Two Fiscal Front-Runners: Will Economies Suffer Due to Lack of Flood Resilience?

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RESEARCH HIGHLIGHTS

- UK Flood annual damage costs: £1.5 bn
- By 2080s it will be £30 bn
- In UK out of 28 million properties – more than 6 million are at risk of flooding
- Hurricane Sandy (US) destruction costs: $56 bn
- Over half the population of both countries live near the coast
- At present no impact to US and UK national economies
- National economies will be significantly affected by 2080s

INTRODUCTION

In order to establish a rigorous 21st century flooding resilience, intensive climate change research will be needed. This will inform infrastructure protection measures to prevent severe economic loss due to anticipated and unpredicted flooding. UK flooding costs, particularly since 2007, have been estimated at £1 billion every year and are expected to reach £27 billion by 2080 (Bennett, 2010), with more than 5.5 million properties at flood risk in England and Wales (Environment Agency, 2009). In the USA, 2012 flood damage costs were $495,583,000 (NWSIST, 2013) with a current annual cost of $12 billion (ASFPM, 2013). Moreover, average flood costs over 30 years were $8.2 billion (NWSIST, 2013) and in recent years, there has been a further $8 billion cost from Hurricane events (Nordhaus, 2006).

Accordingly, this paper assesses flood damage costs of United Kingdom along with costs due to Hurricane Sandy destruction. It also evaluates whether or not flooding costs had any significant impact on national GDP.

METHODOLOGY

This is an initial study to evaluate methodological applicability whilst simultaneously providing an initial estimation of flood damage costs (Figure 2). It was devised to obtain immediate and accurate estimations from a single case/event/country scenario from published statistics.

This new method assesses four flooding parameters (size of flood, region/area, infrastructure and season) which are used as flooding factors to rank and estimate flooding impacts as well as damage costs.

The method is based on economics and supported with data from reports, insurance losses and academic literature. Research also compared derived results with national published reports e.g. NASA, NOAA, Environment Agency, UK Government, private and public organisations, etc., and results were shown to be different, resulting in an improved estimate of damage costs.

RESULTS

Table 1 Primary Assessment Results.

<table>
<thead>
<tr>
<th>Scenario/Category</th>
<th>Costs in £bn</th>
<th>Scenario/Category</th>
<th>Costs in £bn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential Current Damage</td>
<td>£0.8</td>
<td>Residential Current Damage</td>
<td>£0.2</td>
</tr>
<tr>
<td>Training and Business Loss</td>
<td>0.02</td>
<td>Training and Business Loss</td>
<td>0.05</td>
</tr>
<tr>
<td>Commercial Structure Damage</td>
<td>0.1</td>
<td>Commercial Structure Damage</td>
<td>0.1</td>
</tr>
<tr>
<td>Undivided Damage</td>
<td>0.02</td>
<td>Undivided Damage</td>
<td>0.02</td>
</tr>
<tr>
<td>Local Property</td>
<td>0.12</td>
<td>Local Property</td>
<td>0.12</td>
</tr>
<tr>
<td>Total</td>
<td>£1.5</td>
<td>Total</td>
<td>£5.2</td>
</tr>
</tbody>
</table>

CONCLUSION

Flood damage costs significantly affect local economies but at a national level does not have much of an impact. Predictions indicate that socio-economic costs will negatively affect national GDP, if flood resilience is not improved.

References

ASFPM (The Association of Floodplain Managers), (2015). Flood Mapping for the Nation – A Cost Analysis for Nations Flood Map Inventory. Available at:


Nordhaus, W.D. (2006), The Economics of Hurricanes in the United States, Working Paper No.12813, Available at:


NWSIST (National Weather Service Internet Service Team), (2013), Hydraulic Information Centre Flood Loss Data. NOAA, National Weather Service: Available at:


Bennett, O. (2010), Reducing Flood Risk: Key Issues for the New Parliament 2010 House of Commons Library Research. Available at: