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Climate Risk Management

journal homepage: www.elsevier.com/locate/crm

Review

Revisiting the ‘disaster and development’ debate – Toward a broader understanding of macroeconomic risk and resilience



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ARTICLE INFO

Article history:

Available online 22 May 2014

Keywords:

Review

Natural disasters and development

Macroeconomic and statistical analysis

Risk vulnerability and resilience

ABSTRACT

Debate regarding the relationship between socioeconomic development and natural disasters remains at the fore of global discussions, as the potential risk from climate extremes and uncertainty pose an increasing threat to developmental prospects. This study reviews statistical investigations of disaster and development linkages, across topics of macroeconomic growth, public governance and others to identify key challenges to the current approach to macro-level statistical investigation. Both theoretically and qualitatively, disaster is known to affect development through a number of channels: haphazard development, weak institutions, lack of social safety nets and short-termism of our decision-making practices are some of the factors that drive natural disaster risk. Developmental potentials, including the prospects for sustainable and equitable growth, are in turn threatened by such accumulation of disaster risks. However, quantitative evidence regarding these complex causality chains remains contested due to several reasons. A number of theoretical and methodological limitations have been identified, including the use of GDP as a proxy measurement of welfare, issues with natural disaster damage reporting and the adoption of ad hoc model specifications and variables, which render interpretation and cross-comparison of statistical analysis difficult. Additionally, while greater attention is paid to economic and institutional parameters such as GDP, remittance, corruption and public expenditure as opposed to hard-to-quantify yet critical factors such as environmental conditions and social vulnerabilities. These are gaps in our approach that hamper our comprehensive understanding of the disaster-development nexus. Important areas for further research are identified, including recognizing and addressing the data constraints, incorporating sustainability and equity concerns through alternatives to GDP, and finding novel approaches to examining the complex and dynamic relationships between risk, vulnerability, resilience, adaptive capacity and development.

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Introduction

Over the past decades, a number of disciplines, including international development, disaster risk analysis, macroeconomics and public policy, have asked “whether disasters are problem *of* or *for* development? (Albala-Bertrand, 1993; Albala-Bertrand, 2013)” This classical debate on natural disaster and development linkages is still at the fore of global discussions as potential risks from climate extremes and uncertainty increasingly pose a threat to our developmental prospects. Theoretical and qualitative understanding that development dynamics drive disaster risks, and disaster risk may constraint development opportunities is now widely accepted (IPCC, 2012). However, quantitative evidence regarding these complex interactions remains contested. For example, a number of recent publications still ask questions such as “[c]an natural disasters have positive consequences? (Hallegatte and Dumas, 2009)”, “[a]re natural disasters good for economic growth? (Ahlerup, 2013)” and “[d]oes development reduce fatalities from natural disasters? (Ferreira et al., 2013)”.

The specific social-ecological contexts in which disaster risk arises are highly complex, as are their immediate and longer-term implications. The concept of development is equally multi-dimensional. When these complex factors must be framed within statistically testable questions, it is easy to imagine that finding a robust ‘yes’ or ‘no’ answer can be extremely challenging. Even on the relatively narrower topic of the relationship between natural disasters and GDP growth implications, international confidence is considered ‘medium’, as explained in the recent Special Report on Managing the Risk of Extreme Events (SREX) report IPCC, 2012:

Differences [in estimates of disaster impacts on the macroeconomy] can be partly explained by the lack of a robust counterfactual in some studies (e.g. what would GDP have been if a disaster had not occurred?), failure to account for the informal sector, varying ways of accounting for insurance and aid flows, different patterns of impacts resulting from, for example, earthquakes versus floods, and the fact that national accounting does not record the destruction of assets, but reports relief and reconstruction as additions to GDP (p. 265).

While medium confidence means a certain level of consistency, quality and quantity of evidence along with agreement in their findings, it also indicates that not all relevant questions have been fully and comprehensively examined (IPCC, 2012). With natural disasters risks expected to continue increasing in the foreseeable future, obtaining a clearer understanding of common challenges is crucial. This article revisits the topic of development and disaster linkages and offers an interdisciplinary look at the fundamental theoretical and methodological challenges associated with this body of literature. In particular, the review focuses on statistical investigations conducted at the macro-level and highlights some of the important limitations and areas for further research.¹

Statistical investigations of this topic are found to be hampered by: the use of GDP as a proxy for welfare, the problem of missing and incomplete natural disaster damage documentation, and the adoption of non-uniform model specifications across and within different academic disciplines which render comparison of modeling results difficult. Furthermore, topics of economic and institutional parameters such as GDP, remittance, corruption and public expenditure are prioritized over factors such as environmental conditions, social vulnerabilities, and human development conditions; these important aspects have not been adequately investigated partly because they are hard to quantify. Without addressing the more fundamental issues of data quality and standardization, theoretical gaps and disciplinary biases, therefore, new approaches based on ‘improved modeling specification’ will unlikely help us understand the complex dynamics which drive natural disaster risk and development. Instead, further attention should be paid to addressing existing issues of data quality and standardization, developing alternative wealth accounting methodologies, and identifying novel approaches to examining the complex and dynamic relationships between risk, vulnerability, resilience, adaptive capacity and development. Critical reflection on current discourse and analytical approaches is hence needed.

¹ Other important methodological approaches on this topic include catastrophic modeling (Grossi and Kunreuther, 2006), economic simulation models (Rose and Liao, 2005; Rose and Guha, 2004; Okuyama et al., 2004; Okuyama, 2004) and more recently network analysis (Albala-Bertrand, 2013).

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