other expenditures from informal networks

Definition of the indicator

The indicator captures the total amount of loans taken from informal networks that are not directly related to expenditures of the shock event, but are intended for other purposes. Thus, by definition the indicator can refer to borrowing from informal networks at any point in time, ex-ante or ex-post shock. Informal networks can be self-help groups, saving networks such as ROSCAs or ASCAs or family, friends, and other acquaintances. Particularly, informal risk sharing networks entail only partial risk protection as default of group members can occur if they are not able to repay into the risk sharing pool (Besley and Coate 1995).

Theory of expected effects

As mentioned in the description of the indicator, due to borrowing for shock related expenses from informal networks, a shift in purpose of borrowing could be expected for insured households. Borrowing from informal networks for other expenditures is expected to rise relatively to borrowing for shock-related expenses as the latter is crowded out by the insurance coverage. Borrowing from informal

networks is, thus, expected to shift from an ex-post risk management coping to a financial mechanism for other purposes such as consumption, productive investment, etc.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

All types of risk coverage listed are applicable in this case as borrowing from informal networks can be a reaction to all sorts of shock events, placing the household in a difficult economic situation.

Measurement

- How much did you borrow in total from informal networks (relatives, friends, local groups) in order to cover expenses other than those related to the shock event? Provide a roster covering the purpose of loan, source of loan, amount of loan, and additional costs involved

(interest or other obligations and expectations).

- The measurement of this indicator could also be conducted in a roster covering all forms of coping mechanisms used in informal risk management networks.

Analysis

It could be interesting to control for different informal sources (could be more than one) of borrowing and if possible the particular risk of default of the underlying networks. Furthermore, controlling for formal lending

could be also of interest in order to find out more about the lending practice of the household (rather informal or formal) and whether the choice is due to independent preferences or lack of access to formal mechanisms.

Combine with

- Other indicators concerning reliance on informal risk sharing networks, especially total amount of borrowing for shock-related expenditures from informal networks
- Total amount of loans taken (risk taking behaviour)

Outcome: Reliance on informal risk sharing networks

Indicator: Total amount of contributions received from family in case of a shock (as loan)

Definition of the indicator

This indicator encompasses all financial contributions received by family members in a shock event, given as loans to be repaid. The contributions as defined here refer to financial contributions which could be provided by family members living nearby or abroad (remittances).

Theory of expected effects

Contributions received by family in a shock event are common practice in many societies that make use of a particularly high degree of intra-family commitment and solidarity. Borrowing from informal networks in a shock event might create social obligations and expectations. It may, in fact, result in costs for a household depending on the specific characteristics of such informal network. Informal networks composed by family are often rather altruistic and do not contain any strings attached. However, risk management via informal networks may be more unreliable than formal mechanisms as they depend on the liquidity and willingness to pay of the other family members, who could suffer from a similar financial

shock. Under microinsurance, it is expected that fewer contributions by family are received as an insurance substitute intended to cushion the shock.

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

All types of risk coverage listed are applicable in this case as contributions by family can be intended to decrease a household's risk of suffering a financial shock in many dimensions (health, agriculture, property, life, etc.).

Measurement

- What is the total amount of contributions you received from family members after the shock event as a loan? Include a roster with shock event, contributing family member, type of contribution (cash, other financial contributions), the total amount per contribution, and

conditions bound to the loan (interest rate or other obligations).

Analysis

The amount of contributions received by family in the case of a shock event, should be distinguished in the analysis from contributions received on a permanent or regular basis (i.e., remittances from family members living abroad, etc.). Furthermore, the

indicator should be analysed together with the related indicator capturing family contributions that are a gift and do not need to be repaid.

Combine with

- Other indicators concerning reliance on informal risk sharing networks, particularly total amount of contributions received by family in case of a shock (as gift)

Outcome: Reliance on informal risk sharing networks

Indicator: Total amount of contributions received by family in case of a shock (as gift)

Definition of the indicator

This indicator encompasses all financial contributions received by family members in a shock event, which are given as a gift and thus do not need to be repaid.

Theory of expected effects

Contributions received by family in a shock event are common practice in many societies that make use of a particularly high degree of intra-family commitment and solidarity. Receiving a contribution as a gift from an informal network in a shock event might create social obligations and expectations. It may result in costs for a household depending on the specific characteristics of the informal network. Informal networks composed of family are often rather altruistic and do not contain any strings attached. However, these contributions may be more unreliable than formal mechanisms as they depend on the liquidity and willingness to pay of the other network partners, who could suffer from a similar financial shock. Under insurance, it is expected that fewer contributions by family are received as an insurance substitute intended to cushion the shock.

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

All types of risk coverage listed are applicable in this case as contributions by family can be intended to decrease a household's risk of suffering a financial shock in many dimensions (health, agriculture, property, life, etc.).

Measurement

- What is the total amount of contributions you received by family members after the shock event as a gift? Include a roster with shock event, contributing family member, type of contribution (cash, other financial contributions), the total amount per contribution, and conditions bound to the loan (interest rate or other obligations).

Analysis

The amount of contributions received by family particularly in the case of a shock event, should be distinguished in the analysis from contributions received on a permanent or regular basis (i.e., remittances from family members living abroad, etc.). Furthermore, the indicator should be analysed together with the related

indicator capturing family contributions that are a loan and need to be repaid.

Combine with

- Other indicators concerning reliance on informal risk sharing networks, particularly total amount of contributions received by family in case of a shock (as loan)

Outcome: Reliance on informal risk sharing networks

Indicator: Total amount of contributions received from informal or semiformal organisations, e.g. local church association, employer, etc. in case of shock (as loan)

Definition of the indicator

The indicator captures contributions from informal and semiformal organisations in cases of shock. These contributions could be cash or in-kind and are provided after the occurrence of the shock, most likely in the form of a onetime transfer. The contributions are given as a loan and need to be repaid within a certain time frame.

Theory of expected effects

In the absence of formal social security schemes, contributions from informal and semiformal organisations in the case of a shock are common practice. This is particularly evident in contexts where community ties are strong. Under insurance, it is expected that the amount of these contributions decreases as individuals can cope with the shock incurred expenses autonomously and are less dependent on informal or semiformal support and funds.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

Numerous types of insurances are applicable in this case as formal and semiformal contributions can be intended to cover a household's expenses after all kind of shocks affecting household income and funds.

Measurement

- What is the total amount of contributions (loans) you received from informal and semiformal organisations after the shock? (This could be local church, employer, community organisations, etc.)

Analysis

Analysis and measurement should account for the different informal and semiformal sources for contributions and the respective conditions attached to the contributions given as a loan (repayment conditions, other obligations, or expectations attached).

Combine with

- Other indicators concerning reliance on informal risk sharing networks

Outcome: Reliance on informal risk sharing networks

Indicator: Total amount of loans (currently pending) given to family members and other community members

Definition of the indicator

This indicator refers to outstanding loans given to family and other community members. The indicator refers to the total monetary amount of the loans as well as to the number of outstanding loans. These loans are, thus, part of the financial assets of a household or individual invested, with or without interest rate attached.

Theory of expected effects

Loans given to family members and other community members are the flip side of the coin of informal risk sharing. The provision of loans to other family or community members is often a deep-rooted characteristic of community and family structures in context, where there is a lack of formal alternatives. Under insurance, the willingness and ability to provide more loans to family and community members might increase because the funds are less needed as precautionary assets for people's own purposes. Or, it could be that insured individuals might be less willing to help those who did not behave cautiously and refused insurance.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

All types of risk coverage listed are applicable in this case as contributions given to family and community members can be intended to cushion a financial shock in many dimensions (health, agriculture, property, life, etc.).

Measurement

- What is the total amount currently pending of loans you provided to family and/or community members? Provide a roster with the beneficiary of the loan, amount of loan, and conditions attached (interest, other obligations, or expectations).

Analysis

It could be interesting to analyse this indicator by different subgroups of recipients. Furthermore, details of the

loan arrangement (repayment arrangements, interest rates, variability regarding income of provider, etc.) are interesting to consider in the analysis.

Combine with

- Other indicators concerning reliance on informal risk sharing networks

Outcome: Variability of costs or profits

Indicator: Variability of costs or profits

Definition of the indicator

The indicator captures the variability of costs or—depending on the insurance type—profits for a household in a certain category. It can, for example, consist of health costs or profits from agricultural activity over time.

Theory of expected effects

The primary expected effect of micro-insurance is to reduce the costs that need to be covered by households in a shock event. At the same time, households have to pay an insurance premium constantly whilst being covered. As a consequence, variability of costs incurred (e.g., for health) should decrease. For insurance covering productivity shocks (such as crop insurance), a similar effect occurs for profits. During good times, whilst profits are high, a household pays an insurance premium. If a shock happens (e.g. a flood) and profits are low, the insurance should pay out. In sum, variability of profits over time is decreased.

Applicable type of risk coverage

- Health insurance
- Life insurance

- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

This indicator refers to all kinds of shocks that can incur costs, thus all types of risk coverage are applicable.

Measurement

This indicator is best measured over time, covering pre- and post-shock periods. It should ask for effective costs incurred (including insurance premiums) or profits made for certain expenditure or profit types related to the risk covered. As an alternative to following clients over time, a survey could also ask for cost or profit histories.

Analysis

Given the theory of expected effects, it is likely that the variability decreases mainly if a shock of considerable size happens. Hence, it may be advisable to focus the analysis on those households with considerable shock events during the time frame covered or to conduct separate analyses for households having experienced different shock exposure.

Combine with

- Total costs in case of shock
- Subindicators involving costs of the shock event

Outcome: Total costs in case of shock

Indicator: Total costs in case of shock

Definition of the indicator

The indicator captures all costs and expenses involved for a household in a shock event. It is, thus, composed of numerous indicators mentioned above and can among others encompass direct out-of-pocket spending, expenses for recovery and reconstruction, costs incurred for taking up loans or borrowing and also opportunity costs if a change in labour supply is necessary.

Theory of expected effects

The primary expected effect of micro-insurance is to reduce the total costs that need to be covered by households in a shock event. For other related indicators, such as out-of-pocket spending (OOPS), taking-up of loans, or costs for reconstruction and recovery, it is expected that a significant amount of these costs will be directly covered by insurance and not strain the economic situation of a household. However, seen from the perspective of insured individuals with potentially increased risk taking behaviour, total costs of the damage after a shock may be even higher as the initial (business) investment was higher.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

This indicator refers to all kinds of shocks that can incur costs, thus all types of risk coverage are applicable.

Measurement

This indicator can be measured by asking for an accumulated estimation of all costs involved in the case of a shock. For the sake of higher accuracy, it is, however, advisable to provide a roster with plausible options/categories of costs and ask the questions separately.

Analysis

As this indicator accumulates all costs involved with a shock event, it provides a good overview of the total economic damage for a household due to the shock. For more detailed analysis, it may be advisable to control for relevant subindicators and subcategories in the analysis.

Combine with

- Variability of costs or profits
- Subindicators involving costs of the shock event

Outcome: Total out-of-pocket spending (OOPS) in case of shock

Indicator: Net OOPS per shock event

Definition of the indicator

This indicator refers to the direct outlay of cash or immediately available liquid assets needed to cover expenses incurred due to a shock event. OOPS can also encompass deductibles paid to access goods and services covered by the insurance. Furthermore, bribes, transport fees, drugs, and medical procedures not covered by the insurance are often covered by OOPS.

Theory of expected effects

Out-of-pocket spending in the case of a shock event is an important risk mitigation tool for low-income households. If it absorbs a considerable amount of household income, OOPS can have critically negative implications for a household's economic situation. Without insurance, costs that are due immediately—a situation particularly relevant in the case of health shocks—are often paid from private cash funds. Also, with insurance, some OOPS is still expected as referred to in the definition of the indicator. Nevertheless, it is expected that OOPS decreases when the costs of the shock event are absorbed by microinsurance and the incidence and depth of monetary outlays diminish. Existing studies on the effect of microinsurance

on OOPS, however, ambiguously depict this expected effect. Whilst Jütting (2004) found a 45-51% decrease in OOPS spending for members of a Senegalese community-based health insurance scheme compared to non-members, Wagstaff et al. (2009) did not depict any statistically significant changes in OOPS for China's New Cooperative Medical Scheme (NCMS).

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

Whilst most frequently used in the context of expenses for hospitalisation and other medical treatments, this indicator is relevant for all insurable risks and types of risk coverage that require immediate expenses and/or recovery action.

Measurement

- How much did you spend out-of-pocket for [SHOCK EVENT]?

Analysis

Existing studies on the effect of microinsurance on OOPS show ambiguous results, ranging from a clear reduction in OOPS to no indications of change. This leads to the assumption that the effect of microinsurance on OOPS is strongly bound to the type of insurance policy at stake. Thus, the particularities of the insurance scheme should be taken into account in the analysis as well as other forms of informal and coinsurance held by a household.

Furthermore, the specific use of the OOPS for insured and uninsured should be taken into account.

Combine with

- Risk management strategies (ex-post)
- Net OOPS per full episode of illness
- Net OOPS on varying categories of treatment: hospital stay, deliveries, self-treatment, ambulatory care from formal providers, inpatient care

Outcome: Total out-of-pocket spending (OOPS) in case of shock

Indicator: In case of health: Net OOPS per full episode of illness

Definition of the indicator

This indicator refers to the direct outlay of cash or immediately available liquid assets needed to cover the expenses incurred per full episode of illness. Thus, all OOPS from the first signs of illness until full recovery is captured in this indicator. OOPS can also encompass deductibles paid to access goods and services covered by the insurance. Furthermore, bribes, transport fees, drugs, and medical procedures not covered by the insurance are often covered by OOPS.

Theory of expected effects

Out-of-pocket spending in instances of illness is an important risk mitigation tool for low-income households to cover health expenses. If it absorbs a considerable amount of household income, OOPS can have critically negative implications for a household's economic situation. Without insurance, costs that are due immediately—a situation particularly relevant in the case of health shocks—are often paid from private cash funds. Also, with insurance, some OOPS is still expected as referred to in the definition of the indicator. Nevertheless, it is expected that OOPS decreases when the costs of the shock event are

absorbed by microinsurance and the incidence and depth of monetary outlays diminish. Existing studies on the effect of microinsurance on OOPS, however, ambiguously depict this expected effect. Whilst Jütting (2004) found a 45-51% decrease in OOPS spending for members of a Senegalese community-based health insurance scheme compared to non-members, Wagstaff et al. (2009) did not depict any statistically significant changes in OOPS for China's New Cooperative Medical Scheme. Chankova et al. (2008) found that, whilst inpatient expenses were reduced, out-of-pocket (OOP) expenses for outpatient care were not reduced by the investigated mutuelles and insurance schemes. This finding is attributed by the authors to the coinsurance rates of 25-50% per visit.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

- How much did you pay out-of-pocket for [PARTICULAR EPISODE OF ILLNESS]?

Analysis

Existing studies on the effect of micro-insurance on OOPS in the case of health show ambiguous results ranging from a clear reduction in OOPS to no indications of change. This lead to the assumption that the effect of microinsurance on OOPS is strongly bound to the type of insurance policy at stake. Thus, the particularities of the insurance scheme should be taken into account in the analysis as well as other forms of informal and coinsurance held

by a household. Furthermore, the specific use of the OOPS for insured and uninsured should be taken into account.

Combine with

- Risk management strategies (ex-post)
- Net OOPS per shock event
- Net OOPS on varying categories of treatment: hospital stay, deliveries, self-treatment, ambulatory care from formal providers, inpatient care

Outcome: Total out-of-pocket spending (OOPS) in case of shock

Indicator: Net OOPS on varying categories of treatment: hospital stay, deliveries, self-treatment, ambulatory care from formal providers, inpatient care

Definition of the indicator

This indicator refers to the direct outlay of cash or immediately available liquid assets needed to cover the expenses incurred for varying categories of medical treatment such as hospital stay, deliveries, self-treatment, ambulatory care from formal providers and inpatient care.

Theory of expected effects

Out-of-pocket spending in the case of illness is an important risk mitigation tool for low-income households to cover health expenses. If it absorbs a considerable amount of household income, OOPS can have critically negative implications for a household's economic situation. Without insurance, costs that are due immediately—a situation particularly relevant in the case of health shocks—are often paid from private cash funds. Also, with insurance, some OOPS are still expected as referred to in the definition of the indicator. Nevertheless, it is expected that OOPS decreases when the costs of the shock event are absorbed by microinsurance and the incidence and depth

of monetary outlays diminish. Existing studies about the effect of microinsurance on OOPS, however, ambiguously depict this expected effect. Whilst Jütting (2004) found a 45-51% decrease in OOPS spending for members of a Senegalese community-based health insurance scheme compared to non-members, Wagstaff et al. (2009) did not depict any statistically significant changes in OOPS for China's New Cooperative Medical Scheme. Chankova et al. (2008) found that, whilst inpatient expenses were reduced, OOP expenses for outpatient care were not reduced by the investigated mutuelles and insurance schemes. This finding is attributed by the authors to the coinsurance rates of 25-50% per visit. Thus, the expected effects seems to depend on the particular insurance scheme and the form of treatment, which need to be analysed separately.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

- How much did you pay out-of-pocket for [MEDICAL TREATMENT] during the past month?

Analysis

Existing studies on the effect of microinsurance on OOPS in the case of health show ambiguous results, ranging from a clear reduction in OOPS to no indications of change. This leads to the assumption that the effect of microinsurance on OOPS is strongly bound to the type of insurance policy

at stake. Thus, the particularities of the insurance scheme should be taken into account in the analysis as well as other forms of informal and coinsurance held by a household. Furthermore, the specific use of the OOPS for insured and uninsured should be taken into account and the different treatments should be analysed separately for each case.

Combine with

- Risk management strategies (ex-post)
- Net OOPS per shock event
- Net OOPS per episode of illness

Outcome: Quality of health-care providers

Indicator: Hospital mortality rate

Definition of the indicator

This indicator for the quality of health-care providers refers to the percentage of patients who die whilst they are in hospital.

Theory of expected effects

Microinsurance could lead to a lowering of hospital mortality rates. On the one hand, this is due to the expectation that insured individuals already benefit from more comprehensive and higher quality medical treatment prior to hospitalisation, improving their general health condition and their individual risk factors. On the other hand, empirical evidence shows significant effects of microinsurance lowering hospital mortality rates by offering products tailored to the situation of high risk patients such as pregnant women and/or children. In these cases, insurers often directly contract with hospitals to ensure better services. In Guinea, Centre International de Développement et de Recherche (CIDR) launched a “safe motherhood” health microinsurance product to cover deliveries at hospitals. The product also included emergency evacuation by ambulance and value-added services such as antenatal visits. After the launch of the

product, the maternal mortality rate was about 4% lower than before the launch (non-randomised evaluation). Evidence of obligatory health insurance for school children shows similarly positive results (Radermacher et al. 2012).

Applicable type of risk coverage

- Health insurance

Measurement

For measurement, data should be retrieved directly from hospitals or statistical agencies. For a more accurate analysis, information about the health status of the individuals who died in hospital at the time of their hospitalisation should be obtained as well.

Analysis

In the analysis, the mortality rate should be clustered by different risk factors, prevalent at the time of hospitalisation. Heterogeneous effects are expected here. Thus, the mortality rates should be calculated by dividing the number of deaths amongst hospital patients with a specific medical condition or procedure by the total number of patients admitted for that

same medical condition or procedure. This risk adjustment method accounts for the impact of individual risk factors, such as age, severity of illness, and other medical problems, that can put some patients at greater risk of death than others.

Combine with

- Scoring on quality assessments

Outcome: Quality of health-care providers

Indicator: Scoring on quality assessments

Definition of the indicator

This indicator measures the quality of health-care providers by their scoring on quality assessments. The quality assessment of health-care providers is generally a difficult endeavor since it can be measured both objectively and subjectively using different indicators. The most critical question here is, who conducts the quality assessment? This could be the health-care provider itself, the government, an insurance provider, a non-governmental organisation, etc.

Theory of expected effects

If the health insurance provider has a direct influence on the quality monitoring of contracted health-care providers, it is expected that insurance holders benefit from health services with higher quality and higher scorings in quality assessments. By setting standards for quality of the insured patients, an equal treatment of insured and uninsured patients should be provided. This could occur if the insured patient is not paying directly out-of-pocket and could, thus, be perceived as less solvent. Under the supervision of a health insurance medical advisor, working within the framework of the contractual collaboration between

insurance and health-care provider, quality is generally expected to improve (LeRoy and Holtz 2012).

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

For measurement, data should be retrieved directly from the organisation/agency that conducted the assessment (preferably independent assessments). Furthermore, it could be useful to retrieve additional data directly from hospitals and other relevant health-care providers, if available, in order to reconstruct the assessment and better understand subcategories. If clinical outcome data is not available it can be also useful to further investigate subjective measures of quality based on patients' experiences and perceptions of quality.

Analysis

As there is no universal standard for health-care quality assessments, the

scoring system at stake should be taken into account in the analysis. It may be advisable to not only use the final scoring, but to take a deeper look at the composition of indicators of the assessments and the respective scoring in subcategories.

Combine with

- Hospital mortality rate

Outcome: Quantity of health-care providers

Indicator: Number of modern health-care providers within a defined area/radius

Definition of the indicator

This indicator measures the number of modern health-care providers within a defined area or radius. In order to use this indicator efficiently, the criteria for a *modern* health-care provider should be predefined.

Theory of expected effects

As modern (allopathic) medicine is widely believed to lead to better health outcomes than many traditional or alternative approaches, this indicator combines quality and quantity aspects of health care. If the health insurance provider has a direct influence on the quality monitoring of contracted health-care providers, it is expected that modern standards are a prerequisite. Under the supervision of a health insurance medical advisor, working within the framework of the contractual collaboration between insurance and health-care provider, quality is generally expected to improve, and, thus, more modern health-care providers are expected to evolve within a certain radius (LeRoy and Holtz 2012). Nevertheless, as the number of modern health-care providers in

certain areas depends on various other criteria— infrastructural conditions, governmental support, availability of skilled human resources, etc.—no direct effect is expected here, at least in the short- and medium-term or for large-scale interventions. Long-term effects can be expected based on the assumptions mentioned, particularly if the introduction of insurance in large-scale interventions displays a form of organised demand, encouraging providers to extend their services. Existing studies focus on the relationship between distance and enrolment rate. It is found that the presence of health facilities within a small radius increases the likeliness of enrolment (Chankova et al. 2008; Wagstaff et al. 2009). Regarding utilisation, distance is perceived as a clear indicator of less utilisation due to the access barriers (Franco et al. 2008; Schneider and Diop 2001).

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

For measurement, data should be retrieved directly from statistical agencies and agencies conducting quality assessments of health facilities, thus providing evidence of the state of their modern equipment. Furthermore, individual accessibility of modern health-care facilities can be inquired by survey questions. For example, in many remote regions with poor infrastructure, distance is not a sufficient indicator of accessibility, but real-time accessibility should be measured (How long does it take to reach the facility by available means of transport? etc.).

Analysis

The analysis could take into account different categories of "modernity" as well as different radiuses or other measures of accessibility. Furthermore, consideration should be given as to whether or not the insurance scheme being analysed covers medical treatment at these health-care providers, and which is the closest one providing treatment for insured/uninsured individuals.

Combine with

- Indicators concerning quality of health-care providers to define criteria of modernity

Outcome: Receiving (appropriate) health care — health-care utilisation (needs-based)

Indicator: Total number of visits to outpatient services per household member within the last month

Definition of the indicator

This indicator measures the number of visits household members make to outpatient services. It refers to health-care services conducted ambulant, in a walk-in manner, and does not include hospitalisation of a patient.

Theory of expected effects

There are robust empirical findings that microinsurance generally increases the use of health-care services.

It is expected that existing barriers to healthcare utilisation, which are particularly its costs and accessibility, will be reduced by microinsurance, leading to a higher utilisation rate. The impact of microinsurance on health-care utilisation rates is one of the most well-researched topics in microinsurance so far. Most studies published found positive or mixed results, in line with the theoretical expectations. For example, Msuya et al. (2004) found that members of the United Republic of Tanzania's Community Health Fund used formal health service with an increased likelihood of 15%. Likewise, Polonsky et al. (2009) found that

members of Oxfam-operated insurance schemes in Armenia had a significantly higher frequency of utilisation at 3.5% compared to non-members.

Applicable type of risk coverage

- Health insurance

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

- How many times did [NAME] use health-care services within the last month without staying overnight? (ICF 2011)

Analysis

Even though most existing studies show a positive impact of microinsurance on utilisation rates, expected effects depend on the particularities of the insurance policy and its facilitated benefits. Outpatient and inpatient services used should be clearly differentiated in the analysis as well as the suitability of the treatment chosen for the underlying health problem.

Combine with

- Other indicators of health-care utilisation

Outcome: Receiving (appropriate) health care — health-care utilisation (needs-based)

Indicator: Total number of visits to inpatient services (with at least 24 hours hospitalisation) per household member within the last month/year

Definition of the indicator

This indicator measures the number of visits household members make for inpatient services. It refers to health-care services that include inpatient treatment of the patient for at least 24 hours.

Theory of expected effects

There are robust empirical findings that microinsurance generally increases the use of health-care services.

It is expected that existing barriers to healthcare utilisation, which are particularly its costs and accessibility, will be reduced by microinsurance, leading to a higher utilisation rate. The impact of microinsurance on health-care utilisation rates is one of the most well-researched topics in microinsurance so far. Most studies published found positive or mixed results in line with the theoretical expectations. For example, Msuya et al. (2004) found that members of the United Republic of Tanzania's Community Health Fund used formal health service with an increased likelihood of 15%. Likewise, Polonsky et al.

(2009) found that members of Oxfam-operated insurance schemes in Armenia had a significantly higher frequency of utilisation at 3.5 per cent compared to non-members.

Applicable type of risk coverage

- Health insurance

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

- How many times did [NAME] make use of health-care services, staying overnight within the last month/year?
- How many nights did [NAME] spend at the health-care facility? (ICF 2011)

Analysis

Even though most existing studies show a positive impact of microinsurance on utilisation rates, expected effects depend on the particularities of the insurance policy and its facilitated benefits. Outpatient and inpatient

services utilised should be clearly differentiated in the analysis as well as the suitability of the treatment chosen for the underlying health problem.

Combine with

- Other indicators of healthcare utilisation

Outcome: Receiving (appropriate) health care — health-care utilisation (needs-based)

Indicator: Total number of illness episodes involuntarily self-treated per household member within the last month

Definition of the indicator

This indicator measures the number of illness episodes which were self-treated involuntarily. Thus, the indicator captures cases in which the use of health care would have been the preferred treatment, but was not feasible due to certain barriers.

Theory of expected effects

Self-treatment can cause medical complications such as progression of an untreated or misdiagnosed illness, complications from self-prescribed drugs, or public health problems in the case of infectious disease (Derriennic et al. 2005). There are robust empirical findings, that microinsurance generally increases the use of health-care services.

It is expected that existing barriers to healthcare utilisation, which are particularly its costs and accessibility will be reduced by microinsurance, leading to a higher utilisation rate. If no sufficient funds and/or transport options are available, involuntary self-treatment

can be the consequence, even if the person is aware of the need for formal professional health care. The impact of microinsurance on health-care utilisation rates is one of the best researched topics in microinsurance so far. Most studies published found positive or mixed results in line with the theoretical expectations. For example, Msuya et al. (2004) found that members of the United Republic of Tanzania's Community Health Fund used formal health service with an increased likelihood of 15%. Likewise, Polonsky et al. (2009) found that members of Oxfam-operated insurance schemes in Armenia had a significantly higher frequency of utilisation at 3.5% compared to non-members. Wang et al. (2009) found that membership in China's Rural Mutual Health Care reduced self-treatment by about two-thirds.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

- Within the last month, how many times has [NAME] been ill and unable to see a doctor even though he (or she) wanted to? (ICF 2011)

Analysis

Even though most existing studies show a positive impact of microinsurance on utilisation rates, expected effects depend on the particularities of

the insurance policy and its facilitated benefits. Outpatient and inpatient services, as well as self-treatment used, should be clearly differentiated in the analysis as well as the suitability of the treatment chosen for the underlying health problem.

Combine with

- Other indicators of health-care utilisation

Outcome: Receiving (appropriate) health care — health-care utilisation (needs-based)

Indicator: Regarding children: percentage of children (below age five) seeking diarrhea treatment

Definition of the indicator

This indicator measures the percentage of children below the age of five seeking diarrhea treatment. This indicator, thus, focuses on a particular health-care treatment that is expected to have a positive influence on the health status of the beneficiary.

Theory of expected effects

As health status is difficult to measure objectively, proxies are often used to approach this issue. In medical research there is a widespread opinion that certain treatments and health-promoting behaviour of children have an important long-term effect on their health status, which can, in some cases, even influence their adult health conditions. Diarrhea, in most cases, is an illness that requires only simple outpatient treatment, but it is still one of the highest ranking causes of mortality in children under five. There are robust empirical findings that microinsurance generally increases the use of health-care services. It is expected that existing barriers to healthcare utilisation, which are particularly its costs and accessibility, will be reduced by microinsurance,

leading to a higher utilisation rate. Thus, it is also expected that the rate of treatment of children with diarrhea will increase, especially if the insurance is tied to educational interventions or regular health checkups. Educational interventions, promoting hygienic habits, preventive measures, and Oral rehydration therapy (ORS) can also lead to high rates of self-treatment or efficient direct prevention of diarrhea, leading to a decrease in the usage rate of health-care services.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

- Did [NAME OF CHILD] have treatment the last time they suffered from diarrhea?
- Did you seek advice for the diarrhea treatment or did you treat it at home?
- What kind of treatment was provided? (Provide roster with options,

e.g., ORS liquid, specific diet, drugs)
(ICF 2011)

Analysis

As diarrhea treatment is only one of several health-care interventions believed to significantly decrease the mortality rate for children under-five and improve their general health status, other interventions should be considered in the analysis. Furthermore, frequency and quality of

the treatment should also be taken into account as well as the degree of severity of the diarrhea episode. It could also be interesting to control for participation in educational units for child health and diarrhea treatment in particular.

Combine with

- Other indicators of health-care utilisation, particularly regarding children

Outcome: Receiving (appropriate) health care — health-care utilisation (needs-based)

Indicator: Regarding children: percentage of children (below age five) sleeping under a mosquito net

Definition of the indicator

This indicator measures the percentage of children below the age of five sleeping under a mosquito net, a common precautionary measure to prevent infection with malaria.

Theory of expected effects

As health status is difficult to measure objectively, proxies are often used to approach this issue. In medical research there is the widespread opinion that certain treatments and health-promoting behaviour of children have an important long-term effect on their health status, which can, in some cases even influence their adult health conditions. Malaria ranks amongst the most prevalent reasons for mortality in children under five. Several studies show that sleeping under a mosquito net reduces the risk of infection with malaria drastically. There are robust empirical findings that microinsurance generally increases the use of health-care services. For instance, Franco et al. (2008) found that members of four Equity Initiative policies in Mali increased the use of mosquito nets

for children and pregnant women. The effects expected are also dependent on the kind of distribution of mosquito nets. Empirical evidence found that mosquito nets provided as a gift have a rather low utilisation rate, as they are valued less. According to this line of argument, insurance could lead to a lower utilisation rate than expected if the provision of mosquito nets is part of the insurance scheme.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

- Does your household have any mosquito nets that can be used whilst sleeping? Who slept under this mosquito net last night? (ICF 2011)

Note: The surveyor should observe whether mosquito nets exist in the household and if they seem to be in use.

Analysis

As sleeping under a mosquito net is only one of several health-care interventions believed to significantly decrease the mortality rate for children under-five and improve their general health status, other interventions should be considered in the analysis. Furthermore, frequency and quality of the treatment should also be taken

into account (is the net always used, is it in good order etc.). It could also be interesting to control specifically for participation in educational sessions on child health and malaria prevention.

Combine with

- Other indicators of health-care utilisation, particularly regarding children

Outcome: Receiving (appropriate) health care — health-care utilisation (needs-based)

Indicator: Regarding children: percentage of children (below age five) getting vitamin A supplements

Definition of the indicator

This indicator measures the percentage of children below the age of five getting vitamin A supplements. This indicator, thus, focuses on a particular health-care treatment health-care that is expected to have a positive influence on the health status of the beneficiary.

Theory of expected effects

As health status is difficult to measure objectively, proxies are often used to approach this issue. In medical research there is the widespread opinion that certain treatments and health promoting behaviour of children have an important long-term effect on their health status, which can, in some cases even influence their adult health conditions. Randomised medical trials show that vitamin A supplementation is associated with large reductions in mortality, morbidity, and vision problems in a range of setting. Thus, vitamin A supplementation is strongly recommended for children between six-months and five years of age. It is expected that, under microinsurance, pre-existing barriers to this treatment will be removed and access facilitated.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

- Within the last six months, was [NAME] given a vitamin A dose like (this/any of these)? Show common types of ampoules/capsules/syrups (ICF 2011).

Analysis

As vitamin A supplementation is only one of several health-care interventions believed to decrease the under-five-mortality rate for children significantly and to improve their general health status, other interventions should be considered in the analysis. Furthermore, frequency and quality of the treatment should also be taken into account. It could also be interesting to control for participation in educational sessions on child health and diet in particular.

Combine with

- Other indicators of health-care utilisation, particularly regarding children

Outcome: Receiving (appropriate) health care — health-care utilisation (needs-based)

Indicator: Regarding children: number of immunisations for children below age one (per child)

Definition of the indicator

This indicator measures the percentage number of immunisations of children from birth to 12 months.

Theory of expected effects

This indicator focuses on a particular treatment of healthcare utilisation that is expected to have a positive influence on the health status of the beneficiary child. As health status is difficult to measure objectively, proxies are often used to approach this issue. In medical research, there is the widespread opinion that certain treatments and health-promoting behaviour of children have an important long-term effect on their health status, which can, in some cases, even influence their adult health conditions. Immunisation is of particular importance during the first months after birth. For many preventable diseases, the first shot of immunisation is recommended by the World Health Organization (WHO) between month 0 and 12. There are robust empirical findings that microinsurance generally increases the utilisation of health-care services. It is expected that existing barriers to healthcare utilisation, which

are particularly its costs and accessibility, will be reduced by microinsurance, leading to a higher utilisation rate. Thus, it is also expected that the number of immunisations for children will increase, particularly if the insurance is bound to educational interventions or regular health checkups.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

Provide a roster with names of children below age one and the most prominent and important immunisations, as recommended by the WHO and adapted to the local context, as immunisation practices may vary from country to country.

Analysis

As immunisation is only one of several health-care interventions believed to decrease the under-five mortality rate

for children significantly and improve their general health status, other interventions should be considered in the analysis. Furthermore, frequency and quality of the treatment should also be taken into account as well as the type of immunisation and whether they are followed up if further shots are needed within a certain time period. In general,

the effect should strongly depend on whether immunisations are paid by the insurance.

Combine with

- Other indicators of health-care utilisation, particularly regarding children

Outcome: Receiving (appropriate) health care — delay in health care seeking

Indicator: Number of days symptoms persisted before treatment was sought

Definition of the indicator

This indicator refers to delay in health care seeking, measured by the number of days the symptoms of the illness persisted before treatment was sought.

Theory of expected effects

There are empirical findings that delays in obtaining health care can lead to increased morbidity and mortality in many cases (Derriennic et al. 2005; Msuya et al. 2004). The number of days that symptoms of an illness persisted before treatment was sought is a convenient indicator of whether appropriate health care is easily accessible. It is expected that existing barriers to health-care utilisation, which are particularly its costs and accessibility will be reduced by microinsurance, leading to a higher utilisation rate. Thus, it is also expected that the number of days symptoms persist before professional consultation decrease, as barriers are lower.

Applicable type of risk coverage

- Health insurance

As this indicator explicitly refers to the case of health, the applicable type of risk coverage is health insurance.

Measurement

- How many days did the illness persist before [NAME] sought treatment?
- What was the reason why treatment was not sought immediately?

Analysis

As delay in health care seeking can also have other reasons than typical barriers, such as cost and infrastructure, it is advisable to find out more about the specific reasons for a delay. Furthermore, whilst a delay can have dramatic consequences for some illnesses, for others it may not be that urgent. Thus, this indicator should be seen in its specific context.

Combine with

- Other indicators concerning health-care utilisation

Outcome: Equity regarding health and health care

Indicator: Use any of the indicators mentioned for subgroups

Definition of the indicator

This indicator refers to equity in the context of health and health care by focusing on subgroups for any indicator specific to health microinsurance. Subgroups can be defined based on numerous categories: socioeconomic, spatial, ethnic or religious, gender based or referring to different household members. In general, equity in health care is established if people who do not have access to and utilise health-care services receive these services at the same level of those who have access already.

Theory of expected effects

The in-depth analysis of subgroups is a suitable indicator to examine the degree of equity in access to and use of health-care services. Equity in access to health care is one hypothesised impact of microinsurance based on the assumption that access to insurance can be provided to members of excluded groups. By focusing on subgroups, detailed analysis can be conducted, addressing the questions of who has access to insurance and who actually receives the benefits. In the ideal case, access to insurance should be egalitarian across subgroups.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

For measurement, the same questions/methods mentioned for the relevant indicators should be applied to the specific subgroups.

Analysis

The analysis should be conducted in the way advised for the respective indicators, focusing on the specific subgroup.

Combine with

- Relevant indicators used, not divided by subgroups
- Use of any of the indicators mentioned for socioeconomic subgroups
- Use of any of the indicators mentioned for subgroups of household members

Outcome: Equity regarding health and health care

Indicator: Use any of the indicators mentioned for socioeconomic subgroups

Definition of the indicator

This indicator refers to equity in the context of health and health care by focusing on any indicator specific to health microinsurance for socioeconomic subgroups. Major characteristics of these socioeconomic subgroups could be their income and other measures of wealth, employment status, etc.

Theory of expected effects

The in-depth analysis of subgroups is a suitable indicator to examine the degree of equity in access to and use of health-care services. Equity in access to health care is one hypothesised impact of microinsurance based on the assumption that access to insurance can be provided to members of excluded groups. By focusing on subgroups, detailed analysis can be conducted, addressing the questions of who has access to insurance and who actually receives the benefits. In the ideal case, access to insurance should be egalitarian across socioeconomic subgroups. In the analysis of 27 Senegalese mutuelles, four Malian Equity Initiative Policies, and Ghana's Nkoranza scheme, Chankova et al. (2008) found that enrolment was significantly higher

for the top quintile, whilst there was no significant difference in the enrolment of the poorest quintile or the remaining four quintiles grouped together. Msuya et al. (2004) showed that a 1% increase in income raised the probability of joining the United Republic of Tanzania's Community Health Fund by 12.5%. Regarding the use of health-care services by subgroups, there is mixed empirical evidence. Whilst Jowett et al. (2004) found in Vietnam that insurance members of the lowest quintile make more use of the accessible health-care services, Schneider and Diop (2001) do not find a significant change in health-care utilisation by income quartile if other factors are taken into account. Wagstaff et al. (2009) did not even find any positive change in behaviour with regards to inpatient and outpatient health-care services for the lowest 10% of the income distribution, compared to the other income groups.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

For measurement, the same questions/methods mentioned for the relevant indicators should be applied to the specific subgroups.

Analysis

The analysis should be conducted in the way advised for the respective indicators, focusing on the specific subgroup.

Combine with

- Relevant indicators used, not divided by subgroups
- Use of any of the indicators mentioned for subgroups (general)
- Use of any of the indicators mentioned for subgroups of household members

Outcome: Equity regarding health and health care**Indicator: Use any of the indicators mentioned for subgroups of household members****Definition of the indicator**

This indicator refers to equity in the context of health and health care by focusing on specific indicators for health microinsurance of the subgroups within households. These subgroups could be clustered by age, gender, status within the household, educational level, etc.

Theory of expected effects

The in-depth analysis of subgroups is a suitable indicator to examine the degree of equity in access to and use of health-care services. Equity in access to health care is one hypothesised impact of microinsurance based on the assumption that access to insurance can be provided to members of excluded groups. This hypothesis can also be adopted for household subgroup structures. By focusing on subgroups detailed analysis of the questions of who has access to insurance and who actually receives the benefits can be conducted. Regarding subgroups of household members, existing studies predominantly focused on gender differences and female headed households. In this context, Chankova et al. (2008) found that female headed

households in Ghana, Mali, and Senegal were more likely to enrol in insurance schemes than maleheaded households. The authors associated these findings with traditional roles for women as caregivers in households. Wagstaff et al. (2009), in contrast, did not find an increased likeliness of joining China's NCMS in female headed households. Schneider and Diop (2001) disaggregated the utilisation rate by gender and found that the probability for utilisation did not vary by gender in Rwanda.

Applicable type of risk coverage**• Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

For measurement, the same questions/methods mentioned for the relevant indicators should be applied to the specific subgroups.

Analysis

The analysis should be conducted in the way advised for the respective

indicators, focusing on the specific subgroup.

Combine with

- Relevant indicators used, not divided by subgroups
- Use of any of the indicators mentioned for subgroups (general)
- Use of any of the indicators mentioned for socioeconomic subgroups

Impact: Risk of poverty/financial protection/financial vulnerability

Indicator: Percentage of households living below the poverty line: percentage of households living on less than USD 1.25 Purchasing Power Parity (PPP) per person per day

Definition of the indicator

This indicator captures the percentage of households in the sample living on less than USD 1.25 a day. The international line of \$1.25 a day is the average of the national poverty lines in the poorest 10-20 countries and defines those living under this estimate as extremely poor. It is the recalculated measure of the initially \$1 a day per person line, the World Bank published in 1999, based on 2005 PPP prices.

Theory of expected effects

Microinsurance is mostly promoted as a tool aimed at the prevention of unanticipated and undesirable events that could exacerbate or deepen the poverty level of affected individuals. People living with an income around the poverty line are considered particularly financially vulnerable and need efficient financial protection. Financial protection aims at providing a viable alternative to inefficient coping mechanisms often applied by low-income households in shock and stress situations. These informal coping mechanisms can include numerous sorts of

actions such as depletion of savings, selling of goods (including livestock and food), consumption-smoothing, change in labor supply, withdrawing children from school, and engaging in mutual self-help arrangements. Under microinsurance, it is expected that financial vulnerability and the risk of falling (back) into poverty decreases, particularly after a shock event.

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

This indicator is applicable to all insurable risks and types of risk coverage.

Measurement

For measurement, all sources of income have to be considered in order to calculate a daily average and

determine whether it lies below or above the poverty line.

Analysis

This general indicator of household wealth and income and its degree of vulnerability is essential to analysing the impact of microinsurance on poverty reduction. It is, however, unlikely that a direct short-term effect will be found here. The indicator is rather interesting to analyse in the context of income variability as it is expected that, under insurance, individuals are less likely to fall under the poverty

threshold. It may take a longer time period until significant effects can be identified since shocks may only occur occasionally. Furthermore, it could be interesting to study whether income level is significantly correlated with the access to insurance and/or the take-up rate.

Combine with

- Percentage of households living between USD 1.25 and USD 2.00 PPP per person
- Indicators for general outcomes of microinsurance

Impact: Risk of poverty/financial protection/financial vulnerability

Indicator: Percentage of households living below the poverty line: percentage of households living on between USD 1.25 and USD 2.00 purchasing power parity (PPP) a day per person

Definition of the indicator

This indicator captures the percentage of households in the sample living between USD 1.25 and USD 2.00 (normalised as PPP) a day per person. The international line of USD1.25 a day is the average of the national poverty lines in the poorest 10-20 countries and defines those living under this estimate as extremely poor. It is the recalculated measure of the initially USD1.00 a day per person line, the World Bank published in 1999, based on 2005 PPP prices. The range between USD 1.25 and USD 2.00 is a commonly-used measure for people who are particularly vulnerable to falling (back) into extreme poverty.

Theory of expected effects

Microinsurance is mostly promoted as a tool aimed at the prevention of unanticipated and undesirable events that could exacerbate or deepen the poverty level of affected individuals. People living with an income around the poverty line are considered particularly financially vulnerable and need efficient financial protection. Financial

protection aims at providing a viable alternative to inefficient coping mechanisms often applied by low-income households in shock and stress situations. These informal coping mechanisms can include numerous sorts of actions such as depletion of savings, selling of goods (including livestock and food), consumption-smoothing, change in labor supply, withdrawing children from school, and engaging in mutual self-help arrangements. Under microinsurance, it is expected that financial vulnerability and the risk of falling (back) into poverty decreases, particularly after a shock event.

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

This indicator is applicable to all insurable risks and types of risk coverage.

Measurement

For measurement, all sources of income have to be considered in order to calculate a daily average and determine if it lies below or above the poverty line.

Analysis

This general indicator of household wealth and income and its degree of vulnerability is essential for the analysis of the impact of microinsurance on poverty reduction. It is, however,

unlikely to find a direct effect here. Consequently, the analysis should include various related wealth and income indicators. Furthermore, it could be interesting to study whether the income level is significantly correlated with the access to insurance and/or the take-up rate.

Combine with

- Percentage of households living on less than USD 1.25 PPP per person
- Indicators for general outcomes of microinsurance

Impact: Economic situation of the household

Indicator: Level of assets—housing conditions

Definition of the indicator

Housing conditions are an important indicator for measuring the living standard of a household. Living in satisfactory housing conditions is a highly important factor determining people's lives and their satisfaction level. Housing is essential for meeting basic needs, such as shelter, but, in addition, it should offer a place to sleep and rest where people feel safe and have privacy and personal space; it should be somewhere they can raise a family. All of these elements help make a house a home (Organisation for Economic Co-operation and Development [OECD] 2013)¹. In economic analysis, housing conditions are often used as a proxy for the economic situation of a household and its wealth status.

Theory of expected effects

Under insurance, more resources can be invested for improving the housing conditions ex-ante in the occurrence of a household shock. This could be particularly valid in a regional context, which is highly affected by devastating weather and natural events such as typhoons, floods, earthquakes, fire, etc.

In such a context, insured households could be more willing to put resources into their housing conditions, as they fear destruction less. In the ex-post situation, it is expected that the housing conditions remain more or less stable under insurance as housing assets do not need to be used as a tool to mitigate risk.

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- **Property insurance**
- Other

Measurement

Measurement of housing conditions is usually conducted on the basis of the interviewer's observations and/or available data on the community level. Additionally, questions about the housing conditions can be directly included in the survey. This is also a way to provide valuable information about people's satisfaction with their housing conditions, which is an important factor of living standards.

¹ See the OECD Better Life Index at <http://www.oecdbetterlifeindex.org/topics/housing/>.

Examples for subindicators:²

- Number of rooms in the dwelling
- Main material of the floor of the dwelling
- Main material of the exterior walls in the dwelling
- Main material of the roof of the dwelling
- Percentage of households with access to tapped water within 30 minutes (walking)
- Percentage of households with tapped water at their home
- Percentage of households with a toilet in their home
- Percentage of households with electricity in their home

Analysis

Housing conditions should be analysed with consideration of general

community/neighbour housing conditions. This will help exclude local external effects (there may be no running water, electricity supply, etc., for the whole community, irrespective of a household's willingness to improve their housing conditions in this regard). The information on housing conditions can also serve as the basis for the construction of an index.

Combine with

- Total value of sold assets in case of shocks
- Percentage of assets recovered/replaced after being sold in case of shock six months after shock event
- Amount of liquid assets
- Other indicators measuring the economic situation of the household

² For more subindicators and sample questions consult the World Bank Living Standards Measurement Study surveys at http://econ.worldbank.org/wbsite/external/extdec/extresearch/extlsm/0_contentmdk:21610833~pagepk:64168427~pipk:64168435~thesitepk:3358997,00.html

Impact: Economic situation of the household

Indicator: Level of household assets / consumer appliances

Definition of the indicator

The level of household assets and consumer appliances is a suitable indicator to measure the living standard of a household. Living in satisfactory housing conditions is a highly important factor determining people's lives and their satisfaction level. In economic analysis, housing conditions and the level of household assets are often used as a proxy for the economic situation of a household and its wealth status. For this purpose, household assets and consumer appliances are used for the construction of a comparable index.

Theory of expected effects

This indicator is particularly relevant for the analysis of an ex-post shock situation. Under insurance, it is expected that the economic situation of a household, displayed by the level of assets and consumer appliances, remains more or less stable as assets do not need to be used or sold as a tool to mitigate risk.

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)

- Crop insurance (indemnity or index)
- **Property insurance**
- Other

Measurement

Measurement of household assets can be conducted on the basis of the interviewer's observations and/or questions about the housing conditions, directly included in the survey. This is also a way to provide valuable information about peoples' satisfaction with their housing conditions and level of household assets, which is an important factor of living standards.

Examples for subindicators:

- Number of pots and pans in dwelling
- Existence of bicycle, motor bike, car (and number)
- Existence of TV, refrigerator, washing machine, AC, Hifi
- Existence of mobile phone(s)

(For more subindicators and sample questions consult the LSMS World Bank surveys.)

Analysis

For the analysis of the level of assets and consumer appliances, local and cultural particularities should be

taken into account as some assets may have a higher or lower (subjective) value. Furthermore, general community/neighbour conditions should be considered in order to exclude local external effects (there may be no running water, electricity supply, etc. for the whole community, irrespective of a household's willingness to invest in certain assets/appliances such as TV, AC, washing machine, etc.). The information gathered for this indicator can be used for the construction of an asset index, functioning as a proxy for

household wealth and the economic situation of a household.

Combine with

- Total value of sold assets in case of shocks
- Percentage of assets recovered/replaced after being sold in cases of shock six months after a shock event
- Amount of liquid assets
- Other indicators measuring the economic situation of the household

Impact: Economic situation of the household

Indicator: Level of household assets—savings and other working capital

Definition of the indicator

Savings refer to the amount of household income not spent on consumption or investment, but put aside for future use to cover recurring costs, unexpected expenditures, or planned consumption (wedding, dowry, funeral, health costs, education expenses, farming inputs, etc.). The indicator includes liquid savings (bank accounts, cash-on-hand, money in savings groups, gold, jewelery, etc.) as well as illiquid savings (land ownership irrigated or non-irrigated—livestock, housing, etc). Working capital refers to operating liquidity available for business and other income-generating activities (e.g., machinery, fishing boats, stock of goods).

Theory of expected effects

Liquid and illiquid savings, as well as working capital, are important risk mitigation tools for low-income households to protect themselves against shocks and stabilise cash flow. With insurance, precautionary savings are expected to decrease, whilst funds and working capital are expected to be preserved

by insurance. If a shock occurs, assets do not need to be sold or used for other purposes such as liability for a loan.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

Measurement

Besides measurement via survey questions, direct observations of the surveyor can be a valuable source of information, particularly with regards to illiquid assets and working capital.

Analysis

Due to the expected change in risk taking behaviour, it might be interesting to analyse heterogeneous effects by risk aversion. Furthermore, different purposes and intentions behind the saving behaviour should be taken into consideration in the analysis.

Combine with

- Total value of sold assets in a shock event
- Percentage of assets recovered/ replaced after being sold in cases of shock six months after shock event
- Amount of liquid assets
- Other indicators measuring the economic situation of a household

Impact: Nutrition (in quantity and quality)

Indicator: Total expenditures on food per person per week

Definition of the indicator

This indicator captures each household's per person expenditure on food in the time frame of a week. A differentiation should be made between food bought for immediate versus future consumption. Quantity and quality of food are not taken into consideration in this indicator (see following indicators on quality and quantity of nutritional intake).

Theory of expected effects

As consumption-smoothing is a common mechanism of household risk mitigation in cases of income or health shocks, food security is a closely connected issue. As a consequence of a household shock, individuals have to cope with the expenses related to the respective event *and* continue to meet ongoing household needs, of which expenditure for food ranks on top. This double burden can easily lead to the decision to eat fewer meals or eat less nutritious food. This effect is particularly relevant for poor households, who would need to reduce their consumption and their food expenditures in the case of a shock. As microinsurance aims at stabilising,

expenditures on food are expected to stay stable or even increase if it comes to a shift in consumption preferences due to the change in risk mitigation. In this context, Wagstaff and Pradhan (2005) found that the Vietnam Health Insurance increased households' non-health related expenditures, i.e., non-medical goods such as food and education.

Applicable type of risk coverage

- **Health insurance**
- Life insurance
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- Property insurance
- Other

Health insurance can be an applicable type of risk management here, particularly if the insurance product encompasses additional interventions related to nutrition. Furthermore, in the case of self-subsistence of the household, agricultural insurance schemes, such as crop or livestock insurance, could be applicable as well. They mitigate the risk of crop failure and/or livestock death, both of which could have a negative impact on nutrition.

Measurement

Because self-reported and aggregated information of quantity and quality of food can be inaccurate, it is common practice to measure food consumption in the form of an extensive roster, covering each food item separately by amount/quantity and price for each person of a household.

Example question: I want to ask about all food consumed per person in this household. Have you consumed [FOOD] during the past 7 days? Please exclude from your answer any [FOOD] purchased for processing or resale (National Statics Directorate Caicoli, Dili, Timor Leste and World Bank 2001).

Analysis

Smoothing of food expenses is a consumption-smoothing mechanism typically employed only when other alternatives are lacking, it mostly affects poor households. It could be interesting to analyse its use across different levels of poverty. Analysing the heterogeneous effects on different types of household members could also be interesting, assuming that, in the case of a shock, a poor household would smooth food expenditures differently for its members, depending on their particular needs (especially for those household members with increased health risks such as pregnant women, children, elderly people, or sick individuals).

Combine with

- Indicators of quantity and quality of nutritional intake

Impact: Nutrition (in quantity and quality) — quality of nutritional intake

Indicator: Frequency of eating vegetables or fruit (number per week)

Definition of the indicator

This indicator captures the quality of weekly nutritional intake by the frequency of vegetables or fruit consumed.

Theory of expected effects

As consumption-smoothing is a common mechanism of household risk mitigation, in cases of income or health shock, food security is a closely connected issue. As a consequence of a household shock, individuals have to cope with the expenses related to the respective event *and* continue to meet ongoing household needs, for which expenditure for food ranks on top. This double burden can easily lead to the decision to eat fewer meals or eat less nutritious food. This effect is particularly relevant for poor households, who would need to reduce their consumption and their food expenditures less in a shock event. As microinsurance aims at stabilising, expenditures on food are expected to stay stable or even increase if it comes to a shift in consumption preferences due to the change in risk mitigation. In this context, Wagstaff and Pradhan (2005) found that the Vietnam Health Insurance increased households'

non-health related expenditures, i.e., non-medical goods such as food and education.

Applicable type of risk coverage

- **Health insurance**
- Life insurance
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- Property insurance
- Other

Health insurance can be an applicable type of risk management here, particularly if the insurance product encompasses additional interventions related to nutrition. Furthermore, in the case of self-subsistence of a household, agricultural insurance schemes, such as crop or livestock insurance, could be applicable as well. These schemes mitigate the risk of crop failure and/or livestock death, both of which could have a negative impact on nutrition.

Measurement

Because self-reported and aggregated information of quantity and quality of food can be inaccurate, it is common

practice to measure food consumption in the form of an extensive roster, covering each food item (fruit, vegetables) separately by amount/quantity and price.

Example question: I want to ask about fruit and vegetables consumed by your household, regardless of which person ate it. Has your household consumed [FOOD] during the past 7 days? Please exclude from your answer any [FOOD] purchased for processing or resale (National Statics Directorate Caicoli, Dili, Timor Leste and World Bank 2001).

Analysis

Smoothing of food expenses is a consumption-smoothing mechanism typi-

cally employed only when other alternatives are lacking, it mostly affects poor households. It could be interesting to analyse its use across different levels of poverty. Analysing the heterogeneous effects on different types of household members could also be interesting, assuming that, in the case of a shock, a poor household would smooth food expenditures differently for its members, depending on their particular needs (especially for those household members with increased health risks such as pregnant women, children, elderly people, or sick individuals).

Combine with

- Indicators of quantity and quality of nutritional intake

Impact: Nutrition (in quantity and quality) — quality of nutritional intake

Indicator: Frequency of eating meat (if people eat meat at all) (number per week)

Definition of the indicator

This indicator captures a household's weekly consumption of meat for non-vegetarian household members.

The measure is frequency, not the actual amount or type of meat.

Theory of expected effects

As consumption-smoothing is a common mechanism of household risk mitigation, in cases of income or health shock, food security is a closely connected issue. As a consequence of a household shock, individuals have to cope with the expenses related to the respective event *and* continue to meet ongoing household needs of which expenditure for food ranks on top. This double burden can easily lead to the decision to eat fewer meals or eat less nutritious food and/or less expensive food. As meat ranks amongst the most expensive foods, whilst its nutritional value can be substituted by other types of food, its consumption is often cut down first during financial constraints to food consumption. This effect is particularly relevant for poor households, who would need to reduce their

consumption and their food expenditures less in the case of a shock. As microinsurance aims at stabilising households, expenditures on food are expected to stay stable or even increase if it comes to a shift in consumption preferences due to the change in risk mitigation. In this context Wagstaff and Pradhan (2005) found that the Vietnam Health Insurance increased households' non-health related expenditures, i.e., non-medical goods such as food and education.

Applicable type of risk coverage

- **Health insurance**
- Life insurance
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- Property insurance
- Other

Health insurance can be an applicable type of risk management here particularly if the insurance product encompasses additional interventions related to nutrition. Furthermore, in the case of self-subsistence of the household agricultural insurance schemes such as crop or livestock insurance could

be applicable as well as they mitigate the risk of crop failure and/or livestock death, which could both have a negative impact on nutrition.

Measurement

Because self-reported and aggregated information of quantity and quality of food can be inaccurate, it is common practice to measure food consumption in the form of an extensive roster, covering each food item (different forms of meat) separately by amount/quantity and price. In the case of this indicator, interview questions should be preceded by the question, "Are there any people in the household who do not eat meat?"

Example question: I want to ask about meat consumed by your household, regardless of which person ate it. Has your household consumed [FOOD] during the past 7 days? Please exclude from your answer any [FOOD] purchased for processing or resale (National Statics

Directorate Caicoli, Dili, Timor Leste and World Bank 2001).

Analysis

Smoothing of food expenses is a consumption-smoothing mechanism typically employed only when other alternatives are lacking, thus, it mostly affects poor households. It could be interesting to analyse its use across different levels of poverty. Analysing the heterogeneous effects on different types of household members could be also interesting, assuming that, in a shock event, a poor household would smooth food expenditures differently for its members, depending on their particular needs (especially for those household members with higher health risks such as pregnant women, children, elderly people, or sick individuals).

Combine with

- Indicators of quantity and quality of nutritional intake

Impact: Nutrition (in quantity and quality) — quantity of nutritional intake/extent of hunger

Indicator: Average number of meals eaten per day in last month

Definition of the indicator

This indicator captures the quantity of nutritional intake by the average number of meals eaten per day in the last month.

Theory of expected effects

As consumption-smoothing is a common mechanism of household risk mitigation in cases of income or health shock, food security is a closely connected issue. As a consequence of a household shock, individuals have to cope with the expenses related to the respective event *and* continue to meet ongoing household needs, of which expenditure for food ranks on top. This double burden can easily lead to the decision to eat fewer meals or eat less nutritious food. This effect is particularly relevant for poor households, who would need to reduce their consumption and their food expenditures less in a shock event. As microinsurance aims at stabilising, expenditures on food are expected to stay stable or even increase if it comes to a shift in consumption preferences due to the change in risk mitigation. In this context, Wagstaff and Pradhan (2005) found that the Vietnam

Health Insurance increased households' non-health related expenditures, i.e., non-medical goods such as food and education. It is, thus, expected that the number of meals taken remains stable after a shock under microinsurance since the reduction of food quantity is not needed as a consumption-smoothing mechanism.

Applicable type of risk coverage

- **Health insurance**
- Life insurance
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- Property insurance
- Other

Health insurance can be an applicable type of risk management here, particularly if the insurance product encompasses additional interventions related to nutrition. Furthermore, in the case of self-subsistence of the household agricultural insurance schemes such as crop or livestock insurance could be applicable as well as they mitigate the risk of crop failure and/or livestock death, which could both have a negative impact on nutrition.

Measurement

- What was the average number of meals eaten per day on average during the past month?

Analysis

Smoothing of food expenses is a consumption-smoothing mechanism typically employed only when other alternatives are lacking, thus, it mostly affects poor households. It could be interesting to analyse its use across different levels of poverty. Analysing the heterogeneous

effects on different types of household members could also be interesting, assuming that, in a shock event a poor household, would smooth food expenditures differently for its members, depending on their particular needs (especially for those household members with increased health risks such as pregnant women, children, elderly people, or sick individuals).

Combine with

- Indicators of quantity and quality of nutritional intake

Impact: Nutrition (in quantity and quality) — quantity of nutritional intake/extent of hunger

Indicator: Number of days when food was insufficient for the household in last month

Definition of the indicator

This indicator refers to the number of days when food was insufficient for a household in the last month. This is a subjective measure, capturing the extent of hunger that is suffered amongst household members.

Theory of expected effects

As consumption-smoothing is a common mechanism of household risk mitigation in cases of income or health shock, food security is a closely connected issue. As a consequence of a household shock, individuals have to cope with the expenses related to the respective event *and* continue to meet ongoing household needs, of which expenditure for food ranks on top. This double burden can easily lead to the decision to eat fewer meals or eat less nutritious food. This effect is particularly relevant for poor households, who would need to reduce their consumption and their food expenditures in the case of a shock event. As microinsurance aims at stabilising households, expenditures on food are expected to stay stable or even increase if it comes to a shift in consumption preferences

due to the change in risk mitigation. In this context Wagstaff and Pradhan (2005) found that the Vietnam Health Insurance increased households' non-health related expenditures, i.e., non-medical goods such as food and education. Thus, it is expected that the number of days with insufficient supply of food will decrease under microinsurance, since consumption-smoothing is no longer necessary to mitigate the consequences of the shock. This is particularly true for an ex-post shock context.

Applicable type of risk coverage

- **Health insurance**
- Life insurance
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- Property insurance
- Other

Health insurance can be an applicable type of risk management here particularly if the insurance product encompasses additional interventions related to nutrition. Furthermore, in the case of subsistence farming of the household, agricultural insurance schemes

such as crop or livestock insurance could be applicable as well as they mitigate the risk of crop failure and/or livestock death, which could both have a negative impact on nutrition.

Measurement

The insufficiency of food in a household can be treated as a fully subjective indicator, based on the self-assessment of survey respondents and their feeling of hunger. A further option of measurement is to take the caloric intake, officially recommended by the WHO as a reference for sufficient/insufficient consumption of food, and use the collected information about food consumption.

Analysis

Smoothing of food expenses is a consumption-smoothing mechanism typically employed only when other alternatives are lacking, thus, it mostly affects poor households. It could be interesting to analyse its use across different levels of poverty. Analysing the heterogeneous effects on different types of household members could also be interesting, assuming that, in a shock event, a poor household would smooth food expenditures differently for its members, depending on their particular needs (especially for those household members with increased health risks such as pregnant women, children, elderly people, or sick individuals).

Combine with

- Indicators of quantity and quality of nutritional intake

Impact: Health/Morbidity

Indicator: Number of sick days in the household per person within last month (per subgroups such as children, women, elderly, etc.)

Definition of the indicator

This indicator measures the number of illness episodes per subgrouped individuals in a household within the last month.

Theory of expected effects

Microinsurance is intended to provide a reliable, adequate level of affordable health care (Leatherman et al. 2012). Nevertheless, the direct impact of a microinsurance scheme on health outcomes is a particularly difficult target to measure and most valid outcome data existing use proxies for health outcomes and focus on specific aspects of health care such as health-care utilisation or access. The number of sick days in a household per person could be such a proxy for health status/morbidity. If microinsurance provides access to health-care services that are inaccessible without insurance, one would expect that, in the medium- to long-term, the number of sick days would decrease. At a minimum, this decrease would be expected for illnesses that are easily treatable in most cases, such

as diarrhea. Due to the difficulties of measuring direct health outcomes, empirical studies focused instead on subjective self-reports of health status. In this context, Lei and Lin (2009) estimated that members of China's NCMS, were 2.8% less likely to report that they were feeling ill.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

Regarding the measurement of illness, DHS distinguishes between different degrees of severity of illness. Thus, it can be useful to cover both general illnesses and illnesses considered as rather severe, including fever and/or coughing as indicators.

- How many days has [NAME] been ill in the last month?
- How many days has [NAME] been ill with a fever/cough in the last month? (ICF 2011)

Analysis

Because it is expected that the number of sick days in a household per person is primarily influenced by general living conditions and numerous external factors, such as epidemics and local infection rates, number of sick people in close surroundings, water and sanitation, food quality and accessibility,

etc., it is very difficult to analyse a direct impact of microinsurance on health status and morbidity. The analysis should, thus, include as many other factors and indicators as possible.

Combine with

- Other indicators of health/morbidity
- Indicators of living standards

Impact: Health/Morbidity

Indicator: Number of days household members were unable to perform usual activities because of poor health per person within last month

Definition of the indicator

This indicator measures the number of days household members could not carry out their usual activities due to poor health.

Theory of expected effects

Microinsurance is intended to provide a reliable, adequate level of affordable health care (Leatherman et al. 2012). Nevertheless, the direct impact of a microinsurance scheme on health outcomes is a particularly difficult target to measure. Most of the valid, existing outcome data are based on proxies for health outcomes and focus on specific aspects of health care such as health-care utilisation or access. The number of days household members could not carry out their usual activities due to poor health conditions could be such a proxy for health status/morbidity. The discontinuation of usual activities is an appropriate indicator for health status, as low-income households cannot afford to forgo any regular income source and discontinuation is often a decision of last resort. If microinsurance provided access to health-care services that are inaccessible

without insurance, one would expect that, in the medium- to long-term, the number of sick days would decrease and, thus, usual activities of household members could continue. Due to the difficulties of measuring direct health outcomes, empirical studies focused instead on subjective self-reports of health status. In this context, Lei and Lin (2009) estimated that members of China's NCMS, were 2.8% less likely to report that they were feeling ill.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

- How many days has [NAME] been unable to perform her/his usual activities because of poor health within the last month?

Analysis

As it is expected that the number of sick days in a household per person

is primarily influenced by general living conditions and numerous external factors, such as epidemics and local infection rates, number of sick people in close surroundings, water and sanitation, food quality and accessibility, etc., it is very difficult to analyse a direct impact of microinsurance on this health status and morbidity. The analysis should, thus, include as many other factors and indicators as possible. Furthermore, the indicator should be seen in the context of the

prevalent illness and its severity. This could provide important information about the long-term impact of an illness, as for instance in the case of a chronic disease where usual activities are likely to be stopped for a long period of time.

Combine with

- Other indicators of health/morbidity
- Indicators of household income of the relevant activities

Impact: Health/Morbidity

Indicator: Body Mass Index (BMI)

Definition of the indicator

This indicator measures the Body Mass Index (BMI) for all household members. The BMI is a simple index of weight-for-height that is commonly used to classify underweight, overweight and obesity in adults. It is defined as the weight in kilograms divided by the square of the height in metres (kg/m²). BMI values are age-independent and the same for both sexes. However, BMI may not correspond to the same degree of obesity in different populations due, in part, to different body proportions. The health risks associated with increasing or very low BMI are continuous and the interpretation of BMI gradings in relation to risk may differ for different populations. In recent years, there has been a growing debate on whether there are possible needs for developing different BMI cut-off points for different ethnic groups due to the increasing evidence that the associations between BMI, percentage of body fat, and body fat distribution differ across populations (World Health Organization 2013).

Theory of expected effects

Wagstaff and Pradhan (2005) conducted one of the rare studies, examining direct health outcomes of

microinsurance. Based on data from the Living Standards Measurement Survey, they found that the Vietnamese Health Insurance significantly influences the BMI of adults and height and weight of young children.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

The BMI can be calculated by the formula:

$$\text{BMI} = \text{weight (kg)} / (\text{height (m)})^2$$

If possible, measurement of weight and height is directly conducted by the surveyor, and not based on self-reporting, in order to retrieve the most exact information possible.

Analysis

As pointed out for the previous indicators for health outcomes, it is very difficult to analyse a direct impact of microinsurance on this health status

and morbidity. The analysis should, thus, include as many other factors and indicators as possible. The ongoing discussion about the BMIs generalisability across ethnic groups also points to the importance of seeing this indicator in the local context.

Combine with

- Other indicators of health/morbidity
- Nutrition-related variables

Impact: Health/Morbidity

Indicator: Percentage of children with anemia

Definition of the indicator

This indicator measures the percentage of children within a household who are anemic. Anemia is considered as a public health problem in both rich and poor countries by the WHO. However, its prevalence in developing countries is particularly high, with nearly half of all women and children being anemic. Iron deficiency has been identified as a widespread cause of anemia. Nevertheless, there are numerous other factors associated with anemia such as malaria, parasitic infections, nutritional deficiencies, and hemoglobinopathies. Overall, anemia is perceived as an indicator of poor health and poor nutrition. Anemia can occur at all stages of the life cycle but is more prevalent in pregnant women and young children, on whom it has the most devastating health effects. Severe forms of anemia are directly related to an increased maternal and child mortality. The most prevalent form of anemia—Iron Deficiency Anemia (IDA)—is associated with negative consequences for the cognitive and physical development of children and on the physical performance of adults (Benoist et al. 2005). Particularly in children, anemia has been associated with impaired cognitive performance,

motor development, coordination, language development, and scholastic achievement (ICF 2011).

Theory of expected effects

Anemia is a very good example of a disease that is relatively easy to prevent and treat but still very prevalent and associated with acutely negative health outcomes, particularly in young children and pregnant women. Increased access to and use of health-care services, including educational advice on nutrition, is expected to decrease the percentage of children with anemia.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

Data on anemia could be retrieved from local health agencies or, if possible, directly by a blood test. The DHS contains a large section on anemia, for which women (15–49 years) and children (usually six-months up to five years) are tested for the disease

through finger prick or, in the case of young children, heel prick blood testing using the HemoCue blood hemoglobin testing system. In the case of DHS, testing is voluntary and respondents receive the results of their anemia test immediately as well as information about how to prevent anemia (ICF 2011).

Analysis

The analysis should take into account whether the microinsurance scheme in focus encompasses any complementary educational or active interventions with regards to appropriate

nutrition of children, particularly regarding the supplementation of iron. or whether the individuals are subject to such an intervention independent of their membership in a microinsurance scheme. Due to the correlation between maternal nutrition and health status and the prevalence of anemia for young children, it could also be interesting to control for the prevalence of anemia in children by anemia status of the mother.

Combine with

- Other indicators of health/morbidity
- Nutrition-related variables

Impact: Health/Morbidity

Indicator: Percentage of women with anemia

Definition of the indicator

This indicator measures the percentage of women within a household, who are anemic. Anemia is considered as a public health problem in both rich and poor countries by the WHO. Iron deficiency has been identified as a widespread cause of anemia. Nevertheless, there are numerous other factors associated with anemia such as malaria, parasitic infections, nutritional deficiencies, and hemoglobinopathies. Overall, anemia is perceived as an indicator of poor health and poor nutrition. Anemia can occur at all stages of the life cycle but is more common in pregnant women and young children, on whom it has the most devastating health effects. Severe forms of anemia are directly related to an increased maternal and child mortality. The most prevalent form of anemia—Iron Deficiency Anemia (IDA)—is associated with negative consequences for the cognitive and physical development of children and on the physical performance of adults (Benoist et al. 2005). For women, anemia reduces their work productivity and places them at risk for poor pregnancy outcomes, including increased risk of maternal mortality, prenatal mortality, premature births, and low birth weight (ICF 2011).

Theory of expected effects

Anemia is a very good example of a disease that is relatively easy to prevent and treat but still very prevalent and associated with very negative health outcomes, particularly in young children and pregnant women. Increased access to and use of services, including educational advice on nutrition, is expected to decrease the percentage of women with anemia.

Applicable type of risk coverage

- **Health insurance**

As this indicator explicitly refers to the case of health, the applicable type of risk coverage here is health insurance.

Measurement

Data on anemia could be retrieved from local health agencies or, if possible, directly by a blood test. The DHS contains a large section on anemia, for which women (15–49 years) and children (usually six-months up to five-years) are tested for the disease through finger prick or, in the case of young children, heel prick blood testing using the HemoCue blood hemoglobin testing

system. In the case of DHS, testing is voluntary and respondents receive the results of their anemia test immediately, as well as information about how to prevent anemia (ICF 2011).

Analysis

The analysis should take into account whether the microinsurance scheme at stake encompasses any complementary educational or active interventions with regards to appropriate nutrition, particularly regarding the supplementation of iron, or

whether the individuals are subject to such an intervention independent of their membership in a microinsurance scheme. Due to the correlation between maternal nutrition and health status and the prevalence of anemia for young children, it could also be interesting to control for the prevalence of anemia in children by anemia status of the mother.

Combine with

- Other indicators of health/morbidity
- Nutrition-related variables

Impact: Educational attainment of children

Indicator: Percentage of children age 6-16 (or other age) attending school

Definition of the indicator

This indicator measures the percentage of children between the ages of six and 16 attending school. The indicator, thus, focuses on primary, middle and high school (until approximately 10th grade) education.

Theory of expected effects

When a household lacks alternatives for coping with a shock event, they may be forced to not only use their financial assets, but also their physical ones to handle the corresponding consequences. Taking children out of school can be based on two intentions. One is to save money, if school fees and other expenses are needed to keep the children in school; the other intention is to take children out of school in order to put them to work in order to cope with the consequences of the shock. Seen from a long term perspective, this coping mechanism is inefficient. It impedes the educational and skills development of children, which is essential for the future socioeconomic situation of a household. Under insurance, it is expected that children will remain in school after a shock event as educational expenses can still be covered

and no additional man power or support are needed in their household.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

Numerous types of insurances are applicable in this case since taking children out of school can be a reaction to all sorts of shock events, placing households in a difficult economic situations.

Measurement

The indicator can be measured both on a household level as well as on a community/school level by using official statistics of school attendance rates.

Analysis

Taking children out of school is a typical coping mechanism of poor to very poor households who lack of alternative coping mechanisms. However, as

this indicator implies not only financial but also physical coping in the form of putting the children to work, the focus should be taken on households involved in agricultural production or small business, as additional man power is most likely to be needed here. Furthermore, it could be interesting to control for the age and sex of the children taken out of school. Taking children out of primary school for example can be more devastating for the educational development than at a later stage of school. For some country contexts, studies show that girls are more likely to be taken out

of school to support a household than boys, as their educational prospects are valued less. In this context, it could be interesting to combine the indicator with a question about how much a household spent for education during the past 12 months.

Combine with

- Other indicators of educational attainment of children
- Other indicators of risk management strategies (ex-post)/coping strategies in case of shock
- Child labour measures

Impact: Educational attainment of children

Indicator: Days missed in school per child within last month

Definition of the indicator

This indicator measures the days of absence from school per child within the last month.

Theory of expected effects

In the case of a lack of alternatives to cope with a shock event, households may be forced to not only use their financial but also physical assets to cope with the corresponding consequences. Taking children out of school can be based on two intentions. One is to save money, if school fees and other expenses are needed to keep the children in school; the other intention is to take children out of school in order to put them to work in order to cope with the consequences of the shock. Under insurance, it is expected that children will remain in school after a shock event as a result of the financial protection of the insurance scheme, making additional income less necessary for a household. In addition to these economic aspects, school days may be missed if a child is too weak or sick to go to attend. In this context, experimental evidence on deworming interventions demonstrated that a better health status significantly increases

the ability to attend school (J-PAL 2012). Seen from a long term perspective this coping mechanism is inefficient, as it impedes the educational and skills development of the children, which are essential for the future socio-economic situation of the household. Under insurance it is expected that children remain in school after a shock event, due to the financial protection of the insurance scheme, making additional income of the household less needed. Furthermore, a potentially enhanced health status may increase a child's physical and mental ability to attend school.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

Numerous types of insurances are applicable in this case since taking children out of school can be a reaction to all sorts of shock events, placing households in difficult economic situations.

Measurement

- How many days did [CHILD] miss school during the past month?

The indicator can be measured both on the household level as well as on the community/school level by using official statistics of school attendance rates.

Analysis

Taking children out of school is a typical coping mechanism of poor to very poor households who lack alternative coping mechanisms. However, as this indicator implies not only financial but also physical coping in the form of putting the children to work, the focus should be taken on households involved in agricultural production or small business, as additional manpower is most likely to be needed here. Furthermore, it could be interesting to control for the age and sex of the children taken out of school. Taking children out of primary school, for example, can be more devastating for the educational development than at a later stage of school.

For some country contexts, studies show that girls are more likely to be taken out of school to support a household than boys, as their educational prospects are valued less. Following the argument that health problems are a potential impediment to regular school attendance, the analysis should take into account whether children benefit from any health interventions, such as deworming programmes, that would make absences due to preventable diseases and health problems less likely. As the indicator refers to the days missed in school during the preceding month, the analysis should take into account whether there was a shock event during this month or recently or a particular occasion, such as harvest season, which often requires increased labor supply within the family.

Combine with

- Other indicators of educational attainment of children
- Other indicators of risk management strategies (ex-post)/coping strategies in shock event
- Child labour measures

Impact: Educational attainment of children — child labour

Indicator: Percentage of children below age 15 (or other age) engaged in income generation, housework, farming, or other economic activity as their main occupation

Definition of the indicator

This indicator measures the percentage of children below the age of 15 (or other age), who are engaged in income generation for a household.

Theory of expected effects

In the case of a lack of alternatives to cope with a shock event, households may be forced to not only use their financial but also physical assets to cope with the corresponding consequences. Taking children out of school and engaging them in household income generation can be based on two intentions. One is to save money, if school fees and other expenses are needed to keep the children in school; the other intention is to take children out of school in order to put them to work in order to cope with the consequences of the shock. Seen from a long term perspective this coping mechanism is inefficient, as it impedes the educational and skills development of the children, which are essential for the future socioeconomic situation of the household. Under insurance it is expected that children remain in

school after a shock event as educational expenses can still be covered and no additional manpower and support is needed in the household.

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

Numerous types of insurances are applicable in this case since taking children out of school can be a reaction to all sorts of shock events, placing households in difficult economic situations.

Measurement

For the measurement of this indicator, official statistics of school attendance rates below the age of 15 could be used. Directly asked to a household, this question could be considered as very sensitive, particularly in contexts where school attendance is obligatory

up until a certain level/age and child labour prohibited. Thus, consider obtaining the information via indirect questions about the engagement of children in work for the household.

Analysis

Taking children out of school is a typical coping mechanism of poor to very poor households who lack alternative coping mechanisms. However, as this indicator implies not only financial but also physical coping in the form of putting the children to work, the focus should be taken on households involved in agricultural production or small business, as additional man power is most likely to be needed here. The indicator should be seen in the light of seasonal or other context particularities and analysed regarding

its duration, i.e., whether the income generated by a child is of short-term or long-term duration. Furthermore, it could be interesting to control for the age and sex of the children taken out of school. Taking children out of primary school, for example, can be more devastating for the educational development than at a later stage of school. For some country contexts, studies show that girls are more likely to be taken out of school to support a household than boys, as their educational prospects are valued less.

Combine with

- Other indicators of educational attainment of children
- Other indicators of risk management strategies (ex-post)/coping strategies in case of shock

Impact: Educational attainment of children—child labour

Indicator: Average number of working hours per week for children below age 15

Definition of the indicator

This indicator measures the working hours of children below the age of 15.

Theory of expected effects

In the case of a lack of alternatives to cope with a shock event, households may be forced to not only use their financial but also physical assets to cope with the corresponding consequences. Taking children out of school and engaging them in household income generation can be based on two intentions. One is to save money, if school fees and other expenses are needed to keep the children in school; the other intention is to take children out of school in order to put them to work in order to cope with the consequences of the shock. Seen from a long term perspective this coping mechanism is inefficient, as it impedes the educational and skills development of the children, which are essential for the future socioeconomic situation of the household. Under insurance it is expected that children remain in school after a shock event as educational expenses can still be covered and no additional manpower and support is needed in the household.

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

Numerous types of insurances are applicable in this case since taking children out of school can be a reaction to all sorts of shock events, placing households in difficult economic situations.

Measurement

- How many hours a week does [CHILD] work per week for the household?

Analysis

Taking children out of school is a typical coping mechanism of poor to very poor households who lack alternative coping mechanisms. However, as this indicator implies not only financial but also physical coping in the form of putting the children to work, the focus should be taken on households involved in

agricultural production or small business, as additional man power is most likely to be needed here. The indicator should be seen in the light of seasonal or other context particularities and analysed regarding its duration, i.e., whether the income generated by a child is of short-term or long-term duration. Furthermore, it could be interesting to control for the age and sex of the children taken out of school. Taking children out of primary school, for example, can be more devastating for the educational development than

at a later stage of school. For some country contexts, studies show that girls are more likely to be taken out of school to support a household than boys, as their educational prospects are less valued.

Combine with

- Other indicators of educational attainment of children
- Other indicators of risk management strategies (ex-post)/coping strategies in case of shock

Impact: Educational attainment of children — child labour

Indicator: Percentage of children age 6-16 (or other age) attending school

Definition of the indicator

This indicator measures the percentage of children at the age of 6 to 16 attending school. The indicator, thus, focuses on primary as well as middle or high school (until approximately 10th grade) education.

Theory of expected effects

In the case of a lack of alternatives to cope with a shock event, households may be forced to not only use their financial but also physical assets to cope with the corresponding consequences. Taking children out of school can be based on two intentions. One is to save money, if school fees and other expenses are needed to keep the children in school; the other intention is to take children out of school in order to put them to work in order to cope with the consequences of the shock. Seen from a long term perspective this coping mechanism is inefficient, as it impedes the educational and skills development of the children, which are essential for the future socio-economic situation of the household. Under insurance it is expected that children remain in school after a shock event as educational expenses can

still be covered and no additional man power and support is needed in the household.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- **Other**

Numerous types of insurances are applicable in this case since taking children out of school can be a reaction to all sorts of shock events, placing households in difficult economic situations.

Measurement

The indicator can be measured both on the household level as well as on the community/school level by using official statistics of school attendance rates.

Analysis

Taking children out of school is a typical coping mechanism of poor to very poor households, who lack of

alternative coping mechanisms. However, as this indicator implies not only financial but also physical coping in the form of putting the children to work, the focus should be taken on households involved in agricultural production or small business, as additional manpower is most likely to be needed here. Furthermore, it could be interesting to control for the age and sex of the children taken out of school. Taking children out of primary school, for example, can be more devastating for the educational development than

at a later stage of school. For some country contexts, studies show that girls are more likely to be taken out of school to support a household than boys, as their educational prospects are valued less.

Combine with

- Other indicators of educational attainment of children
- Other indicators of risk management strategies (ex-post)/coping strategies in case of shock

Impact: Educational attainment of children — child labour

Indicator: Days missed in school per child within last month due to labour

Definition of the indicator

This indicator measures the days of absence from school per child within the last month, which were particularly due to labour of the child.

Theory of expected effects

In the case of a lack of alternatives to cope with a shock event, households may be forced to not only use their financial but also physical assets to cope with the corresponding consequences. Taking children out of school can be based on two intentions. One is to save money, if school fees and other expenses are needed to keep the children in school; the other intention is to take children out of school in order to put them to work in order to cope with the consequences of the shock. Seen from a long term perspective this coping mechanism is inefficient, as it impedes the educational and skills development of the children, which are essential for the future socioeconomic situation of the household. Under insurance it is expected that children remain in school after a shock event as educational expenses can still be covered and no additional man power

and support is needed in the household and, thus, days of absence will decrease for these periods.

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

Numerous types of insurances are applicable in this case since taking children out of school can be a reaction to all sorts of shock events, placing households in difficult economic situations.

Measurement

- How many days did [CHILD] miss school during the past month to support the family with work?

Note: This question may be sensitive in contexts where school attendance is obligatory by law. In this case, the question may be restricted to the days missed at school without mentioning the particular reason.

Analysis

Taking children out of school is a typical coping mechanism of poor to very poor households, who lack alternative coping mechanisms. However, as this indicator implies not only financial but also physical coping in the form of putting the children to work, the focus should be taken on households involved in agricultural production or small business, as additional man power is most likely to be needed here. Furthermore, it could be interesting to control for the age and sex of the children taken out of school. Taking children out of primary school, for example, can be more devastating for the educational development than at a later stage of school. For

some country contexts, studies show that girls are more likely to be taken out of school to support a household than boys, as their educational prospects are valued less. As the indicator refers to the days missed in school during the preceding month, the analysis should take into account whether there was a shock event during this month, recently, or during a particular occasion, such as harvest season, which often requires increased labor supply within the family.

Combine with

- Other indicators of educational attainment of children
- Other indicators of risk management strategies (ex-post)/coping strategies in case of shock

Outcome: Educational attainment of children — child labour

Indicator: Highest education levels attained by children and young adults in household (below age 20)

Definition of the indicator

This indicator measures the highest education levels attained by household members below the age of 20.

Theory of expected effects

In the case of a lack of alternatives to cope with a shock event, households may be forced to not only use their financial but also physical assets to cope with the corresponding consequences. Taking children out of school can be based on two intentions. One is to save money, if school fees and other expenses are needed to keep the children in school; the other intention is to take children out of school in order to put them to work in order to cope with the consequences of the shock. Seen from a long term perspective this coping mechanism is inefficient, as it impedes the educational and skills development of the children, which are essential for the future socioeconomic situation of the household. Under insurance it is expected that children remain in school after a shock event as educational expenses can still be covered and no additional man power and support is needed in the household

and, thus, the likeliness of higher educational levels attained by household members below the age of 20 is expected to increase in the long run.

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

Numerous types of insurances are applicable in this case since taking children out of school can be a reaction to all sorts of shock events, placing households in difficult economic situations.

Measurement

The measurement of the highest educational levels attained can be focused on the highest level completed or the highest degree obtained.

- What is the highest educational level you completed?
- What is the highest degree you attained? (National Bureau of Statistics, Nigeria 2010)

Analysis

This indicator has to be analysed in a long-term perspective as short-term changes are unlikely to occur after the take-up of insurance.

Combine with

- Other indicators concerning the educational attainment of children
- Other indicators about risk management strategies (ex-post)/coping strategies in shock event

Impact: Peace of mind/perception of financial vulnerability

Indicator: Changes in risk prioritisation through risk ranking exercise

Definition of the indicator

This indicator measures changes in risk prioritisation through a risk ranking exercise. Risk ranking exercises can be conducted in various manners, with the basic principle that participants are asked to rank all risks that are applicable to their situation.

Theory of expected effects

Under the assumption that risk prioritisation is based on both recent actual shock events and subjective perceptions about prevalent risk, it is expected that a change in risk prioritisation can be found for insured individuals, down-ranking insured risks. This is primarily due to a reduction of fear and worries about consequences associated with the insured risks.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- **Other**

All types of risk coverage are relevant for this indicator as the risk ranking exercise includes all risks applicable for the studied context.

Measurement

For measurement, risk ranking exercises should be conducted with treatment and control groups. The exercise can be carried out in many different ways. Morsink and Geurts (2012) conducted a classical risk ranking exercise with three steps. In the first step, participants viewed all cards indicating risks and were asked for any amendments necessary. In the second step, they were asked to collect all cards with risks that are applicable to them. In the third step, they were asked to select the risk they worried about most. This card was put away and the procedure continued until a complete rank-order was reached.

Analysis

Because risk prioritisation is not only influenced by risk coverage available, but also—and most importantly—by the actual risks people are exposed to and have been exposed to in the past, these incidents should be considered in

the analysis. It might also be interesting to analyse heterogeneous effects by risk aversion because the decisions of risk averse individuals should be more affected by insurance.

Combine with

- Perception about confidence in the future
- Perception about financial vulnerability

Impact: Peace of mind/perception of financial vulnerability

Indicator: Level of confidence about the future

Definition of the indicator

This indicator measures the level of confidence an individual has about the future. It refers to the strong belief that the socioeconomic situation will develop in a positive way in the future. Faith and trust in the future can be used synonymously in this context.

Theory of expected effects

Microinsurance is intended to increase individual empowerment and mental peace of mind by reducing fears and worries about the future through an increased feeling of security. A confident perception about the future is essential for risk taking behaviour and decisions about productive investment. Karlan et al. (2012) show this “peace of mind effect”, implying that insurance can have both a protective and productive effect for clients. They found that farmers provided with insurance against weather-related risk increase productive expenditures on their farms, and their demand for insurance increases as they, or an acquaintance, experience an insurance payout.

Applicable type of risk coverage

- **Health insurance**
- Life insurance
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- Property insurance
- Other

Because levels of confidence about the future are primarily based on the perception and assessment of the present situation, the types of risk coverage most applicable are those related to productive investment (livestock and crop insurance) as well as health insurance.

Measurement

- How confident are you about the future? (rank on scale from not confident to very confident)

Analysis

It could be interesting to analyse whether increased confidence in the future has a noticeable impact on productive and

investment decisions. It might also be interesting to analyse heterogeneous effects by risk aversion because the decisions of risk averse individuals should be more affected by insurance.

Combine with

- Changes in risk prioritisation through risk ranking exercise
- Perception of financial vulnerability

Impact: Peace of mind/perception of financial vulnerability

Indicator: Perception of financial vulnerability

Definition of the indicator

This indicator measures the individual's perception of financial vulnerability: the subjective assessment by individuals of their economic situation and its vulnerability.

Theory of expected effects

The ultimate proclaimed role of microinsurance is to reduce the vulnerability of people living on low incomes by enabling them to manage their risks more efficiently. Consequently, it is expected that microinsurance also evokes a subjective change in perception about financial vulnerability.

Applicable type of risk coverage

- **Health insurance**
- Life insurance
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- Property insurance
- Other

Because levels of confidence about the future are primarily based on the perception and assessment of the present situation, the types of risk coverage most applicable are those related to productive investment (livestock and crop insurance) as well as health insurance.

Measurement

- How much do you worry that a severe financial shock could occur to your household?

Analysis

It could be interesting to compare the perception of financial vulnerability with the actual financial vulnerability retrieved from indicators of wealth and income.

Combine with

- Changes in risk prioritisation through risk ranking exercise
- Perception about confidence in the future

Impact: Reliance on informal risk sharing networks

Indicator: Total amount of money currently borrowed from others without interest

Definition of the indicator

The indicator captures the total amount of money borrowed from others (family, friends, informal networks, etc.) without interest.

Theory of expected effects

Borrowing from others in the community without interest is a positive sign for strong social capital within a community. However, informal borrowing from others in the community can involve putting pressure on the borrower other than interest such as social pressure, expectations of reciprocity, etc. Under insurance, a direct effect expected is that, in the context of ex-post risk mitigation, less borrowing from informal networks is conducted to cushion the shock (Dercon et al. 2012).

Applicable type of risk coverage

- Health insurance
- Life insurance
- Livestock insurance (indemnity or index)
- Crop insurance (indemnity or index)
- Property insurance
- Other

Numerous types of insurances are applicable in this case as borrowing from informal networks can be a reaction to all sorts of shock events placing the household in a difficult economic situation or other non-shock related occasions.

Measurement

- How much do you currently borrow from others without paying interest?

Analysis

Here, it could be interesting to control for different informal sources (could be more than one) of borrowing. Furthermore, it could be interesting to investigate whether the borrowing is bound to any other kind of obligation than interest (expectations of reciprocity, etc). Furthermore, controlling for formal lending could be also of interest in order to find out more about the lending practices of a household (rather informal or formal) and whether the choice to borrow informally is due to independent preferences or lack of access to formal mechanisms.

Combine with

- Total amount of money currently lent to others without interest

Impact: Reliance on informal risk sharing networks

Indicator: Total amount of money currently lent to others without interest

Definition of the indicator

The indicator captures social capital by the total amount of money lent to others (family, friends, informal networks, etc.) without interest.

Theory of expected effects

Borrowing from and lending to others in the community without interest is a positive sign for strong social capital within a community and intrinsically desirable. However, informal lending to others in the community can involve features that put pressure on the borrower other than interest such as social pressure and expectations of reciprocity. When microinsurance is available and taken-up, a direct effect expected is that, in the context of ex-post risk mitigation, less lending needs to be conducted to cushion the shock (Dercon et al. 2012). Also, the willingness and ability to provide more loans to family and community members might increase, as the funds are less needed as precautionary assets for people's own purposes. Otherwise, insured individuals might be less willing to help those who did not behave cautiously and refused insurance.

Applicable type of risk coverage

- **Health insurance**
- **Life insurance**
- **Livestock insurance (indemnity or index)**
- **Crop insurance (indemnity or index)**
- **Property insurance**
- Other

Numerous types of insurances are applicable in this case since lending to informal networks can be a reaction to all sorts of shock events or other non-shock related occasions, placing households in difficult economic situations.

Measurement

- How much do you currently lend to others without taking interest?

Analysis

It could be interesting to investigate whether the lending is bound to any other kind of obligation than interest (expectations of reciprocity, in-kind compensations, or services, etc.). Furthermore, details of the loan arrangement, such as repayment

policies, are interesting to consider in the analysis.

Combine with

- Total amount of money currently borrowed from others without interest
- Total amount of loans (currently pending) *given* to family members and other community members

References

- Anderson, S. and J.M. Baland. 2002.** The economics of roscas and intra-household resource allocation. *Quarterly Journal of Economics* 117(3): 963-995.
- Benoist, B., E. McLean, I. Egli, and M. Cogswell, eds. 2005.** Worldwide prevalence of anaemia 1993-2005. WHO Global Database on Anaemia. Geneva: World Health Organization (WHO).
- Besley, T. and S. Coate. 1995.** Group lending, repayment incentives and social collateral. *Journal of Development Economics* 46(1): 1-18.
- Cai, H., Y. Chen, H. Fang, and L. Zhou. 2010.** Microinsurance, trust and economic development: Evidence from a randomized natural field experiment. National Bureau of Economic Research (NBER) Working Paper no. 15396. Cambridge, MA. <http://www.nber.org/papers/w15396>.
- Chankova, S., S. Sulzbach, and F. Diop. 2008.** Impact of mutual health organizations: Evidence from West Africa. *Health Policy and Planning* 23(4): 264-276.
- Dercon, S., J. W. Gunning, A. Zeitlin, and S. Lombardini. 2012.** The impact of a health insurance programme: Evidence from a randomized controlled trial in Kenya. Research Paper no. 24. International Labour Office, Microinsurance Innovations Facility, Geneva.
- Dercon, S. and L. Christiaensen. 2011.** Consumption risk, technology adoption and poverty traps: Evidence from Ethiopia. *Journal of Development Economics* 96(2): 159-173.
- Derriennu, Y., K. Wolf, and P. Kiwanuka-Mukiibi. 2005.** An assessment of community-based health financing activities in Uganda. The Partners for Health Reformplus Project. Bethesda: Abt Associates Inc.
- Franco, L. M., F. Diop, C. R. Burgert, A. G. Kelley, M. Makinen, and C. H. T. Simpara. 2008.** Effects of mutual health organisations on use of priority health-care services in urban and rural Mali: A case-control study. *Bulletin of the World Health Organization* 86(11): 830-838.
- Giné, X. and D. Yang. 2009.** Insurance, credit, and technology adoption: Field experimental evidence from Malawi. *Journal of Development Economics* 89(2009): 1-11.
- Hintz, M. 2010.** Understanding the context is understanding the impact: Evidence from a qualitative microinsurance impact survey in Indonesia. In: *Microinsurance: An innovative tool for risk and disaster management*, ed. E. Morelli, G. A. Onnis, W. J. Ammann, and C. Sutter, 109-135. Davos: Global Risk Forum (GRF).
- ICF International (2011).** Demographic and Health Surveys Methodology - Questionnaires: Household, Woman's, and Man's. MEASURE DHS Phase III: Calverton, Maryland, USA. (<http://www.measuredhs.com/publications/publication-DHSQ6-DHS-Questionnaires-and-Manuals.cfm>)
- Jowett, M., A. Deolalikar, and P. Martinsson. 2004.** Health insurance and treatment seeking behavior: Evidence from a low-income country. *Health Economics* 13:845-857.
- Abdul Latif Jameel Poverty Action Lab (J-PAL). 2012.** Deworming: A best buy for development. *J-PAL Policy Bulletin* (March).
- Jütting, J. P. 2004.** Do community-based health insurance schemes improve poor people's access to health care? Evidence from rural Senegal. *World Development* 32(2): 273-288.
- Karlan, D., R. D. Osei, I. Osei-Akoto, and C. Udry. 2012.** Agricultural decisions after relaxing credit and risk constraints. Facility Research Paper No. 23. International Labour Office, Microinsurance Innovation Facility, Geneva.
- Leatherman, S., L. Jones Christensen, and J. Holtz. 2012.** Innovations and barriers in health microinsurance. In: *Protecting the poor: A microinsurance compendium*. Vol. II, ed. C. Churchill and M. Matul, 132-155. Geneva: International Labour Organization.
- Lei, X. and W. Lin. 2009.** The new cooperative medical scheme in rural China: Does more coverage mean more service and better health? *Health Economics* 18:S25-S46.
- LeRoy, P. and J. Holtz. 2012.** Third-party payment mechanisms in health microinsurance. In *Protecting the Poor: A Microinsurance Compendium*. Vol. II, ed. Churchill, C. and M. Matul, 112-131. Geneva: International Labour Organization.
- Morsink, K. and P. Geurts. 2012.** The trusted neighbour effect: Local experience and demand for microinsurance. Institute of Governance Studies (IGS) Working Paper. The Netherlands: University of Twente.

Msuya, J. M., J. P. Jütting, and A. Asfaw. 2004. Impacts of community health insurance programs on health care provision in rural Tanzania. ZEF—Discussion Papers on Development Policy No. 82. Centre for Development Research (ZEF), University of Bonn, Germany.

National Bureau of Statistics, Federal Republic of Nigeria. Nigeria General Household Survey (GHS), Panel 2010, Ref. NGA_2010_GHS_v02_M. Dataset downloaded from (<http://go.worldbank.org/PPN1H3RM10> on 08/10/2013).

National Statics Directorate Caicoli, Dili, Timor Leste and World Bank 2001: LSMS Timor-Leste, Household Survey - Individual Survey. Dataset downloaded from (<http://go.worldbank.org/N4HTRNUWS0> on 08/10/2013).

Polonsky, J., D. Balabanova, B. McPake, T. Poletti, S. Vyas, O. Ghazaryan, and M. K. Yanni. 2009. Equity in community health insurance schemes: Evidence and lessons from Armenia. *Health Policy and Planning* 24(3): 209-216.

Radermacher, R., H. McGowan, and S. Dercon. 2012. What is the impact of microinsurance? In *Protecting the poor: A microinsurance compendium*. Vol. II, ed. C. Churchill and M. Matul, 59-82. Geneva: ILO. 59-82

Rosenzweig, M.R. and H.P. Binswanger. 1993. Wealth, weather risk and the composition and profitability of agricultural investments. *Economic Journal* 103(416): 56-78.

Schneider, P. and F. Diop. 2001. Synopsis of results on the impact of community-based health insurance on financial accessibility to health care in Rwanda. HNP discussion paper series. Washington, D.C.: World Bank.

Wagstaff, A. and M. Pradhan. 2005. Health insurance impacts on health and nonmedical consumption in a developing country. World Bank Policy Research Working Paper 3563, Washington, D.C.

Wagstaff, A., M. Lindelow, G. Jun, X. Ling, and Q. Juncheng. 2009. Extending health insurance to the rural population: An impact evaluation of China's New Cooperative Medical Scheme. *Journal of Health Economics* 28(1): 1-19.

Wang, H. W. Yip, L. Zhang, and W. C. Hsiao. 2009. The impact of rural mutual health care on access to care: Evaluation of a social experiment in rural China. Working paper. Cambridge, MA: Harvard School of Public Health Program in Health Care Financing.