A Tale of Two Cities:

Economic Impacts of the Kobe and Marmara Earthquakes

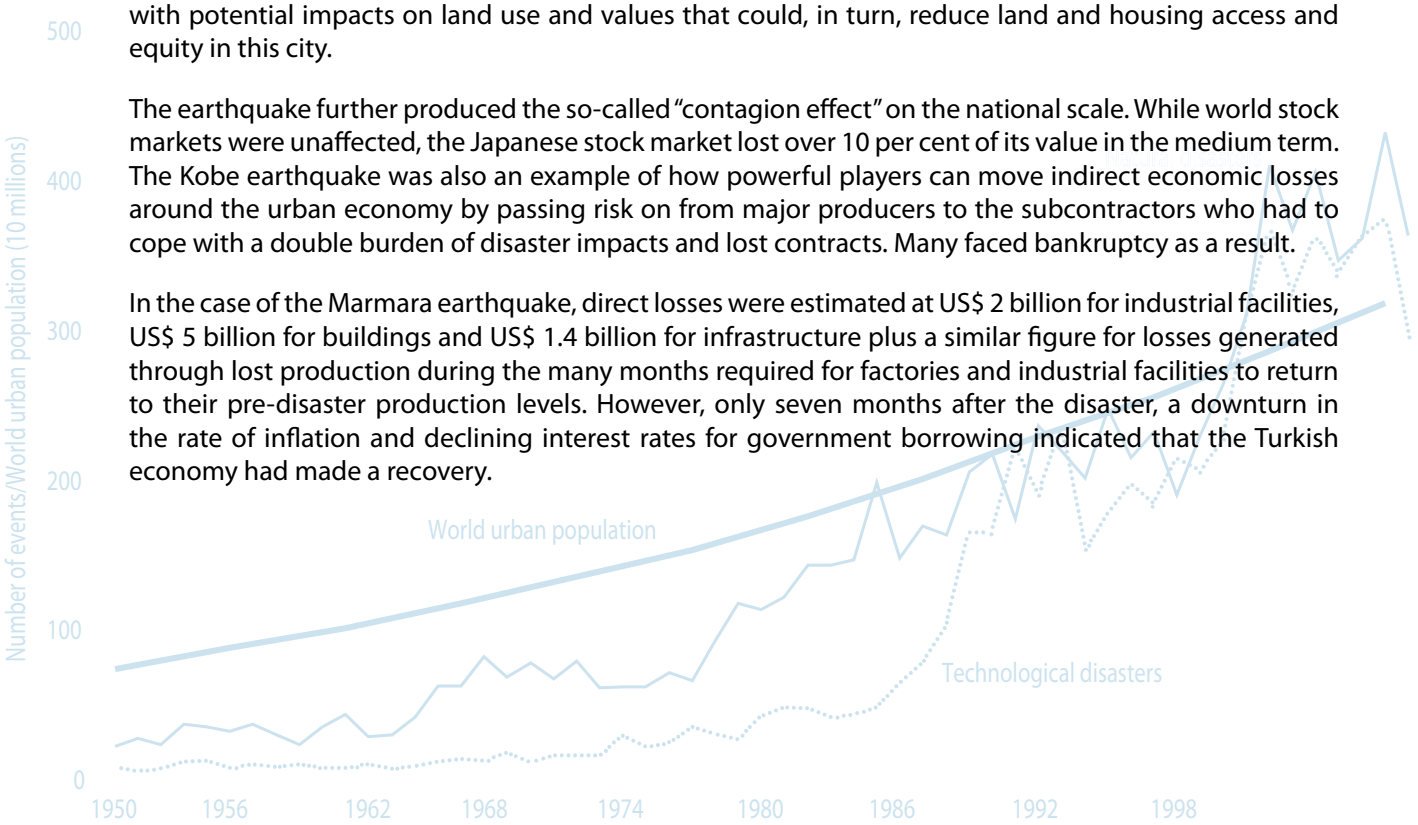
The impact of disaster also depends on the levels of development and disaster preparedness of individual cities. This is evident when comparing the contrasting cases of Kobe, Japan (hit by a 7.2 Richter magnitude earthquake in 1995) and Marmara, Turkey (hit by a 7.4 Richter magnitude earthquake in 1999). The Kobe (or Great Hanshin) earthquake was amongst the worst disasters to have befallen modern Japan, as it claimed 6,433 lives. The Marmara earthquake was similarly catastrophic, but with 18,000 lives lost, was three times as deadly as the Kobe earthquake.

In Kobe, strong engineering standards reduced losses, but a lack of planning for social systems to identify vulnerable groups and help in response, relief and reconstruction compounded losses. In Marmara, decades of ineffective building and planning regulation meant many modern buildings were not adequately resistant to earthquakes and accumulated risk translated into high loss of human life. As in Kobe, failure in social planning also undermined response and reconstruction.

In economic terms, the Kobe earthquake caused over US$ 100 billion in damages and resulted in the destruction of 150,000 buildings. Insured losses, however, were limited to around US$ 6 billion. The absence of a comprehensive insurance cover in this wealthy country is a consequence of the restrictive provisions of the national insurance sector and several key features of Japanese insurance policies. During reconstruction, lack of insurance may well have contributed to the economic pressures that led some homeowners, especially the poor and elderly, to join many renters in moving from high-value city centre property. The result was a movement of property from vulnerable groups into the speculation sector, with potential impacts on land use and values that could, in turn, reduce land and housing access and equity in this city.

The earthquake further produced the so-called "contagion effect" on the national scale. While world stock markets were unaffected, the Japanese stock market lost over 10 per cent of its value in the medium term. The Kobe earthquake was also an example of how powerful players can move indirect economic losses around the urban economy by passing risk on from major producers to the subcontractors who had to cope with a double burden of disaster impacts and lost contracts. Many faced bankruptcy as a result.

In the case of the Marmara earthquake, direct losses were estimated at US$ 2 billion for industrial facilities, US$ 5 billion for buildings and US$ 1.4 billion for infrastructure plus a similar figure for losses generated through lost production during the many months required for factories and industrial facilities to return to their pre-disaster production levels. However, only seven months after the disaster, a downturn in the rate of inflation and declining interest rates for government borrowing indicated that the Turkish economy had made a recovery.



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Rio de Janeiro: Living risk in the *favelas* of Brazil

Rio de Janeiro is home to over 10 million people, of which nearly one third live in slums known as *favelas*. Many *favela* residents were originally squatters and the vast majority lack legal title to their homes.

Rocinha, one of Rio de Janeiro's richest and most developed *favelas*, is home to between 100,000 and 150,000 people. Rocinha's highly prized location in the south zone of Rio (*Zona Sul*) includes famous seafront neighbourhoods such as Copacabana, Ipanema and Leblon. In the absence of state presence, except for frequent police incursions, it is controlled by those involved in organized drug trafficking. Violence caused by frequent intra-gang warfare and police invasions, coupled with densely populated living conditions, make the *favela* an undesirable place to live. Most inhabitants dream of saving enough money to move out of the *favela*; but very few ever do.Yet, living in Rochina is an advantage, given its proximity to some of Rio's richest neighbourhoods and, hence, potential sources of employment.

Rocinha's population is home to various social groups, and certain areas of the *favela* are more expensive to live in than others. The very bottom of the *favela*, across the highway from the wealthy neighbourhood of Sao Conrado, is relatively prosperous and many homes have legal titles. Neighbourhoods located further up the mountain are generally poorer and more prone to disaster because of the difficulty of building on a nearly vertical mountain slope.

One of these neighbourhoods is Roupa Suja, the top of which is located right below a vertical wall of rock and considered a *Zona de Risco* – or risk area – by the Rio de Janeiro city government. Technically, residents are prohibited from building and living in this area; but many are so poor that they have no alternative place to build. The majority of the residents living in this area immigrated to Rio attempting to escape even greater poverty in the rural drought-stricken northeast. Others immigrated from different *favelas* in Rio after urban renewal campaigns razed their homes. Some also came from poorer *favelas* on the city's periphery.

Several people die every year in mudslides caused by heavy rains in Rio's *favelas*. Deforestation at the edge of Rochina, as it expands into the national forest of Tijuca, has worsened this risk. Rio's municipal government, as well as residents themselves, have built aqueducts to channel the water away from homes; but these do not protect all areas of the *favela*. The danger of falling rocks is perhaps greater than that of rain. Since the homes at the top of the *favela* are directly beneath a vertical overhang, rocks break off due to erosion and fall on the homes below.

Faced each day with multiple types of risk – from natural hazards, violence and disease – the residents of Roupa Suja's *Zona de Risco* lead a precarious and difficult life. Most stay because they have nowhere else to go.

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