

Potential financial impacts of the Canterbury earthquakes on Canterbury economy

A big hit

The Canterbury earthquakes wrought extensive damage to infrastructure and property, with the latest estimates putting the cost at around \$4bn or 2.1% of national GDP. This has been a substantial hit to the value of the regions capital stock.

The \$4bn damage¹ could be made up of:

- \$2bn to residential land, property, and contents. This compares with a capital value of \$60bn for residential property across Christchurch City, Selwyn District and Waimakariri District council areas.
- \$1bn for commercial and industrial property damage, compared to an estimated capital value of \$15bn across the 3 council areas
- \$1bn for council and government infrastructure. Council infrastructure is estimated to have a capital value of \$4.6bn. On top of this are central government owned assets such as schools and hospitals.

Two weeks after the initial earthquake, 2737 homes are unliveable (of approx. 220,000 dwellings in the Canterbury region), 3053 homes aren't weatherproof, 51 buildings in the Christchurch CBD have been declared unsafe, and 62,015 claims have been lodged with the EQC.

Naturally, there remains substantial uncertainty as to what the bill will ultimately be.

Initial financial cost

While there has been the obvious negative impact on the capital stock of the region, there will also be a negative impact on income generation / economic activity. This takes the form of temporary closures to facilities (e.g., schools), business closures and disruption, staff unavailability, reduced spend due to caution, difficulty clearing house sales etc.

Fortunately, the loss of production capability appears to be contained.

- Numerous firms listed on the stock exchange with Canterbury exposures reported some minor damage to their premises. All were fully operational within a few days.

Even at the Lyttelton Port of Christchurch, where the cost of repairs was estimated to be tens of millions of dollars, the Port was quickly operating at 95% of capacity.

- Electricity had been restored to almost all households and businesses that can be reconnected.
- Agricultural production has been little affected.
- Paymark electronic transactions figures show spending in Canterbury between September 5 and 11 was down \$9m after a \$6.1m hit on September 4, the day of the quake. (A \$15m drop in card transactions is worth about 3.5% of monthly retail sales – ex vehicles – for the Canterbury region).
- Ninety-six per cent of retailers are open. Sales of non-essential items are down (e.g., clothing, footwear, restaurant, movie theatres) but other sales were up (e.g., supermarkets, video stores, service stations, building and decorating supplies).

The cost of interruption to business from a significant earthquake has been previously estimated at around 15% of the capital loss.² If the final bill does come in around \$4bn, this would be a short term income loss of \$600mn (2.1% of Canterbury GDP, 0.3% of NZ GDP) – mostly incurred during September and October. The Canterbury region represents around 15% of national economic activity.

Variable impact

The economic impact on business will be diverse. Smaller firms (particularly in retail and wholesale services, and real estate and businesses services), and those that have no immediate ability to relocate functions, will be particularly hard hit. Large firms have reported fairly limited disruption to their activities and export capacity doesn't not look to have been materially affected.

The experiences of businesses from the 1994 Northridge (Los Angeles) earthquake may provide a useful guide. A survey of business in the LA earthquake – which was of

¹ The estimated \$4bn of damage compares to an economy-wide capital stock (ex land) of \$560bn and annual gross investment of \$37bn.

² Clarke, Mary (1998). "The Economic Effects of a 1998 Wellington Earthquake", NZ Institute of Economic Research, Working Paper 98/17.

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comparable magnitude to the Canterbury quake – found that 57% of businesses suffered some degree of physical damage (to structures, furnishings, equipment, and stock); about 22% of premises suffered structural damage, although ultimately only 2% were condemned. The median number of employees was 6, 72.5% of respondents were leasing space, and 80% were operating from a single location. The median loss was about NZ\$12,000 in current price terms, reflecting the fact that most firms were small (though there were a few very large losses; the largest in the survey was \$35m). This massive skew in the distribution of losses raised the average loss from physical damage to \$375,000.

More than half had to close temporarily, even if only for a few days. The most common reason given was employees unable to get to work (e.g. with schools closed, many parents would have to stay at home). Damage to the owner's home was another major reason – again reflecting the number of small owner-operated firms.

The rebuild

There will be an enormous lift in activity in the Canterbury region over the next couple of years as the region works toward restoring its capital stock. The region will be the recipient of substantial income transfers (e.g., from EQC payouts, central government footing the lions share of infrastructure repairs, local insurance and international flows from re-insurance).

Regional GDP will be lifted as economic activity recovers, and the stimulus from rebuilding and replacement of contents.

A \$4bn increase in Gross Output would directly add around \$1.8bn to GDP (value added)³. Using a usual multiplier factor of 2.3 (for the direct and indirect effects alone)⁴, this would be an addition to economic activity of \$4.1bn (14% of annual regional GDP or 2.2% of national). Rebuilding is likely to be spread over a number of years. The local boost may end up not being as large as the damage cost due to some people being uninsured, some choosing not to rebuild, and some previously planned work being delayed (or crowded out). From a national perspective, central government may choose to reprioritise some of its infrastructure spend and some private construction work may be crowded out, so the stimulus to the national economy would be less than \$4.1bn, but still substantial.

The earthquake will have an inflationary impact, particularly on construction costs and rental accommodation. The disaster has occurred at a time when there is substantial excess capacity in the construction sector. This should mitigate the degree of flow-through of a local spike in construction costs into the rest of the economy. The RBNZ will “look through” the direct inflationary effects.⁵

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³ Only a portion of consumer spending or an industries output is counted as value added. The difference is the imported component (e.g., that part of a TVs price) or intermediate services used of other industries.

⁴ Multipliers measure the response of the economy to a unit increase in final demand for that industries output. Multipliers can be disaggregated into their direct, indirect, and induced components. Direct effects measure the response for a given industry to a change in final demand for that same industry. Indirect effects measure the response by all industries from a change in final demand for a given industry. Induced effects represent the response by all industries caused by changed expenditures of new household income generated from the direct and indirect effects of the change in final demand for a specific industry.

⁵ See Box A of the RBNZ's "September 2010 Monetary Policy Statement".