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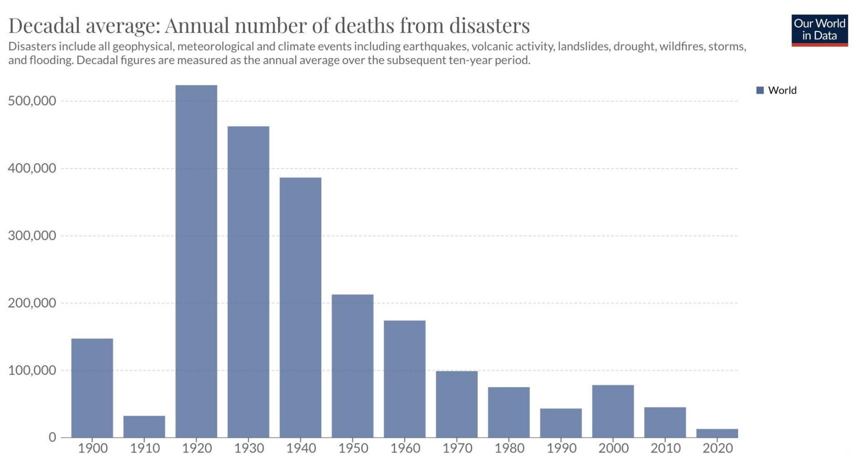
Natural Disasters on the Economy

Natural disasters are destructive events caused by natural disasters such as floods, hurricanes, earthquakes, and wildfires. These events can cause a strain on a country's economy and have a rollover effect, where many sectors become affected. In this essay, I will discuss how natural disasters affect the economy, focusing on the direct and indirect costs, short-term and long-term impacts, and notable examples of past disasters

Direct costs are the immediate losses when a natural disaster happens. Direct losses are the physical impact a disaster causes, like damage to buildings and businesses from high winds, cars being swept away by floods, or even tsunamis caused by ground shaking. This damage can destroy physical assets like property and roads. The cost of rebuilding can result in a significant loss of investment. Additionally, the mental health of those whose homes are damaged can be negatively impacted. A study in the UK estimated that the cost of mental health issues related to flooding ranged from 1,878 - 4,136 euros per adult. Displacement of people due to disasters can also lead to loss of education, as school buildings may be destroyed or used as temporary shelters, affecting students negatively.

One of the most direct ways a natural disaster can affect the economy is through agriculture production. This is a significant loss that farmers experience, deeply affecting the sector. The Food and Agriculture Organization of the United Nations noted that from 2008-2018, the decline in crop and livestock production caused by natural disasters resulted in billions of dollars lost. They noted that floods and wildfires were two of the most impactful disasters that had a great toll on agriculture production systems in low to medium income countries. They concluded that floods were the second most serious disaster that affects the destruction of crops and livestock, as it caused over 21 billion USD in losses in developing and low to middle income countries during 2008-2018, which amounts to 19% of the total loss. Wildfires are less impactful on the agriculture sector, resulting in a loss of 1 billion USD or 1% of the total loss. Although this type of loss is small compared to other disasters, it is still impactful. This does not take in consideration the loss in the forestry sector, in things such as timber, etc. The impact of wildfires can affect millions of acres and cause great harm that not only affects the agriculture and livestock sector but also has ripple effects on other aspects such as nutrition. These losses can lead to a decrease in production, which in turn affects nutrition, especially for people in developing or low to medium income countries.

Unfortunately, natural disasters can also result in people's deaths. On average, 45,000 people per year globally are killed by natural disasters, which account for 0.1% of global deaths. However, there has been a significant decline in these natural disasters deaths in this past century as shown in the graph beloe. Even though historically, droughts and floods were the main causes of these losses of life now earthquakes tend to be the most deadly natural disasters. Those living in poverty are often the most affected by natural disasters, as low- to middle-income countries lack proper infrastructure to protect against such events.



The supply chain is the network through which raw materials, components, and goods travel before being put together and sold to customers. It covers the entire process of transporting raw materials from the suppliers to the manufacturers and finally delivering the finished goods to the consumers. Direct costs resulting from a natural disaster of supply chains can include damage to transportation infrastructure, such as roads, bridges, airports, and seaports. Indirect costs can be seen as the interruptions to manufacturing facilities, and even destruction of inventory. This often result in delays or pauses in supply chain operations, such as the closure of ports or cancellation of the cargo flights. The severity of the situation and level of how prepared a company is can determine if supply chains come to a complete halt, which can cause a ripple effect where businesses may struggle to continue production due to delayed or reduced supplies, which can ultimately impac consumers as well. Recovery from these disruptions can be time-consuming and costly.

An example of how a natural disaster can disrupt the supply chain can be seen in the 2011 Tohoku earthquake and tsunami in Japan. This event resulted in the inability to ship or receive car parts, which lead to the shutdown of car production facilities in Japan and the United States for notable car companies such as Toyota, G.M., and Nissan.

This is why it is crucial to be prepared for supply chain disruptions caused by natural disasters by creating a disaster response and recovery plan. Including backup suppliers in the plan can be beneficial in case of any unforeseen circumstances. It is important to hope for the best but also be prepared for the worst when it comes to supply chain management.

Most people, when they think of the costs that occur during a natural disaster, only consider the physical costs and not the intangible costs. However, the impact is not solely dependent on the direct physical impact. Indirect costs, which are not immediately measured, can also be significant and are typically caused by the ripple effect of a natural disaster. Indirect costs are the consequences of the disaster and can affect different sectors of the economy, including both market and non-market losses.

The article “The indirect cost of natural disasters and an economic definition of macroeconomic resilience” by Stephane Hallegatte highlights that output losses often represent a large share of indirect losses. This can include business interruptions, lost production due to capital damages, and disruptions in the supply chain. For example, a factory damaged in a flood may not be able to resume production until it is rebuilt or repaired, resulting in output losses. This can lead to increases in the prices of goods and services, decreasing consumer spending as both consumers and businesses experience a decline in their income due to the loss of jobs or confidence. The case of Hurricane Katrina showed how the poorest communities are the most vulnerable to these disasters, showing the inequalities between different groups of people.

Calculating the indirect costs of a disaster is challenging because it requires comparing the actual situation after the disaster with an alternative hypothetical scenario that shows what would have happened without the tragedy. This is known as the baseline scenario. Researchers have attempted to solve this issue by comparing the affected area with nearby areas unaffected by the disaster.

Furthermore the econometric analysis in the article examines how natural disasters affect people's well-being. It explains that just because a disaster causes economic outputs to decrease, that doesn't mean people's lives are worse off. Instead, looking at how the disaster affects people's ability to buy and use the things they need and want is important.

The article gives two examples to show how the time it takes to rebuild after a disaster affects people's welfare. If everything is fixed quickly, people will only lose what was directly damaged. But if things aren't fixed, people's consumption losses will be even more significant than the damage itself. The article also shows how the interest rate affects how much a disaster hurts a country's economy.

Overall, the article tells us that we need to think about more than just the damage itself when looking at the effects of natural disasters. We also need to consider how long it takes to rebuild and how that affects people's ability to buy and use the things they need.

There are short-term ways we are able to deal with natural disasters. One is with disaster relief funds where they provide money immediately after a disaster to help people, businesses, and communities that are affected by a natural disaster. The money can be used to cover things like temporary shelter, food, and medical care, and it's intended to assist the affected areas in recovering as quickly as possible. One such way is through The Disaster Relief Fund (DFR). Through this fund, the Federal Emergency Management Agency (FEMA) is able to authorize support activities for federal disasters. It is able to repair and restore public infrastructure that is damaged and qualifies for assistance. It also provides financial assistance to eligible disaster survivors, has initiatives for hazard mitigation, and even offers fire management assistance grants for qualifying wildfires.

Furthermore, after a disaster, you are able to file an insurance claim. According to Aon's 2023 Weather, Climate, and Catastrophe Insight report, the economic losses from natural disasters in 2022 were estimated at $313 billion, with an insurance price tag of around $132 billion. This means that approximately 42% of the economic losses were covered by public and private insurances. Hurricane Katrina is known as the costliest natural disaster in the United States from an insurance perspective. More people started obtaining insurance to ensure that their properties were protected.

The U.S. government shows rapid responsiveness to natural disasters, whether they occur in the US or internationally. This is made easy through the president's declaration of disasters, which allows the allocation of federal resources within the U.S., as well as the support to foreign countries in that are in need of help. Yet the U.S. government has a process for providing assistance to other countries during disasters. It begins with a formal request from a foreign government to a U.S. ambassador, who then seeks aid from U.S. agencies. This is allowed with the president's approval. USAID also dispatches experts and contractors to assist countries in developing plans for relief and recovery.

Natural disasters can have long-term effects on the economy. One significant impact is the delay in reconstruction. Disasters can cause widespread damage to infrastructure such as roads, bridges, buildings, etc., which takes substantial time and resources to repair or rebuild. This could make economic activities become disrupted for an extended period. Businesses may not be able to operate, and people may be forced to evacuate their homes. This can require significant effort, slowing the return to a typical economic state. This can even require the creation of new jobs by the government.

Additionally, as mentioned before, disasters can disproportionately affect low-income households, forcing them further into poverty. This can widen the gap between socioeconomic groups, leading to long-term economic disparities. Moreover, businesses may struggle to regain their previous productivity levels, which can have long-term financial consequences. It may take years to restore economic production to its previous state fully. This can impede economic growth and development.

Floods are natural disasters that happen when ordinarily dry land is flooded with water. Flooding can occur due to constant rain, ice or snow melting, or overflow from rivers, lakes, or oceans. Floods can cause considerable harm to properties, infrastructures, and human life. They can also force people to flee their homes and lose their means of subsistence. The "midwest flood," which occurred in 2019, was one notable flood. In this disaster, many farmers were impacted since a large portion of the harvest was ruined, and a large amount of their livestock was killed. This caused higher food prices and a loss of income for workers in this sector. It also affected the infrastructure harming transportation. Overall this flood has a significant impact on the agriculture and transportation sectors.

One notable hurricane that had a significant impact on America's economy was Hurricane Katrina. This hurricane was a Category 5 hurricane with winds of at least 157 mph (252 km/h). The hurricane greatly flooded New Orleans and caused extensive damage to homes, businesses, and infrastructure. Almost a million people became displaced by the hurricane, which also caused about 1,800 deaths. It had a major effect on the local economy, particularly job losses and labor force displacement. Almost 80% of the city was underwater, and the damages were estimated to be worth more than $125 billion. During the hurricane, the federal government generously donated funds for disaster assistance, infrastructure repairs, and employment training and placement programs to the area. This hurricane brought attention to the significance of disaster preparedness and response activities. According to a report by the Bureau of Labor Statistics, they compared employment and wage data before and after the storm and discovered that for the first 10 months after it, there was an annual loss of 95,000 jobs and an approximate $2.9 billion wage loss.

Earthquakes are common occurrences that can be too small to be felt or cause any actual damage. The Tohoku earthquake and tsunami(Japan 2011) caused significant damage and impacted the country's economy. It caused disruptions to manufacturing and trade, leading to a decline in economic growth. It also caused a substantial drop in tourism, which is an essential industry in Japan. The damages and losses cost around $235 billion, making it one of the most costly natural disasters in history. The Japanese government had to spend significant money on recovery and reconstruction efforts, which strained the country's finances.

California has experienced many wildfires over the years, but one of the most destructive and fatal wildfires in California's history occurred in 2018. The Camp Fire wildfire had a significant impact on the economy, particularly in Butte County, California. The fire destroyed thousands of homes, businesses, and other structures, resulting in an estimated $16.5 billion in damages. This caused a ripple effect on the local economy, as many people lost their homes and businesses. They were forced to relocate or rebuild. The tourism industry was also affected, as many popular destinations and attractions were damaged or destroyed by the fire. The cost of fighting the fire and the recovery efforts also put a strain on the local and state government budgets. Overall, the Camp Fire had a devastating impact on the local economy, and the effects were felt for years after the event.

Negative economic impacts can occur from natural disasters, both directly and indirectly. Physical damage to infrastructure, crops, and livestock, loss of life, and supply chain disruptions are among the direct costs that can lead to indirect costs such as reduced consumer spending, output losses, and unemployment. While disaster relief funds, insurance payouts, and donations can assist in the short-term, infrastructure rebuilding, job creation, and emergency response system improvements may be necessary to address long-term effects. Notable past disasters, including the Midwest Flood, Hurricane Katrina, Tohoku earthquake and tsunami, and Camp Fire wildfire, serve as reminders of the potential consequences of natural disasters. Therefore, it is crucial to understand the economic impact of natural disasters to effectively prepare and manage the economic aftermath.

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