

Socio-economic impacts of disasters in OECD countries

OECD member countries have been significantly affected by disasters over the past decades, with increasing economic impacts. Disasters may arise from natural hazards, pandemics, major industrial or technological accidents, and malicious acts. In the last 30 years, the number of disasters has increased from around 100 to more than 300 each year across OECD member countries, causing hundreds of billions of US dollars in annual losses. The immediate consequences are visible in terms of human lives lost and destruction of capital stock, and longer term impacts accrue due to disruptions in economic flows. Large critical infrastructure can also be at risk, with devastating impacts as witnessed in the aftermath of the great east japan earthquake in 2011. Such large-scale disasters have led countries to strengthen risk governance policies by including a broader set of stakeholders and communities in the identification and assessment of risks as well as the implementation of measures that increase resilience at national and sub-national levels.

Across OECD countries, disaster risks are unevenly distributed, with larger and more densely populated countries facing disasters more frequently. The countries with the highest average annual number of disasters are Australia, Japan, Mexico, Turkey and the United States (Fig 12.1). In terms of the annual average economic damages over the period 1980-2016, the countries that lose the most due to disasters are Italy, Japan and the United States. However, a different picture emerges when relating disaster impacts to income during the period 1995-2015. The countries with significant seismic activity such as Chile and New Zealand, where urban centres were recently struck by major earthquakes, have the highest ratio of damage to income. For very large economies such as Japan and the United States, the aggregate impact is proportionately lower, helping these economies to cushion the impacts. Analysis of a wider range of countries than just OECD reveals a positive correlation between lower GDP per capita and more fatalities from disasters, whereas countries with a higher GDP per capita have seen larger economic impacts but fewer fatalities (OECD, 2014).

Although on average, economic losses due to disasters in OECD countries have been relatively modest relative to aggregate GDP, specific major disasters have had large-scale economic consequences in OECD countries, especially small economies. Damages from the earthquakes in Chile in 2010 and in Christchurch in New Zealand in 2011 were the equivalent of around 20 % of annual GDP. From a national perspective, storms like Katrina may have led to only 0.1 % of annual GDP in damages, but the estimated USD 125 billion in losses were felt disproportionately in the geographic area and its directly affected population. Local economic impacts can lead to a considerable drop in regional economic output following disasters, causing substantial negative impacts on regional public finances as well as sectoral imbalances and negative impacts from drops in consumer and business confidence.

Major risks may develop quickly and through unforeseen pathways causing transboundary impacts that spread across different communities, economic sectors and national borders. For example, the 2010 eruptions of the Eyjafjallajökull volcano in Iceland produced an ash cloud over much of European air space, and numerous flights were cancelled around the world due to the hazardous conditions in European air space. While the cancellations produced large economic losses in the airline industry, they also disrupted the supply chains for multiple industries that depend on it, including for perishable goods.

As disasters have had such extensive, transboundary and cascading effects, it is important both to draw the lessons from past events and to forecast future trends in transboundary vulnerabilities to better prepare for the future. For this reason it is necessary for governments and private sector actors to think outside the box, and work together through partnerships, to articulate appropriate risk governance strategies to mitigate future impacts.

Methodology and definitions

Data on disasters are based on EM-DAT, the OFDA/CRED International Disaster Database (www.emdat.be) developed by the Catholic university of Louvain-Brussels in Belgium. For a disaster to be entered into the database at least one of the following criteria must be fulfilled: ten or more people reported killed, 100 or more people reported affected, declaration of a state of emergency, call for international assistance. For each disaster, the registered figure corresponds to the damage value at the moment of the event, i.e. the figures are shown true to the year of the event. Annual GDP data are taken from the OECD National Accounts Statistics (database).

“Critical risks” refer to threats and hazards that pose the most strategically significant risk, as a result of (i) their probability or likelihood and of (ii) the national significance of their disruptive consequences, including sudden onset events (e.g. earthquakes, industrial accidents, terrorist attacks), gradual onset events (e.g. pandemics), and steady-state risks (notably those related to illicit trade or organised crime).

Further reading

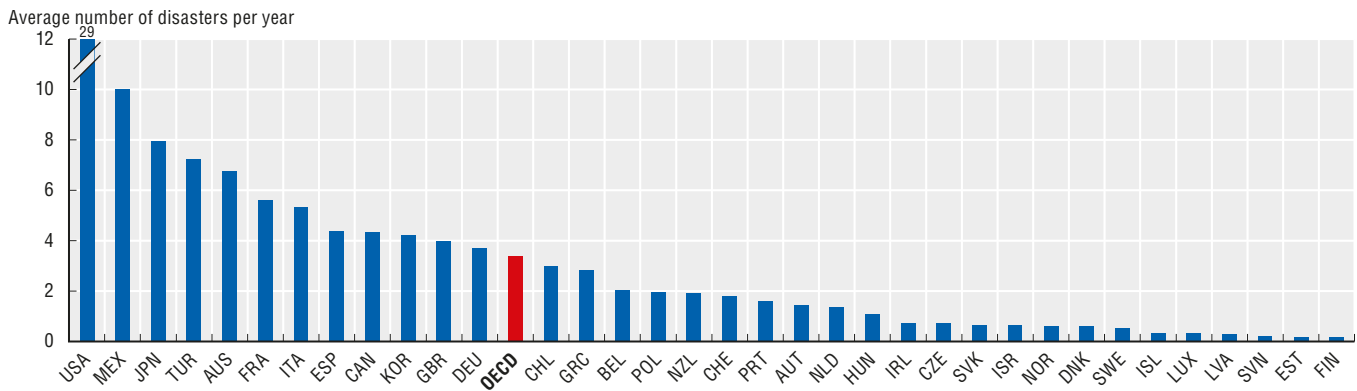
OECD (2014), “Boosting Resilience through Innovative Risk Governance”, OECD Publishing, Paris, <http://dx.doi.org/10.1787/9789264209114-en>.

Figure notes

Detailed figure notes are provided in the Statslinks.

Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>.

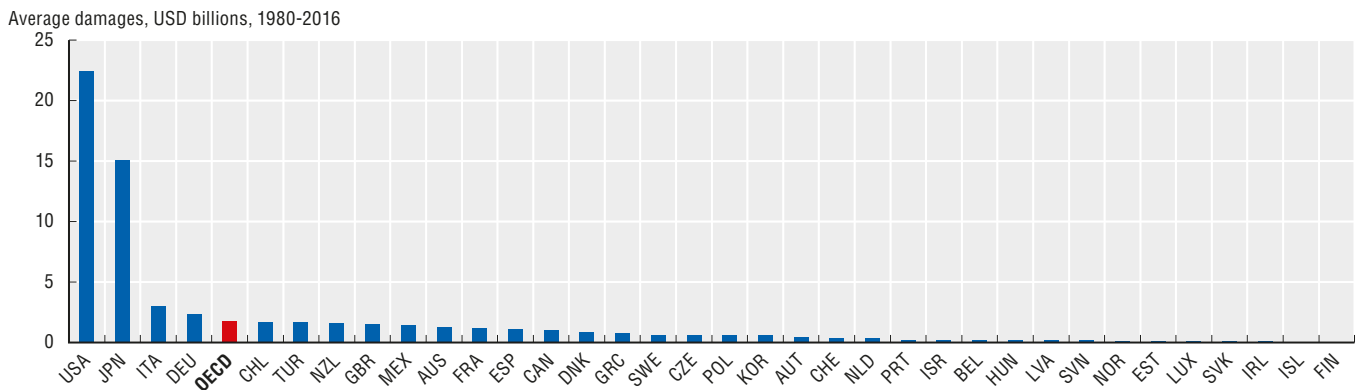
12.1. Average number of disasters per year across OECD countries, 1980-2016



Source: Guha-Sapir, EM-DAT: CRED/OFDA International Disaster Database, Université Catholique de Louvain, Brussels, Belgium, www.emdat.be, accessed March 2017.

StatLink <http://dx.doi.org/10.1787/888933533473>

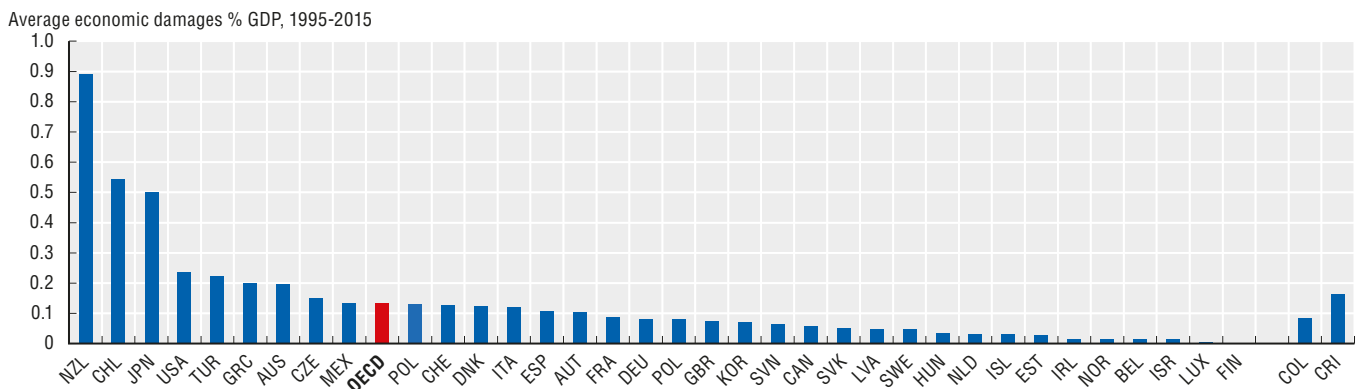
12.2. Average damages due to disasters across OECD countries, 1980-2016



Source: Guha-Sapir, EM-DAT: CRED/OFDA International Disaster Database, Université Catholique de Louvain, Brussels, Belgium, www.emdat.be, accessed March 2017.

StatLink <http://dx.doi.org/10.1787/888933533492>

12.3. Average damages due to disasters as a percentage of GDP across OECD countries, 1995-2015



Source: Guha-Sapir, EM-DAT: CRED/OFDA International Disaster Database, Université Catholique de Louvain, Brussels, Belgium, www.emdat.be, accessed March 2017. GDP data from: OECD, National Account Database, accessed on March 2017.

StatLink <http://dx.doi.org/10.1787/888933533511>

