Please Mind the (Protection) Gap: The Role of Insurance in Economic Recovery

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The protection gap: what?

- Difference between the amount of insurance coverage that is economically beneficial and what is actually purchased.
The protection gap: how?

Project Scope: *The impact of (re-)insurance on the economic recovery from natural disasters*

Research questions:
- What is the role of insurance in economic recovery and resilience?
- Are there any country-level similarities or differences in the recovery dynamics?
- How destruction of physical assets (stocks) can be translated to output losses (flows)? Which factors affect this response function?

Methodology:
- Case studies
- Economic framework
A tale of two countries (and two threats)

Bangladesh Floods 2004

USA Storms 2005
Case Study 1:
2004 BANGLADESH FLOODS
Stages of flooding

- Early phase *(mid-April)*: incidence of flash floods in some regions
- Initial phase *(23-28 June)*: water levels in most regions were as normal annual floods
- Aggravating phase *(8-14 July)*: water levels crossed danger levels at many points
- Devastating phase *(15-28 July)*: flood triggered by torrential rains and cascades from hills across border and water levels reached highest level at many points
- Receding phase *(28 July – mid August)*: flood water recedes in northern and central regions resulting in rise in water levels in southern and coastal districts
- Renewal phase *(mid-September)*: localized depression creates continuous torrential rain resulting in renewed flooding to central Bangladesh and other areas not usually affected

Source: CPD-IRBD: Rapid Assessment of Flood 2004
Funding for disasters in Bangladesh

**Government:**
- Disaster Risk Reduction Fund (modest)
- Emergency Fund Disaster Management (small)
- Fund for Unforeseen Incidents (approximately $14.28m every year)
- Palli Karma-Sahayak Foundation (microfinance institution)

**Central Bank:**
- Plan for 88 institutions to deposit BDT 50 million each therefore a total of BDT 4.5 billion ($64.3 million) for post-disaster response, disaster risk management, and capacity building

**Insurance:**
- **State-owned:** Sadharan Bima Corporation (SBC) for general insurance; and Jiban Bima Corporation (JBC) for life insurance
- **Private:** 31 life and 46 general insurance companies operate
- 12 life insurers and 2 general insurers (health and flood) offer micro-insurance, as of 2016

**Microfinance Sector:**
- Temporary loans, loan forgiveness, rescheduling of loan, asset replacement, housing loans, and loans for starting new activities
- As of 2014, loans were BDT 257 billion ($3.3 billion), savings were BDT 94 billion ($1.2 billion)
- 742 registered MFIs with the Microcredit Regulatory Authority with 26.4 million members and 19.7 million borrowers
Funding for disasters in Bangladesh

Figure 3: Funding for Recovery and Rehabilitation Projects in Bangladesh, 2000–2013 ($ million)


Figure 4: Humanitarian Aid into Bangladesh, 2000–2013 ($ million)


Figure 5: Foreign Aid on Disaster-Related Emergency Response into Bangladesh, 2000–2013 ($ million)


Figure 6: Total Available Funding, 2000–2013 ($ million)

Funding for disasters in Bangladesh

Table 11: Disaster-Related Economic Impact and Funding Gap in Bangladesh, 2000–2013

<table>
<thead>
<tr>
<th>Year</th>
<th>Disaster-Related Economic Impact</th>
<th>Funding for Recovery and Rehabilitation Projects</th>
<th>Humanitarian Aid</th>
<th>Foreign Aid on Disaster-Related Emergency Response</th>
<th>Total Funding</th>
<th>Funding Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>582</td>
<td>61</td>
<td>5</td>
<td>...</td>
<td>66</td>
<td>516</td>
</tr>
<tr>
<td>2001</td>
<td>85</td>
<td>67</td>
<td>2</td>
<td>...</td>
<td>69</td>
<td>16</td>
</tr>
<tr>
<td>2002</td>
<td>1,072</td>
<td>129</td>
<td>6</td>
<td>0</td>
<td>135</td>
<td>937</td>
</tr>
<tr>
<td>2003</td>
<td>1,042</td>
<td>8</td>
<td>4</td>
<td>0</td>
<td>11</td>
<td>1,030</td>
</tr>
<tr>
<td>2004</td>
<td>2,335</td>
<td>60</td>
<td>109</td>
<td>209</td>
<td>378</td>
<td>1,957</td>
</tr>
<tr>
<td>2005</td>
<td>139</td>
<td>95</td>
<td>6</td>
<td>0</td>
<td>101</td>
<td>38</td>
</tr>
<tr>
<td>2006</td>
<td>27</td>
<td>58</td>
<td>12</td>
<td>0</td>
<td>71</td>
<td>(44)</td>
</tr>
<tr>
<td>2007</td>
<td>2,744</td>
<td>73</td>
<td>300</td>
<td>645</td>
<td>1,018</td>
<td>1,726</td>
</tr>
<tr>
<td>2008</td>
<td>145</td>
<td>111</td>
<td>43</td>
<td>186</td>
<td>339</td>
<td>(194)</td>
</tr>
<tr>
<td>2009</td>
<td>1,206</td>
<td>38</td>
<td>37</td>
<td>52</td>
<td>128</td>
<td>1,078</td>
</tr>
<tr>
<td>2010</td>
<td>254</td>
<td>52</td>
<td>31</td>
<td>1</td>
<td>84</td>
<td>170</td>
</tr>
<tr>
<td>2011</td>
<td>186</td>
<td>64</td>
<td>66</td>
<td>0</td>
<td>131</td>
<td>55</td>
</tr>
<tr>
<td>2012</td>
<td>626</td>
<td>47</td>
<td>32</td>
<td>0.2</td>
<td>79</td>
<td>547</td>
</tr>
<tr>
<td>2013</td>
<td>350</td>
<td>34</td>
<td>26</td>
<td>...</td>
<td>60</td>
<td>290</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10,793</strong></td>
<td><strong>897</strong></td>
<td><strong>679</strong></td>
<td><strong>1,093</strong></td>
<td><strong>2,670</strong></td>
<td><strong>8,122</strong></td>
</tr>
</tbody>
</table>

( ) = negative, ... = not available.

Public and private risk transfer mechanisms such as insurance are crucial for managing risks from extreme events.
Who finances what?

- Current role of the private sector in disaster recovery appears to be low
- Potential scope for insurance providers to close the funding gap
Insurance in Bangladesh

- **The missing money problem**: Natural disasters in Bangladesh cost more than $10 billion economic losses between 2000-2013 but the total funding available for relief, rehabilitation, and reconstruction for the same period was only $2 billion (Ozaki, 2016)

- **A market for insurance (or lack thereof)**: A private insurance market for property damage risk due to natural disasters in Bangladesh **does not exist**

- **Demand and supply dynamics**:
  - Most life insurance policies offered in Bangladesh work like a bond, i.e., buyers typically pay a yearly premium and receive regular financial payments until maturity
  - On the other hand, the weather insurance model offers compensation only when damage is caused by a natural disaster and no return otherwise (Akter et. al, 2010)
  - Private insurers discriminate and do not offer insurance to individuals with low or irregular income

- **Coping strategies**: In the absence of well-developed insurance markets households rely on informal risk-coping mechanisms (Clarke et. al, 2015)
  - In rural areas, neighbourhoods undertake self-insurance measures by forming a small network of neighbours to diversify risks by pooling resources to smooth consumption (Park, 2006)
Case Study 2: USA Storms

2005

Hurricanes Katrina, Rita & Wilma
US2005 Disaster management: As it happened

15

Category III Katrina: Makes landfall near Buras-Triumph, Louisiana

President Bush declares State of Emergency that sets emergency response in motion including freeing funds and moving housing programs to federal control

President Bush declares “major disaster”; frees more resources towards rescue and recovery

Congress approves $52 billion to aid hurricane victims, including an increase in FEMA’s borrowing for NFIP from $1.5 billion to $3.5 billion

Congress approves a second increase for FEMA’s borrowing towards NFIP from $3.5 billion to $18.5 billion

NFIP Enhanced Borrowing Act passed which raised the FEMA’s borrowing limit for NFIP further to $20.7 billion
Disaster management efforts: Funding

- **Major sources of funding for disaster management**: in the US include NFIP, CDBG, private insurance, charitable donations and humanitarian aid.

- **Funding for rebuilding**: Chief source of private funding for rebuilding after a disaster was reported to be **private insurance** (Comerio, 1998; Roth et al., 1998; Wu and Lindell, 2004)

### Table 1. Federal programs supporting housing recovery in Louisiana and Mississippi.

<table>
<thead>
<tr>
<th>Federal agency</th>
<th>Program</th>
<th>Appropriations/allocation authority ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Emergency Management Agency</td>
<td>Hazard Mitigation Grant Program</td>
<td>1.9 billion</td>
</tr>
<tr>
<td></td>
<td>Individual and Households Program</td>
<td>684 million</td>
</tr>
<tr>
<td></td>
<td>Public Assistance for Permanent Work</td>
<td>33 million</td>
</tr>
<tr>
<td>U.S. Department of Housing and Urban</td>
<td>Community Development Block Grant Program</td>
<td>18.9 billion</td>
</tr>
<tr>
<td>Development</td>
<td>Capital Fund Emergency/Natural Disaster</td>
<td>29.8 million</td>
</tr>
<tr>
<td></td>
<td>Funding</td>
<td></td>
</tr>
<tr>
<td>Small Business Administration</td>
<td>Physical Disaster Business Loan</td>
<td>270 million</td>
</tr>
<tr>
<td></td>
<td>Home Disaster Loan</td>
<td>4.0 billion</td>
</tr>
<tr>
<td>U.S. Department of the Treasury</td>
<td>GO Zone Low-Income Housing Tax Credits</td>
<td>276 million</td>
</tr>
<tr>
<td></td>
<td>GO Zone Tax-Exempt Private Activity Bonds</td>
<td>12.8 billion</td>
</tr>
<tr>
<td></td>
<td>New Markets Tax Credits (GO Zone)</td>
<td>1 billion</td>
</tr>
</tbody>
</table>

*Source: Spader & Turnham, 2014*
On average, only about 40% of the total damages from Katrina were insured.
Insuring away US Storms: Facts

- **Size of Katrina**: about 63% of flood insurance claims greater than 95% of total insured value between 1978 and 2012 occurred in 2005 (Kousky and Michel-Kerjan, 2015)

- **When mandatory is optional**: as a part of federal insured mortgage, flood coverage has been mandatory in the US since 1973, however only 40% of the victims in Louisiana and Mississippi had insurance to cover losses (Kunreuther, 2006)
  - Lessons unlearnt: Only 20% of NYC homeowners had flood insurance during Sandy, in spite of Hurricane Irene the previous year in that region (PlaNYC Report, 2013)

- **Inverse correlation**: Districts in the US with high poverty were found to have lower flood insurance coverage (Masozera et al., 2007)

- **Bias**: More loans were being approved to wealthy neighbourhoods than others, which affected the speed of recovery at the micro-level
Insuring away US Storms: Issues

- **1.7 million different claims** for vehicle, houses and business damages were made in the six affected states (Insurance Information Institute, 2010)
- Volume of claims from these and Hurricane Ike were so high while the premiums collected were low such that the National Flood Insurance Program (NFIP) went into $17-18 billion debt and Sandy pushed these further to $24 billion
- **Average premium shortfalls were ~$800 million/year**, which were borrowed from federal government (Bingham et al., 2006)
- Despite FEMA aid and a massive federal bailout of over $50 billion by 2008, status quo was not reached.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Date</th>
<th>Event</th>
<th>Number of Claims Paid</th>
<th>Total Amount Paid</th>
<th>Average Amount Paid per Claim</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aug. 2005</td>
<td>Hurricane Katrina</td>
<td>168,000</td>
<td>$16.3bn</td>
<td>$97,000</td>
</tr>
<tr>
<td>2</td>
<td>Oct. 2012</td>
<td>Superstorm Sandy</td>
<td>130,000</td>
<td>$8.4bn</td>
<td>$64,000</td>
</tr>
<tr>
<td>3</td>
<td>Sep. 2008</td>
<td>Hurricane Ike</td>
<td>47,000</td>
<td>$2.7bn</td>
<td>$58,000</td>
</tr>
<tr>
<td>4</td>
<td>Aug. 2016</td>
<td>Louisiana Storms</td>
<td>22,000</td>
<td>$1.7bn</td>
<td>$80,000</td>
</tr>
<tr>
<td>5</td>
<td>Sep. 2004</td>
<td>Hurricane Ivan</td>
<td>26,000</td>
<td>$1.6bn</td>
<td>$57,000</td>
</tr>
<tr>
<td>6</td>
<td>Aug. 2011</td>
<td>Hurricane Irene</td>
<td>44,000</td>
<td>$1.3bn</td>
<td>$30,000</td>
</tr>
<tr>
<td>7</td>
<td>Jun. 2001</td>
<td>Tropical Storm Allison</td>
<td>31,000</td>
<td>$1.1bn</td>
<td>$36,000</td>
</tr>
<tr>
<td>8</td>
<td>May 1995</td>
<td>Louisiana Floods</td>
<td>31,000</td>
<td>$0.6bn</td>
<td>$19,000</td>
</tr>
<tr>
<td>9</td>
<td>Aug. 2012</td>
<td>Tropical Storm Isaac</td>
<td>12,000</td>
<td>$0.8bn</td>
<td>$46,000</td>
</tr>
<tr>
<td>10</td>
<td>Sep. 2003</td>
<td>Hurricane Isabel</td>
<td>20,000</td>
<td>$0.5bn</td>
<td>$25,000</td>
</tr>
</tbody>
</table>

Source: Seeking Alpha

Source: Harvard Business School
1.7 million different claims for vehicle, houses and business damages were made in 6 states (Insurance Information Institute, 2010)

Volume of claims from these and Hurricane Ike were so high while the premiums collected were low such that the National Flood Insurance Program (NFIP) went into $17-18 billion debt and Sandy pushed these further to $24 billion

Average premium shortfalls were ~$800 million/year, which were borrowed from federal government (Bingham et al., 2006)

Despite FEMA aid and a massive federal bailout to over $50 billion by 2008, status quo was not reached.

Few insurance companies had doubled their rates for certain categories and some refused to issue new property insurance, for those along the coast thereby slowing down reconstruction and recovery (Young, 2010; Smith J.P., 2012)

Mississippi organized a “Wind Pool” (property insurance of last resort) at a heavy price. They purchased reinsurance from global markets at 398% and 268% premium increases on residential & commercial property policies, proving to be a very costly affair for the State
Protection Gap: Bangladesh 2004 vs US 2005

- Major sources of livelihood were severely affected. Agriculture in the case of Bangladesh, whereas energy and tourism in the case of US 2005.

- Recovery speed, measured in terms of population levels, number of housing units and business establishment was quite slow in the US, despite being a developed country. Bangladesh faced an economic setback after the floods.
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- Reliance on ex-post disaster support over ex-ante protection such as improving vulnerability or insurance uptake, partly due to moral hazard.

- Extensive dependence on external aid for support, which is typically slow to materialize thereby slowing the speed and perhaps even the quality of economic recovery.

- The government shouldered most costs of reconstruction and relief, resulting in massive structural deficits and negative economic knock-on effects.
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- The government shouldered most costs of reconstruction and relief, resulting in massive structural deficits and negative economic knock-on effects.

- Extent of insurance coverage: Insurance penetration was almost zero in Bangladesh but was higher in the US, yet still inadequate to cover all the losses. For instance in the US during Katrina, insured losses were still only 40% of the total estimated losses. **Scope for an increased role of insurance!**
- Limits to insurance growth: Bangladesh’s weak regulatory capacity resulted in a ineffective, fragmented private insurance sector while in the US policy failures undermine their efficacy despite the presence of a well-developed private insurance market. **Policy issues need to be primarily addressed!**