

Business Resilience and Recovery following the Canterbury Earthquakes

Patterns of demand

Results Bulletin 2018-4

Findings from a survey of 206 organisations in the Greater Christchurch Urban area in mid-2016.

Question

What patterns of demand for goods and services were experienced in the five years following the Christchurch earthquakes?

Findings

All survey respondents experienced one of eight *patterns of demand* in the five years following the earthquakes. Organisations that experienced no change, initial decrease followed by a steady increase or sustained increases in demand were statistically more likely to experience better recovery outcomes (60% of businesses) than businesses experiencing more challenging demand changes. Recovery was measured by a self-assessment that business *was as strong as before the earthquakes* or *Thriving* (See Approach section below for continuum of optional classification). Three challenging patterns include a slow return to pre-quake demand levels, volatile demand or a permanent decrease in demand, and were associated with those who had not yet reached a state of recovery or better (40% of organisations). One pattern was found to be neither significant with neither *recovery* nor *yet to recover* status.

Results

Figure 1 and Figure 2 provide conceptual representations of the patterns of demands observed with the percentage of survey respondents experiencing this pattern in brackets. The patterns contained in Figure 1 are considered favourable as they result in either no change, or an increase in demand for the businesses goods and services, after 5 years. Figure 2 contains patterns that are considered to be challenging for organisations in the context of recovery. In this study recovery is a self-assessment measure that business *was as strong as before the earthquakes* or *Thriving* (See Approach section below for continuum of optional classifications).

As illustrated in Figure 1, the most common pattern of demand, experienced by one in five, or 20% of respondents (n=41), was an initial *decrease then increase* above pre-earthquake levels. A similar proportion of respondents (18%, n=38) indicated experiencing *steady growth* in demand from pre-quake levels, without experiencing any loss. The other two patterns in Fig. 1 reflect demand that was unchanging; the first was *constant* over the periods of observation at the same level experienced prior to the quakes (21%, n=10). The other pattern was *immediate & sustained increase* in demand (12%, n=25), which was felt immediately and remained throughout the five years. Three of the four

patterns result in an increase in demand at year 5 and account for 50% of the organisations who participated in the study. All four patterns were significantly related to positive recovery outcomes five years after the earthquake ($\chi^2 = 77.707$; $p=.000$) and account for 60% of all cases.

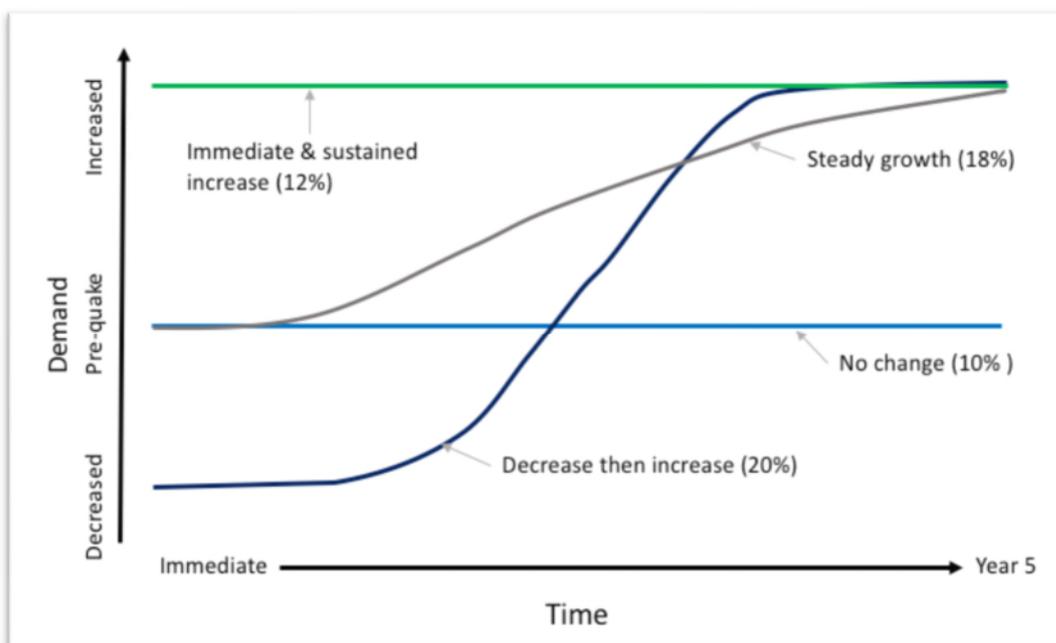


Figure 1: Favourable conceptual patterns of Demand (percent of respondents experiencing this demand pattern shown in brackets)

While 60% of Christchurch businesses and organisations experienced favourable patterns of demand the remaining 40% did not. Figure 2 contains three patterns that were significantly related to being not yet fully recovered five years on ($\chi^2 = 77.707$; $p=.000$) and one that was not found to be significantly related (dotted line). Patterns deemed *challenging* reflect drops, sluggish recovery or volatility. Around 9% ($n=18$) of businesses experienced *permanent decrease* of demand while a smaller proportion (4%, $n=9$) reported volatility over the five-year time period. In addition, 13% ($n=26$) of organisations experienced a *slow return* to pre-quake levels. The demand pattern represented by the dotted line, contains those who experienced a *Temporary increase* followed by a drop (14% of cases). However, this pattern was not found to be associated with either recovery (i.e. business returned to pre earthquake levels or better) or non-recovery five years after the disruption event. Combined, and including all patterns observed, 37% of businesses reported demand was at pre-quake levels at year five.

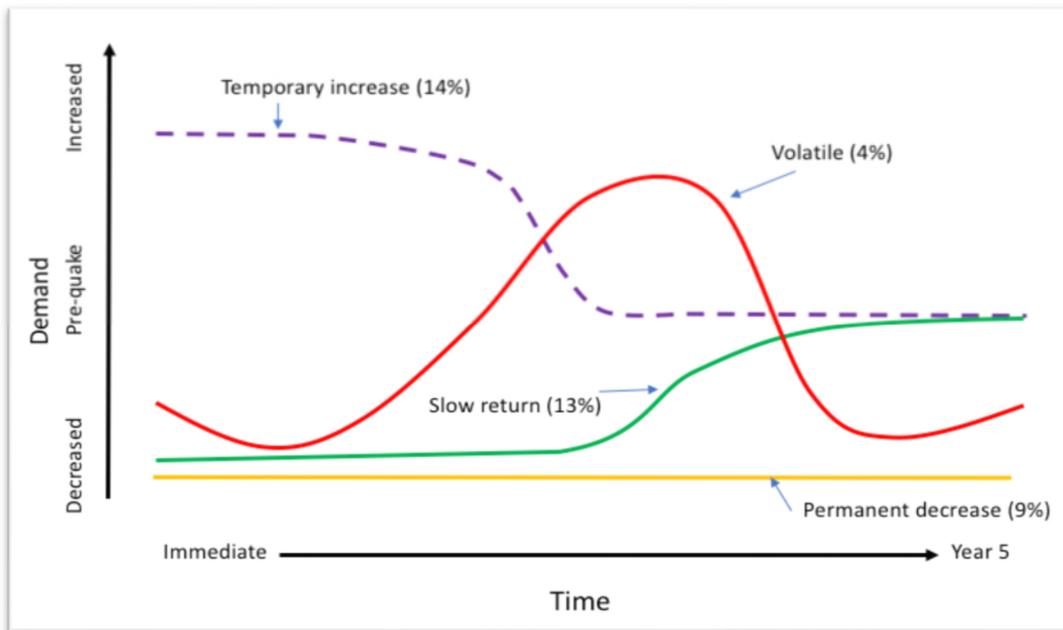


Figure 2: Challenging conceptual patterns of Demand (percent of respondents experiencing this demand pattern shown in brackets)

Dotted line indicates pattern of demand that is not significantly related to recovery status at

Approach

Data was gathered about recovery status using the following question:

Where on this continuum would you place your organisation at the following points in time since the 2010/11 earthquakes (please tick)?

Time since the earthquakes	Ceased Operation	Surviving: your business is focussed on doing what it takes just to survive	Recovering: your business has passed the survival stage, but it is not yet back to pre-earthquake	Recovered: your business is as strong as before the earthquakes	Thriving: your business is stronger than before the earthquakes
1 Year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 Years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 Years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 Years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 Years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Organisations that were deemed *recovered*, indicated they had returned to pre earthquake state, where business was as strong as before the quakes or *Thriving*. Those who were considered to be *not yet recovered* included those who indicated a status of *Recovering*, *Surviving* or *Ceased* operations.

Data was gathered about demand for goods and services in comparison to pre-quake levels using the following question:

Compared to the period prior to the 2010/11 earthquakes, how is the demand for your products or services? (please tick)

Time since the earthquakes	Greatly decreased more than -50%	Decreased between -6 to -50% %	About the same: between -5% and +5%	Increased between +6% and +50%	Greatly increased more than +50%
Immediately after	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Several months after	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1 year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2 years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3 years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4 years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5 years	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

All cases were classified into one of eight patterns of demand, based on the cumulative experiences of each participant over the five years of observation.

Limitations

The response options used were sufficiently general to enable retrospective assessment of the demand experienced by businesses and organisations. Nonetheless, the answers given will be subject to recall bias. Finally, the ordinal data gathered has some limitations in terms of analyses.

Citation

Sampson, K., Hatton, T., Brown, C., Seville, E., (2018) Business Resilience and Recovery following the Canterbury Earthquakes. *Survey 5 Results Bulletin 2018-4: Patterns of Demand*. Resilient Organisations, www.resorgs.org.nz