

APPENDIX

Determining the relationship between disaster occurrences and Gini coefficient – results

Table 1 Basic statistics for variables used in the estimation (N=379)

Variable	Mean	Standard Deviation	Source
Imputed Gini	36.94	4.69	World Development Indicators, World Bank (Accessed, August 2017)
Number of disasters	4.28	4.09	EM-DAT: The international Disaster Database (Accessed March 2017)
Agriculture, value added (% of GDP)	17.47	4.00	World Development Indicators, World Bank
GDP per capita growth	10177.77	9727.16	World Development Indicators, World Bank
Unemployment (% of total labour force)	6.88	3.95	World Development Indicators, World Bank

Table 2 Stepwise Estimates (1990-2016): Dependent variable is Imputed Gini

	Standardized Beta	t-statistic	Significance	Model R-square
Final Model				0.230
Constant	35.953	43.070	0.000	
Number of disasters	0.13**	2.597	0.000	
Agriculture, value added (% of GDP)	-0.34**	-4.730	0.000	
GDP per capita growth	-0.25**	-3.580	0.000	

Note: **p<0.01

The autocorrelation test was performed using the Durbin-Watson test for the panel data (DW=1.983). Since no significant autocorrelation was found, the panel data observations were used independently.

The regression estimates were determined from panel data from 1990 to 2016 for 19 countries as follows: Armenia, Australia, Azerbaijan, Bangladesh, Cambodia, Georgia, Iran (Islamic Republic of), Kazakhstan, Kyrgyzstan, Lao People’s Democratic Republic, Malaysia, Mongolia, Pakistan, the Philippines, Russian Federation, Sri Lanka, Tajikistan, Thailand, Turkey, and Viet Nam (Table 1).

Gini coefficients were not available for all time points and were therefore imputed. The imputations were performed on countries with 5 or more data points for the Gini coefficient and were based on 5 simulations using Markov chain and Monte Carlo analysis which were pooled to incorporate the variance of the missing values. Covariates in the model (GDP growth, agriculture value added, and unemployment

rate) were determined from the literature. Stepwise regression was performed with three control variables (GDP per capita growth, agriculture value added, and unemployment). The final model with the best fit is given in Table 2.

An important point to note in the analysis is that, the panel nature of the data as well as the imputation methods can lead to an underestimation of bias. In addition, while disasters have a significant relationship, it should be noted that other macro variables such as agriculture value added and GDP per capita growth are more significantly related to the Gini coefficient. Thus, the results of the analysis related to impacts of disasters on inequality should be interpreted with caution.