Evaluating the Welfare of Index Insurance

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Abstract

Index insurance was conceived to be a product that would simplify the claim settlement process and make it more objective, reducing transaction costs and moral hazard. However, index insurance also exposes the insured to basis risk, which arises because there can be a mismatch between the index measurement and the actual losses of the insured. It is not easy to predict the direction in which basis risk is going to affect insurance demand, in contrast to the clear and strong predictions for standard indemnity insurance products. Index insurance can be theoretically conceptualized as a situation in which the individual faces compound risk, where one layer of risk corresponds to the potential individual's loss and the other layer of risk is created by the potential mismatch between the index measurement and the actual loss. Experimental evidence shows that people exhibit preferences for compound risks that are different from preferences exhibited for their actuarially-equivalent counterparts. We study the potential link between index insurance demand and attitudes towards compound risks. We test the hypothesis that the compound risk nature of index insurance induced by basis risk negatively affects both the demand for the product and the welfare of individuals making take-up decisions. We study the impact of basis risk on insurance take-up and on expected welfare in a laboratory experiment with an insurance frame. We measure the expected welfare of index insurance to individuals while accounting for their risk preferences, and structurally decompose the sources of the welfare effects of index insurance. Our results show that the compound risk in index insurance decreases the welfare of index insurance choices made by individuals. The behavioral inability to process compound risks decreases welfare when there is a compound risk of loss, whereas loss probability, basis risk and premium only impact the welfare of insurance choices when the risk of loss is expressed in its reduced, non-compound form. We also see, again, that take-up is not a reliable indicator of welfare. Furthermore, the drivers of increased welfare from index insurance are not be the same drivers of increased take-up, so take-up is not even a useful proxy for guiding policy to improve welfare.

Keywords: Index Insurance, normative behavioral welfare economics, risk preferences

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