Italy's earthquake: estimating the economic and financial damage

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The human cost of the earthquake which hit Italy on 24 August was disastrous, with nearly 300 people killed and almost 400 injured. But the earthquake will also have both a short and long-term economic impact on the country. **Lorenzo Codogno** *attempts to estimate the size of this impact, noting that the nature of the economic damage, the lack of major disruptions to transportation, distribution and energy production facilities should ensure there will only be a limited impact on Italy's GDP. He states that public spending on reconstruction may more than offset the negative impact of the quake over the near term. Long-term, taking into account fiscal multipliers and the mostly non-productive nature of re-building activity, it may be expected to have a neutral or marginally negative effect, though the insurance nature of some of the extra spending may tilt the balance toward a positive impact.*

In the early morning of Wednesday 24 August, an earthquake of magnitude 6.2 hit central Italy, affecting villages in the regions bordering Lazio, Umbria and Marche, a predominantly hilly and mountainous area dotted with centuries-old villages. So far, the earthquake has claimed almost 300 victims and 400 injured, but the earthquake can also be expected to have an economic and financial impact. This article attempts to estimate what the economic damage may be in both the short and long-term.

Capital versus GDP loss

There is a fault line that crosses Italy from North to South and has produced many earthquakes in the past, and thus unfortunately there is a long track record of previous disasters. Earthquakes clearly produce a loss of wealth, i.e. a one-time blow to the capital stock, but GDP growth may not be substantially affected.

An earthquake can cause injury and loss of life, road and bridge damage, general property damage, and the collapse or destabilisation of buildings. Among others, the aftermath of a quake may bring mental consequences and depression to survivors, or lack of necessities that may temporarily impair their ability to re-join the labour force.

Wealth destruction does not directly affect the national income account, but does so indirectly to the extent that consumer and business spending is influenced. Other factors are also crucial, notably the geographical breadth of destruction and the sustained displacement and disruption resulting from the quake, the supply-side nature of economic disturbances, and the disruptions to transportation, distribution and energy production facilities, and to the production pipeline. Impacts are usually temporary, lasting a few quarters, but sometimes they can be permanent.

Rebuilding and restoring productive capacity and residential buildings show up as production in national accounts, contributing positively to GDP growth. The net impact on GDP growth is determined by the extent to which the first-round negative effects of the disaster are offset by the increase in production related to rebuilding.

It also depends on the timing and size of government spending and its associated multiplier on private investment and consumption. Government support tends to moderate the macroeconomic impact and favour a quicker adjustment of supply and demand.

Moreover, rebuilding may enhance potential growth to the extent that it favours new business activities or makes existing activities more efficient and productive or there is innovation involved. Unfortunately, rebuilding usually tends to have a negligible impact on productive potential, especially in areas where there is little industry or service

activity. The long-term effects of reconstruction ultimately depend on the quality of the investment, its growth-enhancing effectiveness and its supply-side impact.

Which are the key variables this time?

In the specific case of this earthquake, the areas affected are not significant distribution hubs, nor are they transportation junctions or critical production chain points.

For instance, the May 2012 earthquake in Emilia of magnitude 5.9 produced far fewer victims (27 overall), but the economic damage was significant. The overall cost of the quake was estimated at €13.3bn, i.e. about 0.8% of 2012 GDP. In that amount, emergency measures accounted for €0.7bn, damage to residential housing €3.3bn and damages to companies €5.2bn, i.e. about 40% of the total.

The loss of capital was in excess of that number as, on top of the costs incurred by the government (including private donations and EU contributions), there were restructuring and renovation costs fully funded by the private sector in the areas close to the quake but not eligible for public contributions. The area affected by the Emilia quake was dotted with factories. On top of the wealth loss, there was significant damage to economic activity.

A number of medium-size companies in the region, for example, were an important part of the global production chain for the automotive industry. Therefore, the quake sent small but not negligible shockwaves to the global economy. To the extent that some international buyers may have shifted suppliers, it may have caused some permanent or prolonged damage to the economy, but most effects were temporary. If rebuilding had produced more efficient and productive industries and services, it may have been a plus for potential growth. But it is difficult to tell.

In the April 2009 earthquake in L'Aquila, the magnitude was 6.3 and it had a death toll of 309, but a lot more people were injured (1,600) and rendered homeless (65,000), and as many as 11,000 buildings were damaged. The total estimated loss was €10bn. L'Aquila is a small town, with a population of almost 73,000, and thus there was sizeable displacement. The quake affected all its connectivity and economic networks, but there was less damage to productive facilities and the overall economic cost was somewhat smaller than the one in Emilia.

Amatrice is the main municipality affected by the current quake and accounts for only 2,650 inhabitants. Neighbouring villages are smaller, although there were many tourists when the quake hit. Some were completely destroyed. The number of homeless people is estimated at about 2,500, far lower than in the L'Aquila earthquake. Although the number of victims is relatively high, the overall population affected is far smaller than in L'Aquila, even taking into account the wider area where the quake made some damage. Therefore, the economic cost and the capital loss can be expected to be somewhat smaller as well. Very tentatively, I assume it is about half of the cost incurred in L'Aquila at €5bn, i.e. 0.3% of GDP.

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The small villages affected by the quake were mostly touristic, breeding and agriculture locations and no major industries appear to have been disrupted. Tourism may take years to recover, although, from a macro perspective, rebuilding works may well more than offset the loss from local business activities. Local workers may not be the ones involved in reconstruction, and thus usually local unemployment goes up as well as the recourse to the wage supplementation fund, as happened in L'Aquila. Still, I would estimate the overall positive impact on GDP

growth from reconstruction at about 0.1pp starting from 2017.

Even trickier is the long-term economic impact. Clearly, the victims represent a permanent loss of growth potential. In addition, if economic activity is affected (say tourism) and the activity does not come back soon, it may well be considered a permanent damage to potential growth. Most of these activities, however, tend to come back at some point, and especially tourism. On balance, it seems appropriate to assume a small loss in economic potential, offset by the short-term benefits of rebuilding activity.

What is going to be the impact on Italy's public finances?

Not all the costs weigh on the public finances. The issue here is how much will come from private donations or EU contributions. In the 2009 earthquake, €494mn, i.e. about 5% of the total cost, came from the EU solidarity fund (EUSF), by a change in the European Regional Development Fund (ERDF) programme. The contribution was €670mn for Emilia.

Now, any possible intervention is limited to a maximum of €354mn, i.e. 2/3 of the allocated funds. ERDF financing could not be used for the reconstruction of destroyed or damaged private houses, but only for the economic redevelopment of the area affected by the earthquake and for a limited number of infrastructural interventions outside the scope of the Solidarity Fund, e.g. cultural heritage, or the rebuilding of regional or municipal offices.

There are no official data on donations, as they come through a number of different channels, and I have no data on what was covered by insurance. A back-of-the-envelope calculation suggests it may be as much as 10% of the total costs.

Then, if we assume the capital loss was €5bn, the amount to be included in the budget is about €3.5/4.0bn, i.e. 0.2/0.3% of GDP, net of EU funds and insurance coverage. In the remaining part of this year, I doubt it will be possible to spend more than 0.1% of GDP. Therefore, very tentatively I spread the costs in three years, i.e. 0.1% of GDP for each of the next three years starting from the current one.

According to the OECD, the cost of natural calamities in Italy amounted on average to 0.2% of GDP per annum over the past few years, so 0.1% is well within the 'normal outlay'. Such a small impact can hardly change the outlook for the public finances. Moreover, according to the EU framework, the worsening does not affect compliance with fiscal rules, although it will affect nominal aggregates and will have to be financed anyway.

The government may also introduce additional initiatives to make buildings earthquake-proof. New buildings in Italy have been made quake-resistant since 1974. Half of the housing stock has been built anew since then, but standards have changed over time, and thus it is estimated that about 70% of the existing housing stock in seismic areas is not earthquake resistant. The areas considered 'at high risk' involve 3 million inhabitants, while the wider area 'at risk' is much larger with almost 20 million inhabitants.

There is already a very generous tax incentive by which 65% of total renovation costs can be used as tax breaks. Still, this has not been enough to trigger a substantial increase in activity to make buildings safe. The government will likely strengthen and extend these incentives, which otherwise would expire at the end of the current year, and thus it needs to finance them in the budget. This will come under the so-called 'Casa Italia' initiative. Not surprisingly, building regulations, and how they are applied, are gaining centre stage in the public debate and some government initiatives can be expected in this area as well.

The part of the spending related to making earthquake-safe existing buildings may be considered a sort of insurance premium on future potential damage, i.e. there is an upfront cost now that reduces the loss of life, but also capital and GDP growth losses in the future. This sort of investment would avoid potential damage in the future, and may well be a very good investment proposition purely from an economic point of view (saving lives clearly has no price). However, the money used to finance the reconstruction would increase government debt, with inevitable negative consequences on future growth.

In order to make it a positive proposition, both in terms of structural enhancement of economic growth and improvement in public finances, the reconstruction must become ‘smart’. This happens, for example, when the reconstruction creates infrastructure that improves the productivity of production factors and leads to their most efficient use, when introducing new technologies or stimulating innovation processes. For example, when an industrial structure is rebuilt with cutting-edge technology that makes it more competitive.

Even the development of new technologies for increasing anti-seismic safety can create potential growth. These technologies can be applied elsewhere, can be exported and can create additional growth and employment. However, at least for now, this is not in sight in Italy.

The bottom line

Given the size, resilience and diversification of Italy’s economy, the earthquake will have only marginal negative implications for GDP growth and growth potential going forwards, while government spending will more than offset the negatives over the near term.

The loss of wealth in residential buildings and personal properties is substantial. However, the nature of the economic damage, and the lack of major disruptions to transportation, distribution and energy production facilities makes for limited impact on GDP growth at the national level.

Public spending on reconstruction may more than offset the negative impact of the quake over the near term. A tentative estimate would call for a small positive effect on GDP growth, and about 0.2/0.3% of GDP in extra costs for the public finances spread over the next three years.

The long-term impact on growth potential is more difficult to estimate. However, taking into account fiscal multipliers and the mostly non-productive nature of re-building activity, it may be expected to be neutral or marginally negative. Still, the insurance nature of some of the extra spending may tilt the balance toward a positive impact.

The reconstruction, as in the case of all public investments, must lead to a supply-side effect to allow for a structural enhancement of economic growth. Otherwise, the effect is only temporary. If there is no adequate return in terms of future income (or reduced loss), it would not even manage to counteract any adverse effects linked to increased government debt.

In essence, the reconstruction is not manna from heaven. Far from it. However, if done intelligently it can represent an opportunity.

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