

Subsidising Inclusive Insurance to Reduce Poverty

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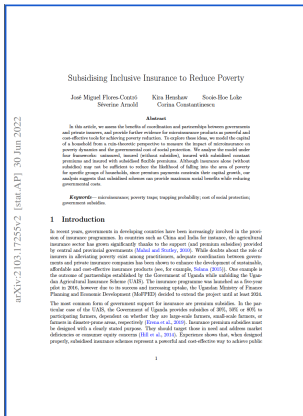


Figure 1: Flores-Contró, J. M., Henshaw, K., Loke, S. H., Arnold, S. and Constantinescu, C. (2021). *Subsidising Inclusive Insurance to Reduce Poverty*. Preprint, University of Lausanne. [arXiv:2103.17255](https://arxiv.org/abs/2103.17255).

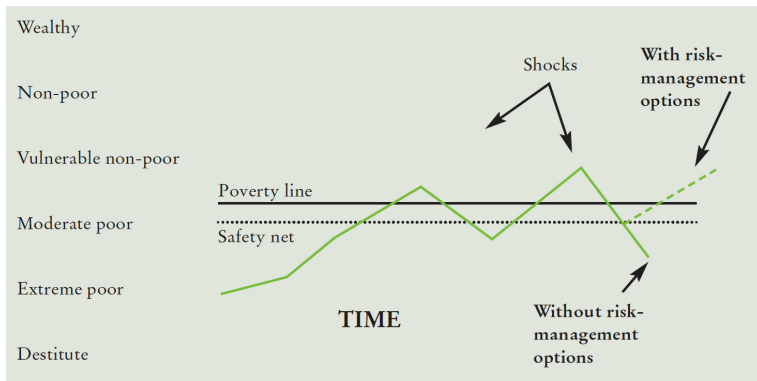


Figure 2: Impact of shocks on households' income and assets. Adapted from [McCord \(2005\)](#).

In recent years, governments in developing countries have been increasingly involved in the provision of insurance programmes.

→ In China and India, the agricultural insurance sector has grown significantly thanks to the support (and premium subsidies) provided by central and provincial governments (Mahul and Stutley 2010).



Figure 3: India's Pradhan Mantri Fasal Bima Yojana (PMFBY) crop insurance logo.

Adequate coordination between governments and private insurance companies has been shown to enhance the development of sustainable, affordable and cost-effective insurance products.



Figure 4: Uganda's Ugandan Agricultural Insurance Scheme (UAIS) agricultural insurance logo.

- The UAIS was launched as a five-year pilot in 2016, however due to its success and increasing uptake, the project was extended until at least 2024.
- Subsidies of 30%, 50% or 80% are provided to farmers (Erena et al. 2019).

The most common form of government support for insurance are premium subsidies. Subsidies must be designed with a clearly stated purpose such that they:

- Target those in need and;
- Address market deficiencies or consumer equity concerns ([Hill et al. 2014](#)).

Experience shows that, when designed properly, subsidised insurance schemes represent a powerful and cost-effective way to achieve public policy objectives ([Hazell et al. 2017](#)).

- Conversely, poorly designed insurance premium subsidies can be inefficient and lead to significant economic costs ([Hazell et al. 2017](#)).

What is the role of inclusive insurance towards poverty alleviation?

Insurance premium payments can in fact heighten the risk of falling into poverty for the vulnerable non-poor households.

- Inducing a balance between protection and loss as a result of insurance coverage which is dependent on the entity's level of capital (see, for example, [Kovacevic and Pflug \(2011\)](#) and [Liao et al. \(2020\)](#)).

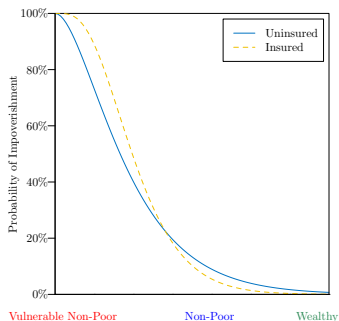


Figure 5: The probability of impoverishment.

In this study, we assess the impact of insurance (both with and without subsidies) on poverty dynamics and the governmental cost of social protection.

We seek to determine the benefits derived from coordination and partnerships between governments and private insurers, and to highlight the cost-effectiveness of government support for insurance.

The study also derives optimal subsidies for households with varying degrees of initial capital.

- The proposed subsidy optimisation aligns with the idea of “smart” subsidies, which provide maximum social benefits while minimising distortions in the insurance market and the mis-targeting of clients ([Hill et al. 2014](#)).

Previous studies analyse the impact of insurance from both an empirical and dynamic stochastic programming perspective (Ikegami et al. 2016, Chantararat et al. 2017, Jensen et al. 2017, Carter and Janzen 2018, Janzen et al. 2021).

Our study introduces a more formal and rigorous mathematical framework that analytically proves the benefits of partnerships between governments and private insurers.

The study contemplates an inclusive insurance scheme with:

- (i) Unsubsidised Premiums;
- (ii) Subsidised Constant Premiums and;
- (iii) Subsidised Flexible Premiums.

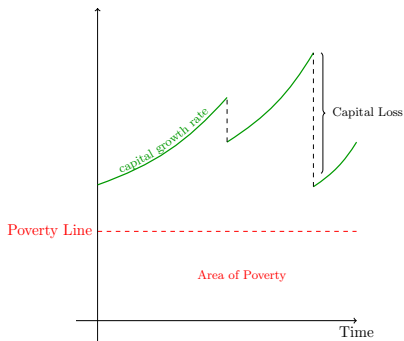


Figure 6: Trajectory of the capital of an individual household. The fundamental dynamics of the model follow those of [Kovacevic and Pflug \(2011\)](#).

- We are interested in studying the probability of impoverishment and the cost of social protection incurred by the government to lift households away from the area of poverty.
- We make use of ruin theory, which is a mathematical framework that studies the vulnerability of an insurer to become insolvent.

The Probability of Impoverishment

- Scheme that covers a certain proportion of the capital losses households might encounter.
- Although subscribing to a proportional inclusive insurance scheme reduces capital losses, premium payments appear to make such households more prone to falling into the area of poverty.
- The vulnerable non-poor, may not receive a real benefit from enrolling in such an inclusive insurance scheme.

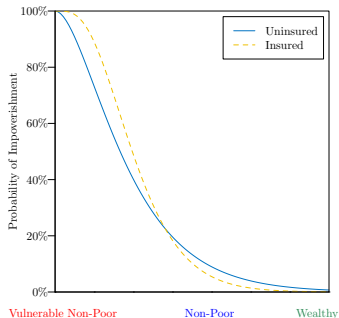


Figure 7: The probability of impoverishment under an inclusive insurance scheme with unsubsidised premiums.

Inclusive Insurance with Subsidised Constant Premiums

The Probability of Impoverishment

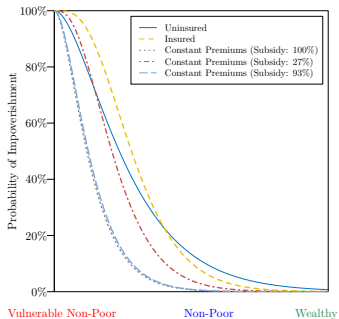


Figure 8: The probability of impoverishment under an inclusive insurance scheme with subsidised constant premiums.

- Inclusive insurance alone may not be enough to reduce the likelihood of impoverishment for those closest to the poverty line.
- We study the cost-effectiveness of government subsidised premiums, considering the case in which the government subsidises a percentage of the premium.

Inclusive Insurance with Subsidised Constant Premiums

The Optimal Subsidy

- Governments should provide subsidies to inclusive insurance providers such that they enhance households' benefits of enrolling in inclusive insurance schemes.
- Moreover, governments also need to gauge the cost-effectiveness of subsidy provision.
- Optimal subsidy = % of subsidy that equates the probability of impoverishment of an insured household with that of an uninsured one.

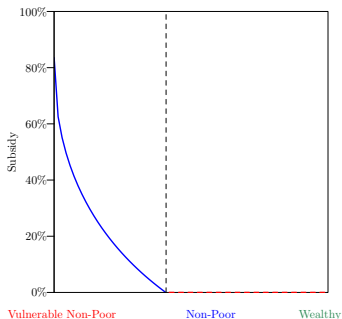


Figure 9: The optimal subsidy under an inclusive insurance scheme with subsidised constant premiums.

Inclusive Insurance with Subsidised Constant Premiums

The Cost of Social Protection

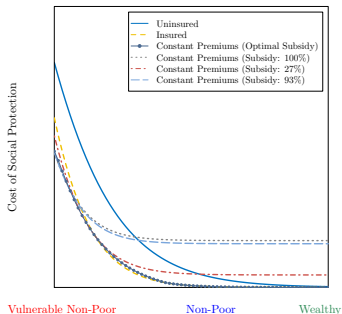


Figure 10: The governmental cost of social protection under an inclusive insurance scheme with subsidised constant premiums.

- We assess government cost-effectiveness for the provision of inclusive insurance premium subsidies to households.
- The cost of social protection accounts for the provision of government subsidies, in addition to the cost of lifting a household from poverty plus a supplemental fixed cost that ensures, with a certain level of confidence, that they will not return to poverty, should they fall underneath the poverty line.

The Probability of Impoverishment

- Scheme under which households pay premiums when their capital is above some pre-defined capital level (PDCL), with the premium otherwise paid by the government.
- Increasing the value of the PDCL helps households to reduce their probability of falling into the area of poverty, since support from the government is received when their capital resides in the region between the poverty line and the PDCL.

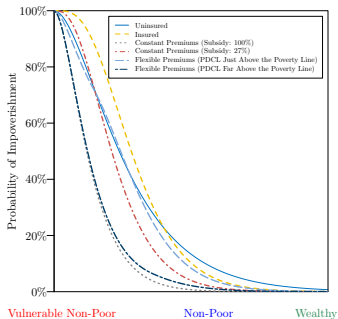


Figure 11: The probability of impoverishment under an inclusive insurance scheme with subsidised flexible premiums.

Inclusive Insurance with Subsidised Flexible Premiums

The Optimal Pre-Defined Capital Level (PDCL)

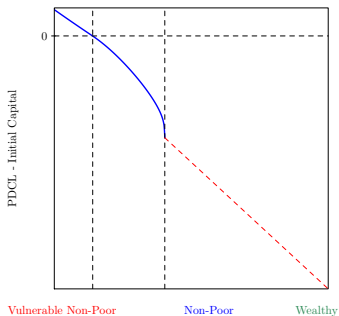


Figure 12: The optimal PDCL minus the initial capital under an inclusive insurance scheme with subsidised flexible premiums.

- The aforementioned region acts as a “buffer”, with households in this region benefiting from coverage without the need for premium payments.
- Optimal PDCL = PDCL that equates the probability of impoverishment of an insured household with that of an uninsured one.

Inclusive Insurance with Subsidised Flexible Premiums

The Cost of Social Protection

- Cost of social protection for the most vulnerable is reduced with all forms of inclusive insurance coverage.
- For sufficiently high PDCLs, all households observe a decrease in their probability of impoverishment. However, even when high PDCLs are considered, under a scheme with flexible premiums, governments are not required to subsidise premiums indefinitely, since households will pay the entire premium once their capital reaches a sufficient level.

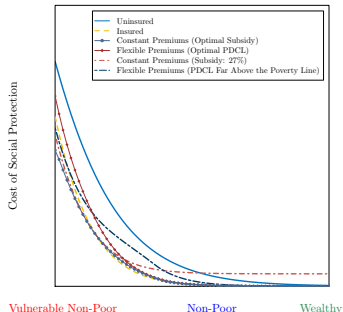


Figure 13: The governmental cost of social protection under an inclusive insurance scheme with subsidised constant premiums.

- Comparing the impact of three inclusive insurance frameworks on the probabilities of impoverishment of households, we provide evidence for the importance of governmentally supported inclusive insurance in the strive towards poverty alleviation.
- We introduce a transparent method with a mathematical foundation for calculating “optimal subsidies” that can strengthen government social protection programs while lowering the associated costs.

- The inclusive insurance scheme with subsidised flexible premiums suggests that in general, the probability of impoverishment of a household is reduced in comparison to when covered by basic inclusive insurance and (for the most vulnerable) partially subsidised with constant premiums inclusive insurance schemes, in addition to when uninsured.
- More significant influence is observed in relation to the governmental cost of social protection, with the cease of subsidy payments when household capital is sufficient facilitating government savings and therefore increasing social protection efficiency.

Any questions?

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