

Social protection in the face of climate change: targeting principles and financing mechanisms

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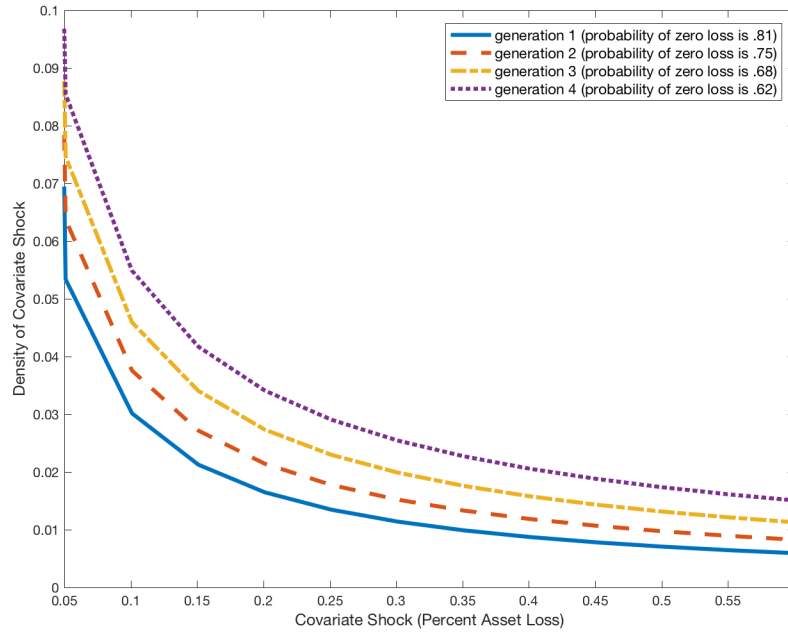
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Online Appendix

Table A1: Functional forms and parameters used in numerical simulations

Production Technology and Parameters
$F^h(H) = \alpha H_t^{\gamma_L} + \underline{f}$ $F^l(H) = \alpha H_t^{\gamma_H}$ $\gamma_L = 0.28$ $\gamma_H = 0.56$ $\underline{f} = 2.95$
Utility Function and Parameters
$u'(c_t) = \frac{c_t^{1-\rho}-1}{1-\rho}$ $\beta = 0.95$ $\rho = 1.5$
Insurance Contract Parameters
$s = .15$ <p><i>Actuarially fair premium by climate change scenario</i></p> <p>Base Case: $p = .0182$</p> <p>Generation 2: $p = .0248$</p> <p>Generation 3: $p = .0331$</p> <p>Generation 4: $p = .0433$</p>

Figure A1: Assumed shock scenarios used in numerical simulations



This graph shows the assumed probability of observing a negative shock of a certain magnitude under each climate scenario. We assume a discretized approximation of a lognormal distribution: $\ln(x) \sim N(\mu, \sigma^2)$, where $\sigma = 4$ and μ varies across each climate change scenario. Specifically, for the base case we assume $\mu = 0$, for generation 2 we assume $\mu = 1$, for generation 3 we assume $\mu = 2$, and for generation 4 we assume $\mu = 3$.

Figure A2: GDP growth with & without social protection

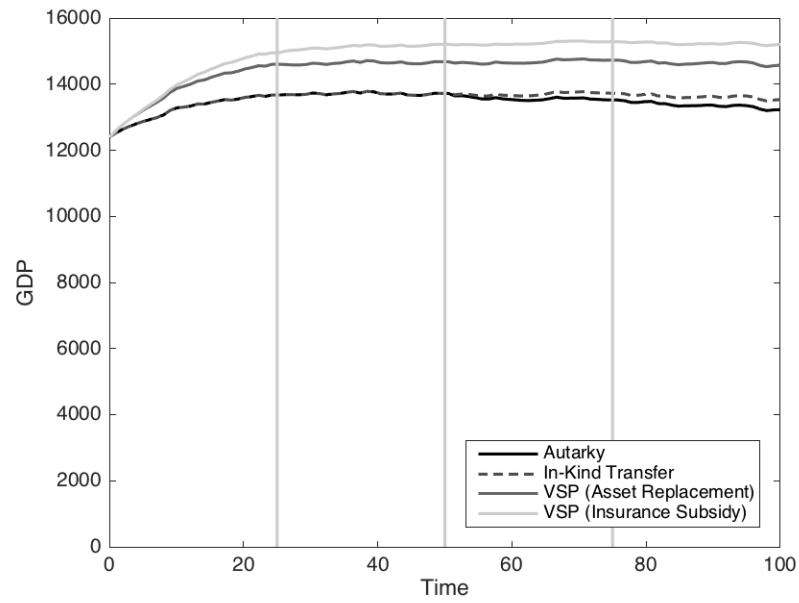


Figure A3: Budget remaining for in-kind transfers to the destitute

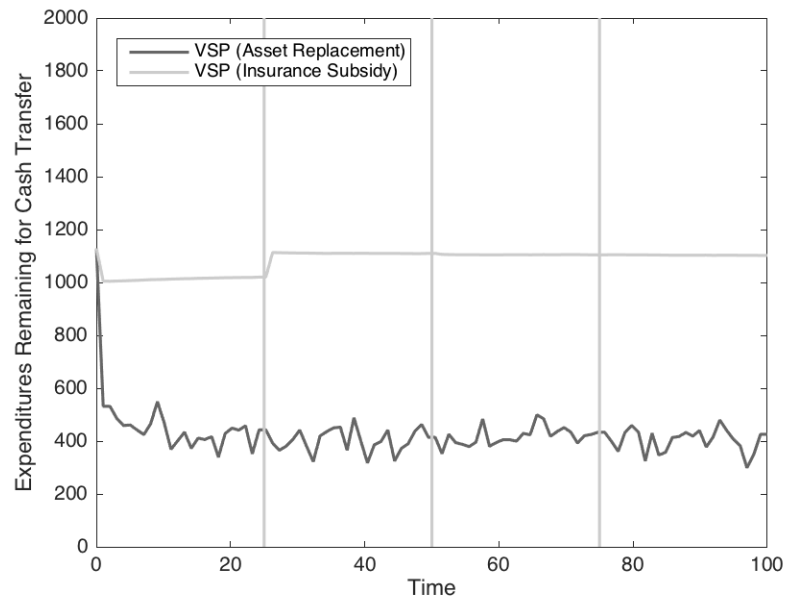
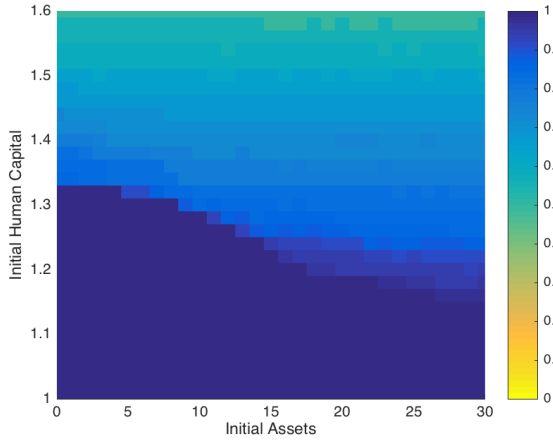
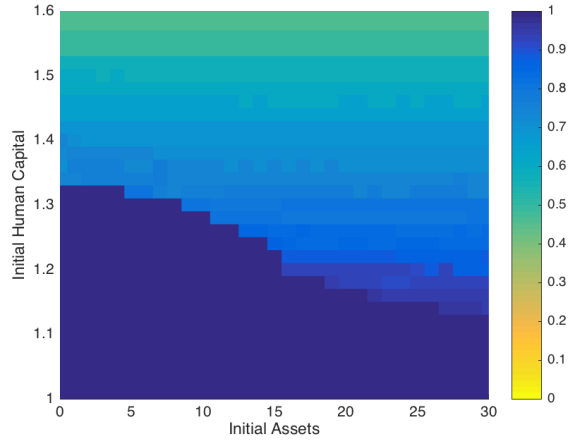


Figure A4: Chronic poverty maps with and without social protection under heightened climate risk

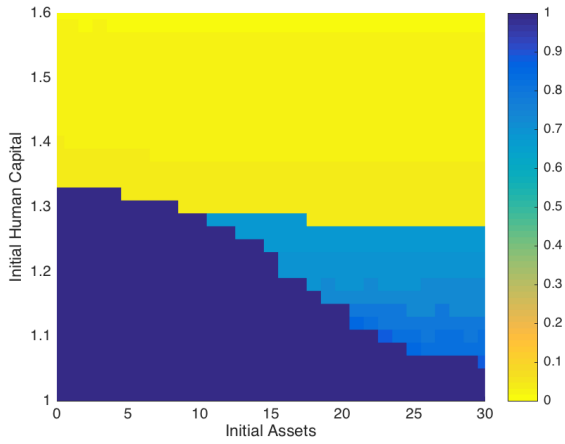
(a) No social protection



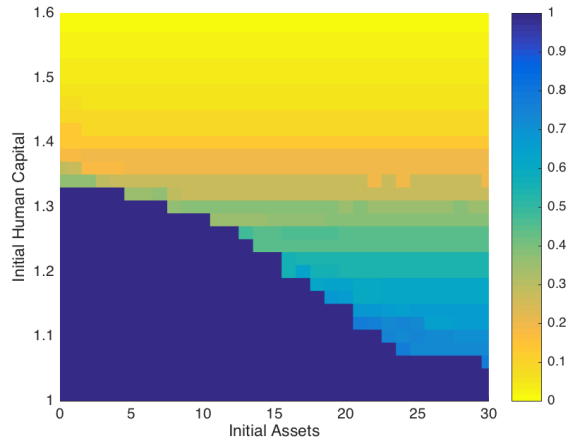
(b) In-kind transfers to destitute



(c) VSP asset replacement



(d) VSP subsidized insurance



Color scale indicates probability of collapse to low equilibrium.