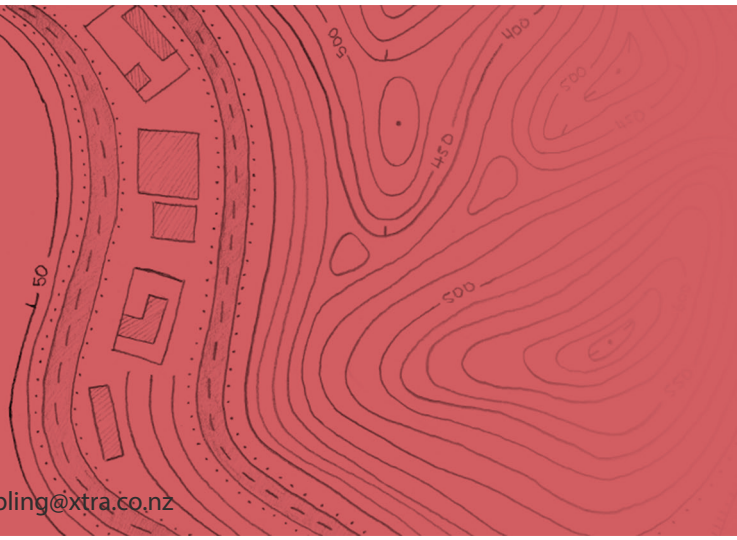
IMPACTS OF EARTHQUAKE REGULATION AND BUILDING CODES ON THE COMMERCIAL BUILDING MARKET



An Executive Summary of Working Paper 15-19

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INTRODUCTION

Since the devastating earthquakes that struck Canterbury, public interest in seismic safety has sharply increased and the rate of strengthening of commercial buildings has risen significantly in Wellington. This paper examines the effects of the Canterbury earthquakes on Wellington commercial building prices, in particular whether an official declaration of the building as earthquake-prone affects its price.

We hypothesise that prices will be discounted for commercial buildings that are:

- declared earthquake-prone, or
- expected to be declared earthquake-prone in future.

This would reflect the costs to upgrade the building and the reduced rent as tenants factor in the extra risk of locating within a more dangerous building.

BACKGROUND

In 2004, the government enacted legislation (the Building Act 2004) directed at improving the seismic performance of the existing building stock. A building is considered earthquake-prone if it is less than one third of the strength required for a new building under current design standards. These buildings have a significantly higher risk of serious damage or collapse during an earthquake causing injury, death or damage to other property.

The responsibility for developing a strategy to deal with earthquake-prone buildings rests with local councils. In Wellington, the City Council (WCC) prioritises the assessment and strengthening of buildings based on importance for community function, building age and condition. Buildings determined to be earthquake-prone must be upgraded to at least one third of the new building standard or demolished. For most buildings, the maximum timeframe for undertaking strengthening work (or demolition) ranges from 10 to 20 years.

In Wellington, the database of potentially earthquake-prone buildings is freely available to the public. Owners must also clearly display the earthquake-prone notice on site and the earthquake-prone classification is recorded in the building's Land Information Memorandum, which is routinely requested by prospective property buyers before a transaction takes place.

Evaluating the effect of this policy is important as the private sector was and is capable of conducting engineering assessments of building standards that could reach similar conclusions as the authorities on building strength in relation to existing earthquake-related building codes. In testing whether the public policy intervention (declaring a building to be earthquake-prone) changes commercial building prices, we are in effect testing whether the Council's action changes the information on which market decisions are made.

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OUR METHODOLOGY

We use data on property sales from Quotable Value New Zealand (QVNZ). This dataset contains Wellington properties classified as commercial and we use sale dates from 1998 to June 2015.

We use a second dataset, from WCC, that contains a list of currently declared earthquake-prone buildings. We also have historical status for those buildings regarded as earthquake-prone in the past, but have already been taken off the list (for example because they have been remediated), as well as access to some additional variables not included in the public version of the data. However, we have no data on the assessed degree of code compliance of each building (other than whether it is above or below one-third of compliance).

RESULTS

The earliest earthquake-prone notice in our dataset is from 2006. Over 80% of all notices issued by WCC occurred after the first Canterbury earthquake.

Between 1998 and June 2015, there were 832 sales of commercial buildings in Wellington. 16 were properties classified as earthquake-prone at the time of the sale, and 132 properties were sold that were subsequently declared earthquake-prone.

In the post-earthquake period 14 earthquake-prone buildings were sold and 14 buildings that were subsequently declared earth-quake prone were sold. Thus we do not have large sales numbers with which to identify the price effects; conversely, any significant effects that are found will be in spite of these small numbers.

Our findings all control for the broader macroeconomic environment (including the global financial crisis). They indicate that, after the Canterbury earthquakes, buildings declared earthquake-prone prior to the time of sale experience a statistically significant reduction in sale price. Within the CBD, the implied sale price discount for being declared earthquake-prone is estimated to average 44.6%. This means the average value of a commercial building in the CBD is almost halved if it receives a legally binding earthquake-prone declaration. Discounts on specific buildings will vary around this average level, reflecting a number of factors such as costs of remediation and the nature of existing rental agreements. The estimated discount across the wider Wellington area for commercial properties is an average of 25.5%.

Following the earthquakes, we also find a significant increase in the probability of sale of a declared earthquake-prone building, especially in the CBD.

Existing owners may be forced sellers who have no option but to accept a highly discounted price on their buildings or they may simply be maximising their (discounted) return by selling to another party who is better placed to remediate the building.

Buildings subsequently declared as earthquake-prone are slightly less likely to be sold following the earthquakes, with the effect being more pronounced in the CBD than in the suburbs. These buildings do not yet face the legal requirement for remediation and so the same imperative for forced sale does not exist. Instead, caution regarding older (potentially earthquake-prone) buildings amongst some potential purchasers may reduce the probability of sale for these buildings.

SUMMARY

There are few studies that examine impacts of a disaster on the property market outside of the area affected by the disaster and, as far as we can find, no studies of these impacts specifically for commercial buildings. This may well be because of the difficulty in compiling appropriate datasets to examine potentially disaster-prone commercial buildings. The assistance of public authorities in the compilation of our dataset has enabled us to initiate work in this area.

The process of declaring a building to be earthquake-prone (especially in the CBD) appears to crystallise the risk and/or costs (including foregone rental costs) associated with an earthquake-prone building in a way that a private engineering assessment at time of purchase does not.

This is a surprising result that we conjecture may be driven by two possible factors. The first factor may be that some buyers are naïve in purchasing commercial buildings and face a winners curse in being the preferred buyer of a building that has no current legal status of being earthquake-prone. More informed buyers would offer a lower price and so do not become the successful purchasers. A second factor may be that engineering assessments differ in their assessment of earthquake-risk and buyers who purchase future-declared earthquake-prone buildings instead believe that the prospective purchase lies above the minimum required standard.

We make no judgement as to whether the Council's declarations are accurate or warranted. Nevertheless, our results make clear that these declarations have a considerable impact on the commercial property market.