Editorial

David M. Dror¹

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This is the third time that *The Geneva Papers on Risk and Insurance—Issues and Practice* is publishing a Special Issue on Microinsurance. The previous issues appeared in 2014 and 2016. This year we accepted more papers from those submitted, allowing us to devote the entire special issue to microinsurance. Four articles deal with health microinsurance, two deal with agricultural risk, and one deals with the operations of life insurance companies offering microinsurance.

The insurance industry all over the world is experiencing a move away from one-size-fits-all products and total reliance on historical data. The new trend is increasing the reliance on model-based approaches that reflect risks or contexts more accurately and rely on “big data,” predictive analytics, prototypes, and statistical and mathematical methods to integrate science with policy. The market expects modelers to go beyond modelling and provide business insights into how to meet stakeholders’ changing expectations by improving efficiency rather than merely quantifying and forecasting future risks. Increasingly, the industry wants the technicians to show how to control expenses and improve efficiency.

The articles published in this special issue reflect the general trends in the industry. Five of the seven articles present models to solve previously unsolved problems; the other two papers are about improving operational efficiency. The authors emphasise ways of promoting sustainability and resilience that go beyond technical tweaks. It is very heartening to note that microinsurance practitioners and scholars are publishing in this special issue reasoned recommendations for policymakers on how to enhance the technical sophistication of products and processes for delivery of insurance that better meets market and policy needs. This information is distinctly more strategic than the descriptive papers we have seen in the past.

Peña-Sanchez raises the issue of overpriced microinsurance products and presents an elegant technical solution to overcome this practice by addressing its root cause. She shows how it is possible to overcome unexpected variations in risk assessment without adding significant loadings to pure risk premiums. The author applies a generalised linear model (GLM) with the Tweedie compound Poisson-Gamma distribution (a predictive modelling technique), with risk factors derived mainly from

✉ David M. Dror
daviddror@socialre.org

¹ Micro Insurance Academy, New Delhi, India

the available database of a bundled microinsurance product in the Philippines. The results demonstrate that the predictive analysis that applies the Tweedie model outperforms the model that the company currently applies to control its risk. The three predictors that best fit the model (age of the insured, policy age, and population density) are at hand, and the model yields more accurate and lower risk premiums.

Yao, Schmit, and Shi develop a model to enhance the benefits package with maternity-related services while increasing the revenues of a microinsurer in Pakistan. The authors test four econometric models to simulate the financial results—with and without a risk-adjusted premium subsidy—of the microinsurer paying maternity-related expenses. Of the four models they test, the Ordinary Least Squares model yields the preferred results. Application of this model would improve the loss ratio by almost 40%, even as the subsidy payments are risk-adjusted for cost control. As maternity benefits are a public health issue, these authors propose that the government should pay the subsidy directly to the microinsurer. The authors of this paper, similar to Peña-Sanchez, use modelling to show that the microinsurer can enhance financial sustainability with low premiums for a better insurance product.

Dror, Majumdar, and Jangle develop algorithms to estimate capital requirements that a prototype health microinsurance plan needs to offset deficits in the initial years. This model provides information to consider the business decision of investing in community-based microinsurance, assuming that the initial capital needed to launch, scale and sustain health microinsurance plans would be a loan. The authors identify five parameters on which sustainability depends: enrolments, premiums, operating costs, renewal rates, and claims ratio. They test the plausibility of the model against the data of two CBHI plans (one in India and the other in Nepal). The prototype plan, covering 40,000 persons, requires USD 62,477. Repayments of the capital in full, plus interest at 5% p.a. in USD (10.96% in Indian rupees), can ensue in 15 years (after a 5-year moratorium). The confidence level is fixed at 99.9% to accommodate investors, but capital requirements drop significantly when confidence levels are lower than 99.9.

M. Roznik, C. Brock Porth, L. Porth, M. Boyd, and K. Roznik present a model to improve the calculation of weather-induced losses and thus more (accurate) compensation to farmers. The authors posit that in regions with a low density of weather stations, such as in low-income countries, index-based crop insurance must rely on interpolation of temperature data. Such interpolation is often erroneous. The authors examine the effect of applying universal kriging (UK) and generalised additive models with land surface temperature, elevation, and other covariates. Applying the UK with elevation results in a substantial improvement in the accuracy of interpolated daily mean surface temperatures. This improvement can lead to a more efficient application of crop insurance (i.e., reduce the share of the uncompensated risk that should be compensated when the calculation is accurate).

Matsuda, Takahashi, and Ikegami discuss period-specific impacts of the index-based livestock insurance (IBLI) sold to pastoralists in southern Ethiopia. Using 4-year panel data, the authors find that insurance payouts increase household income and milk production during drought years. Moreover, after receiving

payouts from insurance, pastoralists whose herd size is around the poverty-trap threshold increase their livestock numbers. The less noticeable indirect effects of IBLI include the finding that insured households receive more informal transfers after they obtain drought-induced payouts. Another effect is that pastoralists reduce precautionary cash savings and livestock holdings. Those indirect effects are not self-explanatory. The authors recognise that more research is necessary, and we would add that such research should elucidate what motivates pastoralists to buy insurance. This seems especially relevant, since welfare gains from insurance were not limited to payouts.

Finally, this special issue includes two papers dealing with insurance efficiency.

Hussain and Ahmed examine the impact of bundling health insurance and access to credit on client retention. The context is a large microfinance institution in Pakistan which introduced the business rule that customers also had to buy their health insurance. As this rule was applied on a pilot basis in some—but not all—branches, the authors calculate the difference-in-differences (DiD) to measure the causal impact of product bundling on client retention. The results show a significant positive impact on client retention, especially among younger women. This age-related difference may be confounded by differences in the insurance coverage, since the health insurance of younger women included maternity benefits (which were neither offered nor relevant to older women). The main take-away message is that leveraging the membership to expand health insurance creates business advantages for the microfinance institution and welfare gains for its members.

Savitha, Banerjee, and Shetty analyse the technical efficiency of life microinsurance companies that offer diversified life products. As the regulator in India requires all life insurers to sell a minimum quota of life microinsurance products, this study set out to examine whether empirical evidence supports the strategic focus hypothesis, i.e., the hypothesis that product diversification has adverse effects on the technical efficiency of insurers. The authors source secondary data (published as the *Handbook on Indian Insurance Statistics* by the Insurance Regulatory and Development Authority of India). They conclude that the life microinsurance business of four-fifths of the sampled insurers is technically inefficient. The authors also demonstrate, using the data envelopment approach (DEA), Malmquist total factor productivity index (MTFP), and Tobit regression analyses, that insurers could improve managerial ability by more effectively organising inputs in the production process. Thus the authors imply that product diversification does not per se lead to lower technical efficiency. The strategic focus hypothesis cannot explain inefficiencies in the Indian insurance market.

Some readers might wonder what is “micro” about the studies published in this Special Issue on Microinsurance. The twenty authors that contributed to this issue share a common quality: they have succeeded in combining supply-side improvements with demand-oriented considerations. They have advanced our knowledge on rate making, package design, risk assessment capital requirements, and the business process of schemes that can function as part of large insurance companies or in smaller development-oriented configurations. The authors’ focus on the three risk classes that attract the most interest among informal sector and rural

population segments—health, agriculture and life insurance—also adds relevance to this special thematic issue. Thanks to all.

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About the author

David M. Dror PhD, DBA, is chairman of Micro Insurance Academy, New Delhi, India.