

# The Impact of the Canterbury Earthquakes on Small and Medium Enterprises

Adverse Events Longitudinal Study – Administrative Data Analyses



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# Executive Summary

Inland Revenue (IR) is interested in understanding the effects of the 2010 and 2011 Christchurch earthquakes<sup>1</sup> on Canterbury's small and medium businesses (SMEs). This report uses IR's administrative data to analyse the earthquakes' impact on SMEs' business activities and tax compliance behaviours.

Although the Canterbury region has experienced many aftershocks of considerable size, this paper uses the two significant earthquakes in September 2010 and February 2011 (the most destructive) as key events to investigate the impact of adverse events on SMEs.

The analysis of IR's administrative data about SMEs (existing, newly-registered, or closed in a particular year) in Canterbury revealed a number of findings.

## Brief increase in SME closures

In 2012, the period following the Christchurch earthquakes, there was a relatively brief increase in Canterbury's contribution to the number of SME closures in New Zealand. However, this decreased quickly in 2013.

## Increased number of new SMEs, driven by the Secondary industry sector

After the most destructive earthquake in February 2011, Canterbury's contribution to the number of new registered SMEs in New Zealand dropped briefly before rising. By 2013, Canterbury's contribution was the highest it had ever been in the data analysis time frame.

Industry sectors<sup>2</sup> in Canterbury were affected differently. Canterbury's contribution to New Zealand's

new SME registrations in the Secondary sector increased, but its contribution in the Tertiary sector declined.

Business divisions within industry sectors were also affected differently. In the Secondary sector, Canterbury's contribution to the number of new SMEs in Electricity, Gas, Water and Waste Services rose strongly in 2011 before gradually returning to its pre-quakes level. Canterbury's contribution to the number of new SMEs in Construction rose slightly in 2011 and sharply in 2012 before returning to its pre-quakes level in 2013. In contrast, Canterbury's contribution to New Zealand's new SME registrations in Manufacturing reduced after the earthquakes.

## GST turnover fell before rising higher than pre-quakes level

Canterbury's contribution to New Zealand's GST turnover of existing SMEs dropped immediately after the earthquakes in 2011, and then increased rapidly in 2012 and 2013 to be notably higher than predictions based on its pre-quakes level. The increase was mainly driven by existing SMEs in the Secondary and Tertiary sectors; within the Secondary sector, Manufacturing and Construction had the strongest increases.

GST turnover amongst Canterbury's new SMEs rose and became more volatile after the earthquakes. The increase was mainly due to newly registered SMEs in the Secondary sector. Within the Secondary sector, newly registered SMEs in Electricity, Gas, Water and Waste Services (particularly in 2011) and Construction (in 2012) were the main causes.

## Increased employment activity by existing SMEs

The Canterbury earthquakes had a positive impact on Canterbury's employment. Canterbury's contribution to the employment activity of New Zealand's existing SMEs had been reducing, but the trend reversed after the earthquakes. The change was driven by the Secondary sector in particular, the Construction industry. After the earthquakes, Canterbury's contribution to employment activity in the Primary sector began increasing slowly. In

<sup>1</sup> Major earthquakes timeline: September 4, 2010, 7.1 Magnitude; February 22, 2011, 6.3 Magnitude; June 13, 2011, 6.4 Magnitude; and December 23, 2011, 6.2 Magnitude.

<sup>2</sup> Industry sectors:

- Primary (Agriculture, Forestry and Fishing; Mining)
- Secondary (Manufacturing; Electricity, Gas, Water and Waste; Construction)
- Tertiary (Wholesale Trade; Retail Trade; Accommodation and Food Services; Transport, Postal and Warehousing; Information Media and Telecommunication; Financial and Insurance services; Rental, Hiring and Real Estate Services; Professional, Scientific and Technical; Administrative and Support Services; Education and

Training; Health Care and Social Assistance; Arts and Recreation Services; Other Services)

- Quaternary (Public Administration and Safety)
- Unknown (No sic code).

the Tertiary sector, the rate changed from declining to stable.

### Both filing and payment compliance reduced

After the earthquakes, the timeliness of GST return filing dropped to below the national rate. This was true both for Canterbury's existing and newly-registered SMEs.

Canterbury's existing SMEs in all three sectors had a marked reduction in on-time filing in 2011. The Tertiary sector had the largest reduction. The Primary sector was the only one not to show some improvement in on-time filing in 2013. For newly-registered SMEs, the reduction in filing compliance was greatest in the Tertiary sector.

The earthquakes had a strong, negative impact on the timeliness of GST payments from Canterbury's existing SMEs, but this returned to its pre-quakes level in 2012.

The timeliness of GST payments from Canterbury's new SMEs registered in 2011 reduced dramatically, but improved quickly for new SMEs registered in 2012.

### Tax debt increased

Canterbury's contribution to debt incurred by New Zealand's existing SMEs rose considerably after the earthquakes, but by December 2011, this had returned to its pre-quakes level.

The proportion of Canterbury's new SMEs incurring tax debt in the 2011 and 2012 cohorts was higher than the national average. This increased debt occurred in every industry sector. For new SMEs registered in 2012, those in Canterbury's Primary and Tertiary sectors are returning towards their pre-quakes tax debt levels, whereas new SMEs in the Secondary sector showed very little improvement.

### Qualitative research supports the analyses

IR's Year 2 research (2013)<sup>3</sup> supported many of the results of the quantitative analyses by offering insights into the reasons for the changes observed. Findings relevant to this paper include factors enabling Canterbury's SMEs' recovery after the earthquakes and factors hindering their recovery. The enabling factors include the government's wage subsidy, SMEs' own proactivity and levels of resilience, and SMEs with a branch outside the region. The hindering factors include ambiguity about the roles and responsibilities of parties involved in the rebuild, insurance issues, and other financial difficulties.

It is noted that, before returning to 'business as usual', SMEs can enter the following stages:

- Not trading (immediately after the event);
- Surviving (trying to balance irregular income, tax debt and other pressures);
- Stagnating (unable to grow their business further);
- Recovering (regular operation has been re-established);
- Booming; and
- Recovered/Stabilised.

Two years on, Canterbury's SMEs are still represented in each of these stages. Interviewees believe it will take another three years for those SMEs currently in the Surviving and Stagnating stages to recover.

Regarding their on-time filing and payment of tax, the research shows that this was hampered by the damage to premises and records, and individuals' personal injury and trauma.

Filing and payment compliance began to improve later in 2011 and in 2012. While some SMEs set up payment arrangements with IR, others continued, intentionally or unintentionally, to deprioritise their tax obligations. This may be due to the stage of recovery they were in – for example, SMEs earning a regular income are more capable and likely to pay tax than those with irregular income. A corollary of this is the leniency IR showed SMEs after the earthquakes. Some stakeholders interviewed believe this "has become unhelpful to those SMEs that do not feel a sense of urgency to become compliant" and that "IR needs to return to BAU now and apply its practices of educating, investigating, following up, auditing and prosecuting. This will not only help SMEs return to better compliance levels, but also help decrease hidden economy activities" (Inland Revenue & Colmar Brunton, 2013, p.8).

<sup>3</sup> Inland Revenue's National Research & Evaluation Unit commissioned Colmar Brunton, a market research company, to undertake in-depth interviews with key stakeholders as part of Year 2 of this longitudinal research programme.

# 1. Introduction

The Christchurch earthquakes in September 2010 and February 2011<sup>4</sup> have had far reaching social and economic consequences. This research forms part of Inland Revenue's longitudinal study on the impacts of the Christchurch earthquakes on the business activity and tax compliance behaviour of SMEs. This includes any long term implications of the earthquakes on revenue collection.

A responsive tax regime is recognised as an important building block in re-development after an adverse event. To this end, IR has put in place a programme of assistance and communications targeted at businesses affected by the earthquakes. IR wants to understand the new 'normality' for Christchurch SMEs and the effectiveness of its response following the earthquakes. This will inform IR when responding to any future disasters.

SMEs are of prime importance in the economic redevelopment of the Canterbury region. The SME community is also of particular interest to IR because a large proportion of New Zealand's total tax debt is owed by SMEs and they are a key element in the hidden economy. In relation to the latter, IR is cognisant of the possibility of new norms about the acceptability of non-compliance behaviours that could influence SMEs exposed to hidden economy opportunities during the recovery and rebuild phase following the earthquakes.

SMEs are far from a homogenous group. As a population, SMEs are diverse in terms of a range of business and industry characteristics as well as their attitudes and practices related to financial management and tax compliance.

Likewise, anecdotal evidence suggests that the earthquakes have affected the viability of SMEs in different ways. While some businesses have not survived the earthquakes others have experienced improved viability, with new earthquake recovery and rebuild contracts leading to employing additional staff

and higher streams of income. However, IR's initial review of the literature suggests that smaller businesses find it more difficult (Webb et al, 1999; Kroll et al, 1991; Powell, 2010). SMEs have fewer resources to prepare for disasters (e.g., they are more likely to be underinsured) (Powell and Harding, 2010). Recovery can also be hampered by a heavy reliance on discretionary spend, sustaining structural damage, and the failure to comply with regulations (Stevenson et al, 2011).

The aim of analysing and monitoring IR's administrative data is to understand the impacts of the Christchurch earthquakes on Canterbury's SMEs' business activities and tax compliance. The methodology is in Chapter 2, and the results are in Chapters 3 to 6.

<sup>4</sup> Although the Canterbury region continues to experience aftershocks, and some of considerable size, this analysis uses the two significant earthquakes in September 2010 (the first the area had experienced) and February 2011 (the most destructive) as key events to investigate the impact of adverse events on SMEs.

## 2. Methodology

This analysis of IR's administrative data aims to understand the impacts of the September 2010 and February 2011 Christchurch earthquakes on the business activities and tax compliance of SMEs in the Canterbury area.

This chapter outlines the methodology selected. Key definitions of the terms used in this report are detailed in Appendix A.

### Research questions

There were three research questions:

- A. What did 'normality' look like for Canterbury's SMEs prior to the earthquakes, and how can we recognise this normality?
- B. What changed for SMEs after the Christchurch earthquakes, and how can we identify those changes?
- C. How long has it taken for SMEs to restore some normality, how does this 'new normality' compare with their 'pre-quake normality'?

These three questions are about measuring the 'normality' of Canterbury's SMEs' business activities and compliance behaviour before and after the earthquakes. We can, therefore, understand what impacts the earthquakes had on SMEs, and the length of these impacts. This analysis was done only two years after the earthquakes, hence we do not have enough data to identify the length of their impact in some areas. This is, however, a longitudinal study designed to monitor the impacts for a further one to three years to assess longer-term impacts.

### Measures

Nine specific measures were identified to answer the three research questions:

- Number of SME closures
- Number of new SME registrations
- Existing SMEs' GST filing and payment compliance
- New SMEs' GST filing and payment compliance
- Existing SMEs' GST turnover

- New SMEs' GST turnover
- Existing SMEs' employment
- Existing SMEs' debt
- New SMEs' debt

### SME groups by status, location, and time

In these measures, three different SME groups are analysed:

1. 'Existing SMEs' (active on 4 September 2010 when the first earthquake occurred).
2. 'Closed SMEs' (ended their GST registration in each return period).
3. 'New SMEs' (newly registered in each return period).

At the national level, data on these groups of SMEs were available by District Office (DO) and industry categories.

These measures are impacted by many other factors other than the earthquakes (the global economic recession, New Zealand's international trading agreements, and the increase in GST from 12.5% to 15% in Oct 2010). In addition, the population base of existing SMEs is based on those still existing in September 2010. Therefore, pre- and post-earthquake measures of values cannot simply be compared to identify the earthquakes' impacts.

Based on the assumption that these New Zealand-wide factors affect Canterbury's SMEs and national SMEs similarly, most of the analyses use Canterbury's contribution to New Zealand's figures, (including Canterbury). In a few cases we compare Canterbury to the rest of New Zealand (excluding Canterbury). This establishes pre-normality and identifies the earthquakes' impacts.

All SMEs in the Canterbury area were identified by using District Office 10 (Canterbury DO). The majority (88%) of Canterbury DO registered companies and 86% of individuals were physically located in the area covered by the Canterbury DO. Since we are comparing SMEs in different periods, before and after the earthquakes, the small number of SMEs and individuals not physically located in the Canterbury DO area had only a minor impact on our analysis.

'Existing SMEs' only included SMEs that existed prior to 2010 and were still active on 4 September 2010 (the date of the first earthquake). If they had existed but closed prior to this date, they were not included.

By excluding SMEs that closed prior to 4 September 2010, our total number of SMEs in each year prior to the earthquakes will be lower than the true number of SMEs actually present. This also means that, in comparison to the true yearly SME totals, our total number of SMEs for earlier years is lower than for later years, with our 2009 total being the closest to the true total of SMEs existing that year. This is the main reason for using Canterbury's SMEs' *contribution* to New Zealand's SMEs' figures for some analyses rather than simply measuring Canterbury's SMEs' figures alone. The other reasons include the global economic recession, New Zealand tax policy changes, and other factors that can affect both the national number of SMEs and their business activity (business turnover and employment).

Please note, while the changes in Canterbury's contribution to the national measures appear small, a change of 1% in Canterbury's contribution to New Zealand's total signals a change of approximately 10% for Canterbury.

'Normality' is what SMEs' business activity and compliance looked like prior to earthquakes, and indicates what to expect in subsequent years if the earthquakes had not occurred. Subsequent comparisons with normality show the earthquakes' impacts. In this analysis, two aspects of normality were analysed; business activity (specifically: closures, registrations, GST turnover, and employment), and tax compliance (GST filing and payment compliance, tax debt).

### Industry sectors and business divisions

SMEs can be categorised by five industry sectors (Primary, Secondary, Tertiary, Quaternary, and 'Unknown') and by 17 business divisions. The Quaternary Sector was excluded from this analysis. It had few entities, only included one business division (Public Administration and Safety), and was, therefore, not comparable to the other industry sectors.

Fourteen percent of SMEs were classified as the 'Unknown' sector as they no industry group code was recorded for them. The 'Unknown' group was included in the data but the analysis was not included in this report because it was dominated by Tertiary sector SMEs.

### Tax year

The data was collected in the middle of March 2013, therefore the January 2013 GST return is the latest return filed.

All years are tax years in this analysis.



### 3. SME closures, and new SMEs

Adverse events disrupt the usual business environment; they affect existing businesses' operation – sometimes to the point of forcing them to close – and they affect the viability of starting new businesses.

A model of the different stages of recovery following an adverse event was developed from in-depth interviews with businesses and stakeholders (Inland Revenue & Colmar Brunton, 2013). Before returning to 'business as usual', SMEs can enter the following stages:

- Not trading (immediately after the event);
- Surviving (trying to balance irregular income, tax debt and other pressures);
- Stagnating (unable to grow their business further);
- Recovering (regular operation has been re-established);
- Booming; and
- Recovered/Stabilised.

The Christchurch earthquakes caused physical damage to many businesses and some, particularly those located in the central business district, were unable to trade in their premises; some re-located. Others lost stock in the earthquakes, and the supply chains and customer bases of most were affected. These and other factors were commented on in the Year 2 research (Inland Revenue & Colmar Brunton, 2013). For example:

*Obviously, there's been some loss of retail, permanent loss of retail, tourism and accommodation in particular, and those will come back over time. But that's been offset by booms in Construction, procurement, you know, supply chain kind of markets as the rebuild really kicks in.*

**(Interview 44)**

*I think the survivors did really well, most businesses, because there were fewer of them. There's less restaurants, there's less hotels, there's less accommodation, so everyone that is up and standing is doing really well and they still are. Rental properties, the only way you're going to bring that back is when you start building new restaurants and new things, get back into all the competition, but I think competition's gone.*

**(Interview 3)**

*Insurance. It just seems it's been such a nightmare. Delay, deny, defend is what they seem to be doing. Then there's reinsuring, which is so much more expensive.*

**(Interview 48)**

This chapter considers SME closures and new SME registrations in the Canterbury area as indicators of the economic effects of the Christchurch earthquakes.

## SME closures

One way to determine the impact of the earthquakes on SMEs in the Canterbury region is to consider the number of businesses that ceased trading. Figure 1 (overleaf) presents the Canterbury's contribution to the national number of SMEs closing each year.

There was a brief and strong increase in Canterbury's contribution to the number of SME closures in New Zealand in 2012. However, the percentage reached (11.3%) was only 0.1% higher than the previous peak in 2007. Looking at monthly figures (see Figure 2, overleaf) there had been a slow upward trend in Canterbury's monthly contribution to the number of New Zealand SME closures over the time frame of this analysis. Therefore, some caution is needed in assuming that the earthquakes caused the 2012 peak in closures. The earthquakes' impact on SME closures gets clearer at different industry levels (see Figure 3 overleaf).

Figure 1: Canterbury’s contribution to the national number of SME closures, 2002-2013

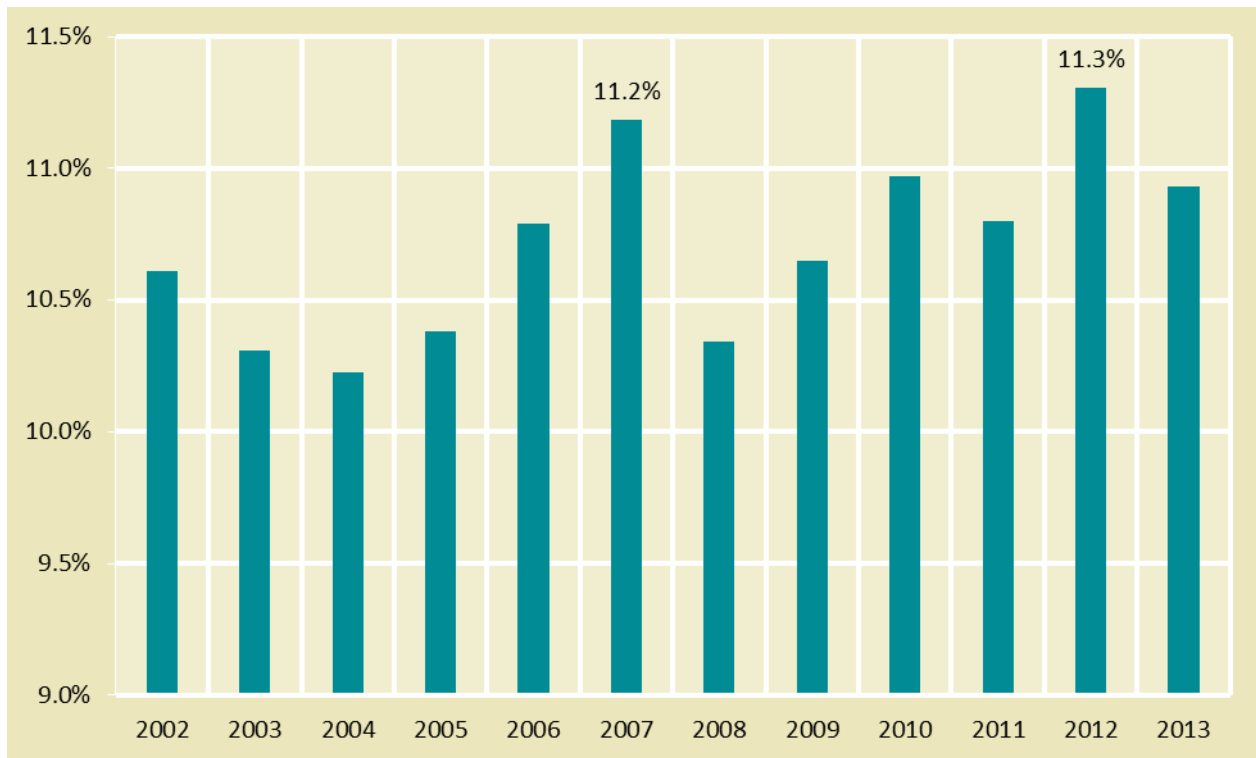
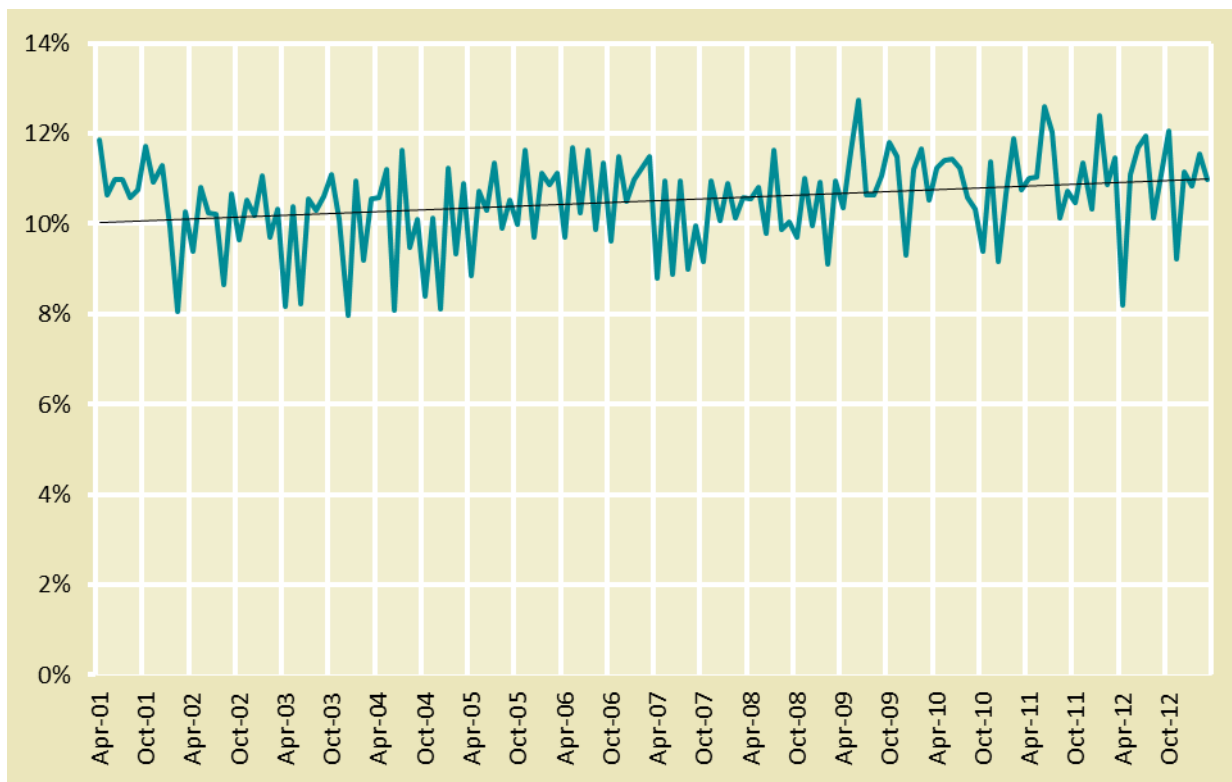


Figure 2: Canterbury’s contribution to the national number of SME closures, by month, 2001-201



**SME closures by industry sector**

Figure 3 (overleaf) illustrates the impact of the earthquakes on SME closure rates by industry sector.

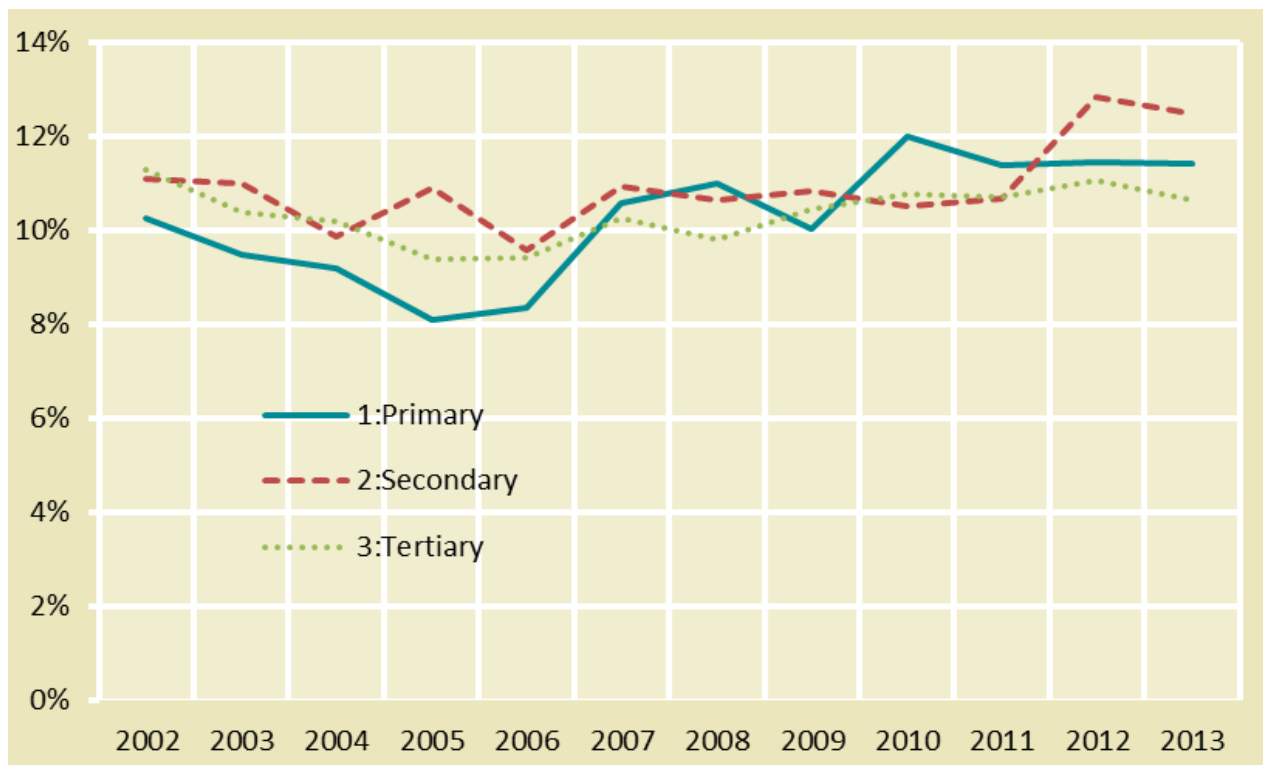
Canterbury’s contribution to the national number of SME closures in the Secondary sector increased after the earthquakes. This change was statistically significant, and was largely driven by SMEs in the Construction business division.

One reason for this change could be that small businesses closed in order to work for larger businesses or established new businesses that could obtain a rebuild sub-contract from Fletchers.

The Year 2 research (Inland Revenue & Colmar Brunton, 2013) explored the key issues affecting SMEs' recovery. Key issues affecting those in Construction and Manufacturing were:

- Increasing diversity within this sector: some SMEs are struggling to earn an income, while others are growing exponentially.
- Vertical rebuild not yet underway two years on: SMEs have no or limited income, but they have employed new staff and purchased equipment.
- SMEs in the residential and horizontal rebuild are growing rapidly: they earn and spend large amounts of money, without always having suitable administrative processes in place to handle these amounts.
- Slow decision-making for the rebuild: the 'start-stop' rebuild process affects SMEs' income streams and their ability to plan and manage workflow.
- Recruiting experienced employees: demand for experienced staff is larger than supply, which puts an inflationary pressure on wages to attract and retain staff.

Figure 3: Canterbury's annual contribution to the national number of SME closures, by industry sector, 2002-2013



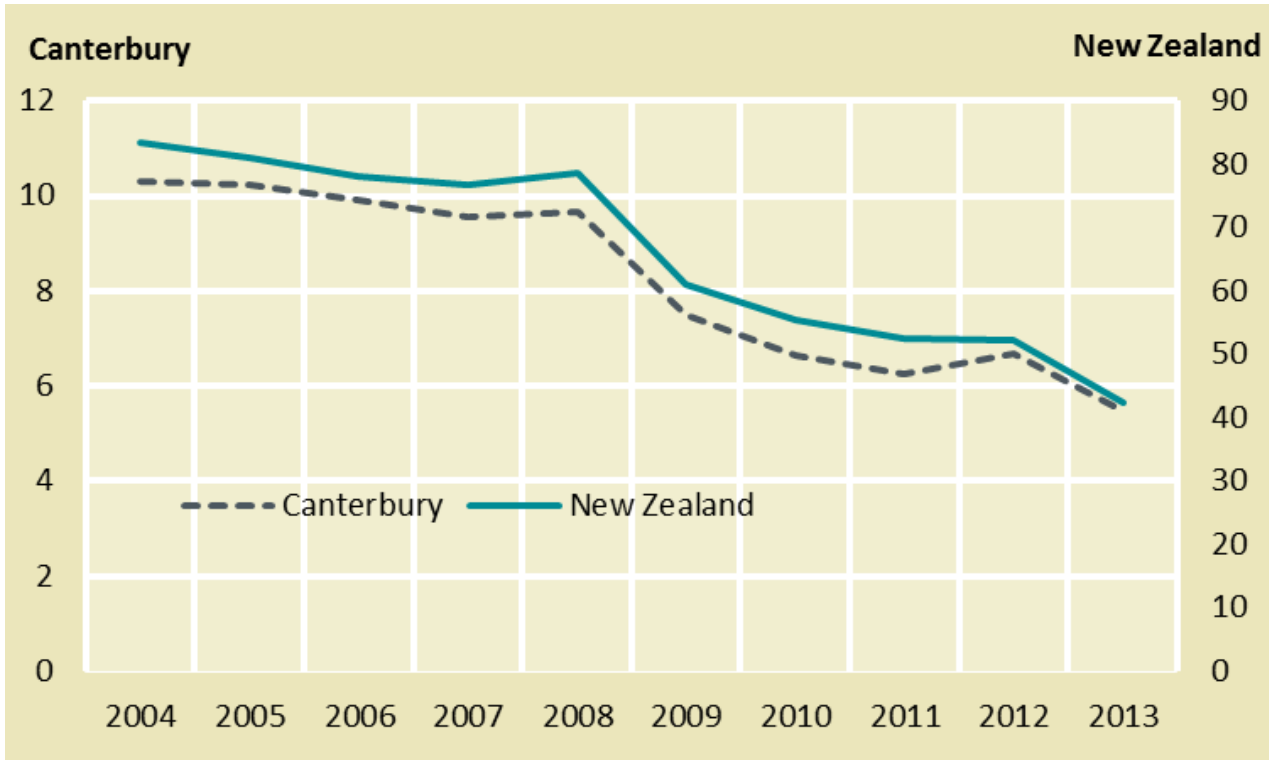
## New SMEs

Another way to determine the impact of the Christchurch earthquakes on SMEs in the Canterbury area is to consider the number of businesses which start trading.

As Figure 4 (overleaf) illustrates, the number of new SMEs registered in the Canterbury region appears to

follow the national pattern. Both show a declining trend (except for a slight increase in 2008); and registrations of new SMEs declined more rapidly after 2008, coinciding with the international economic recession.

Figure 4: The annual number of new SMEs (,000s), 2004-2013



However, Figure 5 (annual figures, shown overleaf) offers a different perspective. Before the Christchurch earthquakes (2004-2010), Canterbury had been contributing an average of 12.4% of all new SMEs in New Zealand annually.

After a small drop in 2011, following the second earthquake, the Canterbury’s annual contribution to New Zealand’s new SMEs rose sharply to 12.8% in 2012, and 13.0% in 2013.

These figures (12.8% and 13.0%) were outside the 95% confidence intervals (Table 1). They indicate that Canterbury’s proportion of new SMEs had a long term, stable increase after the earthquakes.

Table 1: Basic Confidence Limits for Annual Percentage Change Assuming Normality

Parameter	Estimate	95% Confidence Limits	
Mean	12.39%	12.17%	12.60%
Std Dev	0.23%	0.15%	0.52%

The monthly figures (Figure 6, overleaf) provide a clear picture of the resilience of Canterbury’s SME owners. In March 2011, the month after the most destructive

earthquake, Canterbury’s contribution to New Zealand’s new SMEs dropped briefly to 9.8% before rising again. By April 2011, the earthquakes started to have a positive impact on the number of new SMEs in the area.

An interviewee (Inland Revenue & Colmar Brunton, 2013) commented:

*It has provided a springboard for smart, innovative people to create their own companies. So, we’ve got quite a lot of individuals who might have been working for, say, Fulton Hogan or some of the bigger companies, who’ve gone out and created, started up their own company and are doing well out of it: minimal overheads, they have some good skills, and so there’s a great opportunity for companies like that. There’ll only be a handful of employees, but they’re maximising the benefits that they can get out of it, because of their knowledge of the local industry, plus contacts as well, I guess.*

(Interview 45)

Figure 5: Canterbury's annual contribution to the national number of new SMEs, 2004 -2013

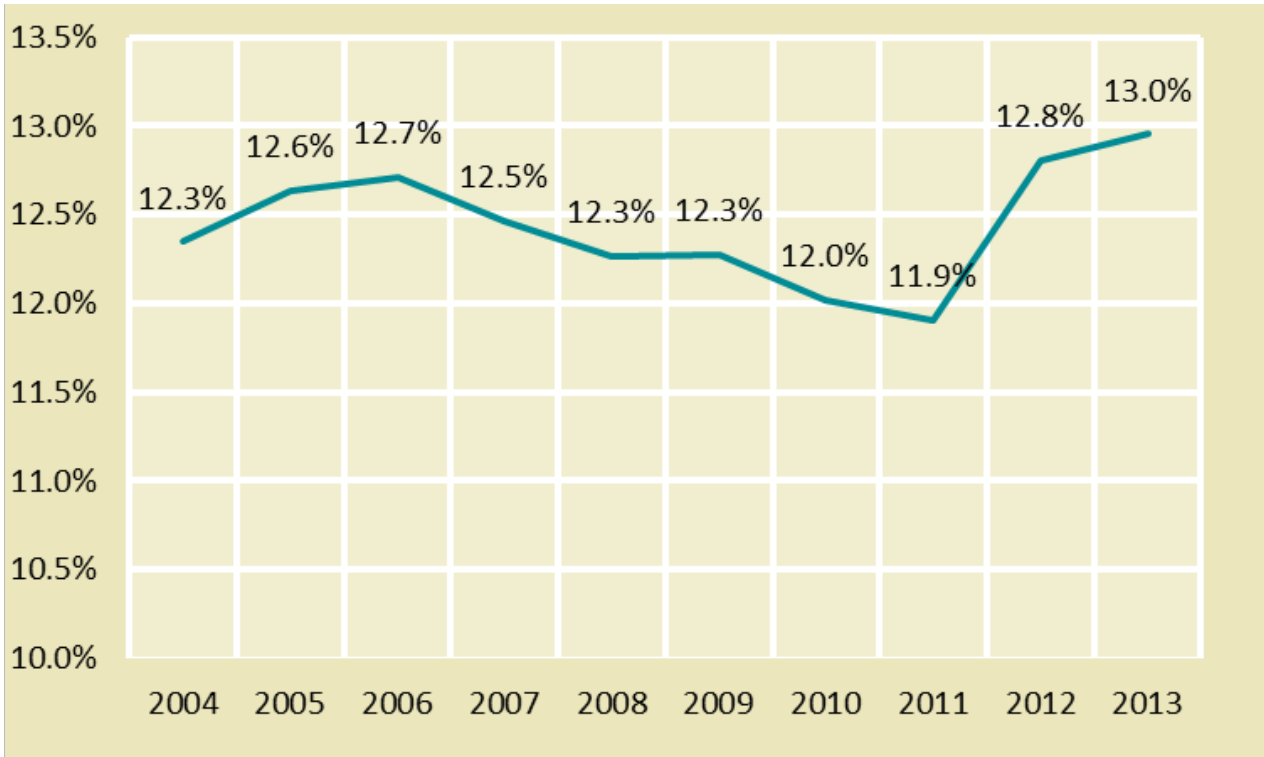
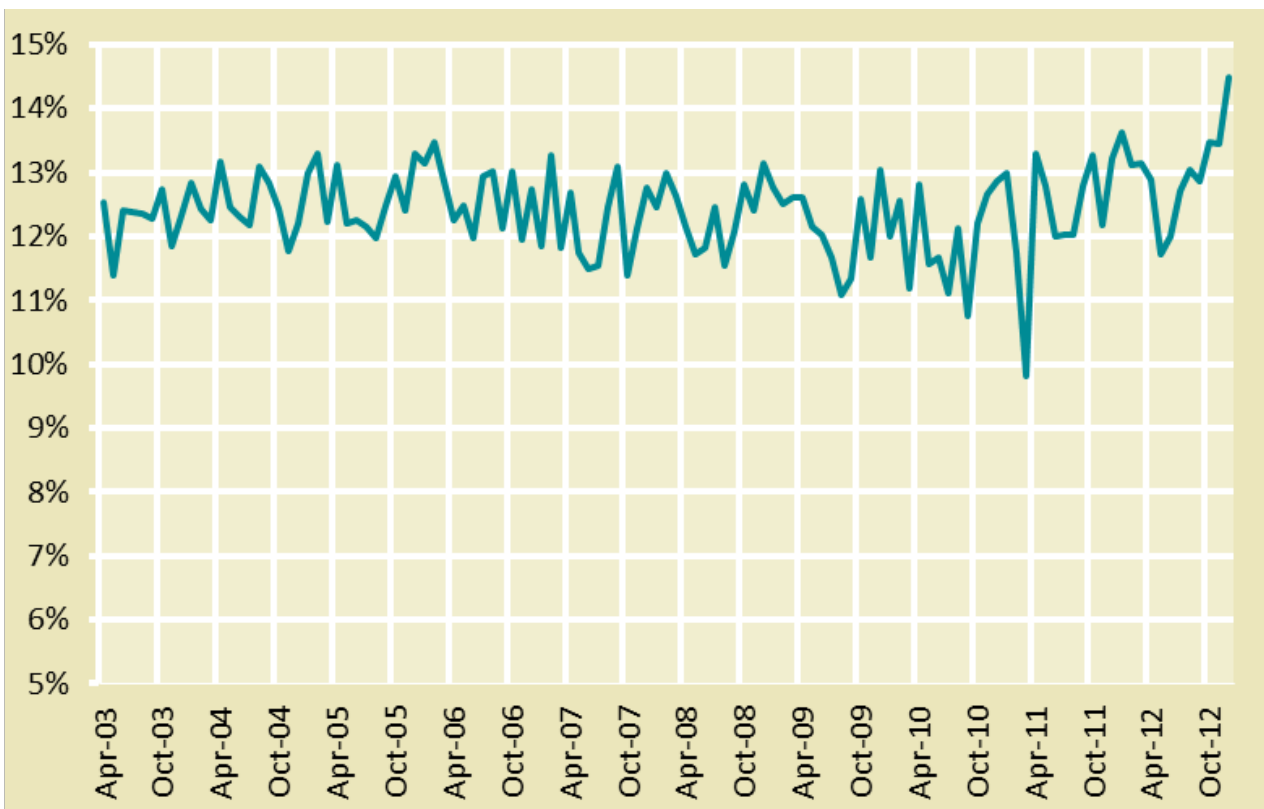
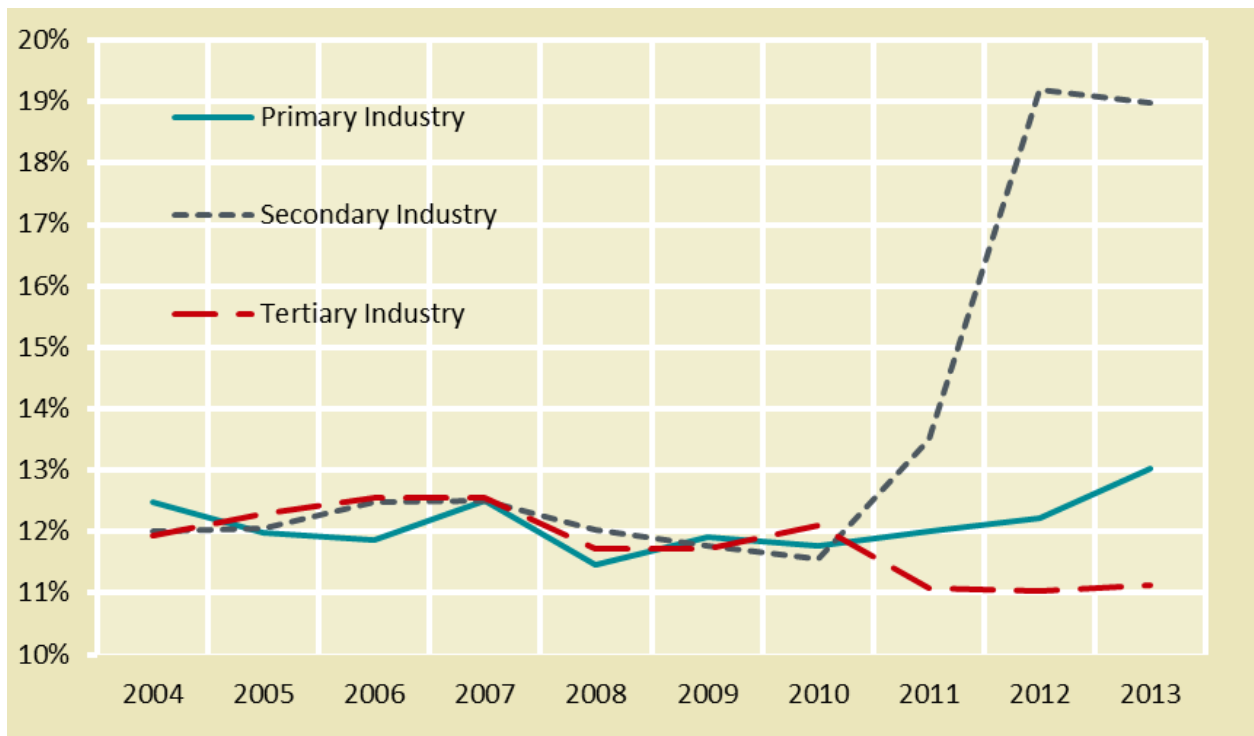


Figure 6: Canterbury's contribution to the national number of new SMEs, by month, 2003-2012



**Figure 7: Canterbury's contribution to the national number of new SMEs, by industry sector, 2004-2013**

### New SMEs by industry sector

Figure 7 (above) shows the proportion of new SMEs in Canterbury, in each industry sector.

From 2011, new SMEs in Canterbury's Secondary sector increased dramatically. The business divisions responsible for this spike in SMEs were the Construction and the Electricity, Gas, Water and Waste Services divisions.

Over 2010-2013, the number of new Canterbury SMEs in Construction almost doubled (see Table 4 in Appendix A). This is not surprising, given the substantial building work occurring in the region at that time.

The Electricity, Gas, Water and Waste Services business division had its highest increase in 2011 (see Table 4 in Appendix A). Within two years, this business division returned to normal. This pattern is not surprising since there was immediate demand for waste services to clear the earthquake debris, and quick reconnection of the other essential services.

The Canterbury's contribution to the number of New Zealand new SMEs in the Primary sector increased slightly from 2011, reaching its highest level in 2013. This may be due to the increase in demand for logs in the forestry sector for the Christchurch rebuild.

In contrast, the Canterbury's contribution to the number of new Tertiary sector SMEs reduced from 12.1% in 2010 to 11.1% in 2011. Although this is a reduction of one percentage point at the national level, it is effectively an

8.5% reduction in the region itself. Canterbury's contribution in this industry sector stays around that level in 2012 and 2013.

Some Tertiary sector business divisions had downward trends in 2011 and 2012 but increases in 2013 (for example, in Wholesale trade and in Accommodation and Food Services). The delay in their rise suggests these businesses complement those in the Primary and Secondary sectors. Several interviewees in the Year 2 research (Inland Revenue & Colmar Brunton, 2013) also touched on this observation, explaining that the two-year delay in rebuilding the city centre has affected these divisions. For example, the lack of foot traffic, the presence of roadworks, and multiple relocations in the period after the earthquakes has affected many SMEs' ability to operate their businesses. Others have re-established their businesses in other areas or increased their online operation to counter their lessened physical presence.

In addition, those cafes, restaurants, and bars still able to operate after the earthquakes have less competition (Inland Revenue & Colmar Brunton, 2013) and their success may drive individuals to launch other hospitality businesses.

Some of the other Tertiary sector business divisions had large one-off increases in 2012. For instance, Canterbury's contribution to the number of New Zealand new SMEs in Financial and Insurance Services increased by almost 5% and Rental, Hiring and Real

Estate and Professional, Scientific and Technical both increased by 2%.

This is in contrast to the perception of interviewees in the Year 2 research (Inland Revenue & Colmar Brunton, 2013) where the factors affecting SME’s recovery in the financial services area were slow decision-making about the use of land and whether to repair or demolish buildings; the cost of repairing, rebuilding and reinsuring property; and legislation that will tighten the current financial and taxation leniency.

In spite of the increases in 2012 and 2013, Canterbury’s contribution to the number of New Zealand new SMEs in most Tertiary sector business divisions remained below its pre-quake level.

**SMEs by industry sector business divisions**

The following three graphs illustrate the changes observed in Construction, Accommodation and Food Services, and the Financial and Insurance Services.

Due to the significant number of buildings damaged in the Christchurch earthquakes, activity in Construction is of interest. Figure 8 (below) presents Canterbury’s

contributions to the national numbers of SME closures and new SMEs in Construction. After the earthquakes, the proportion of newly-registered SMEs increased dramatically. A smaller rise in SME closures is also apparent.

In contrast, a different effect was seen in the Accommodation and Food Services industry. Figure 9 (overleaf) illustrates that Canterbury’s contribution to the national number of SME closures in this industry increased dramatically in 2012 before falling again in 2013 to a level similar to pre-quake. Canterbury’s proportion of new SMEs in this industry drops in 2011 and 2012, before increasing in 2013. Businesses in the Accommodation and Food Services industry are typically location-oriented; if their premises are unavailable – or their customer base shifts – they are more likely to close than businesses in other, more mobile industries.

As with the activity in Construction, Figure 10 (overleaf) shows that the rates of SME closures and registrations in Finance and Insurance Services follow the same pattern; both rise and fall at the same time. Businesses in this industry find it easier to relocate than those in hospitality, although they have similar customer bases.

**Figure 8: Canterbury’s annual contribution to the national numbers of SME closures and new SMEs in the Construction business division, 2004-2013**

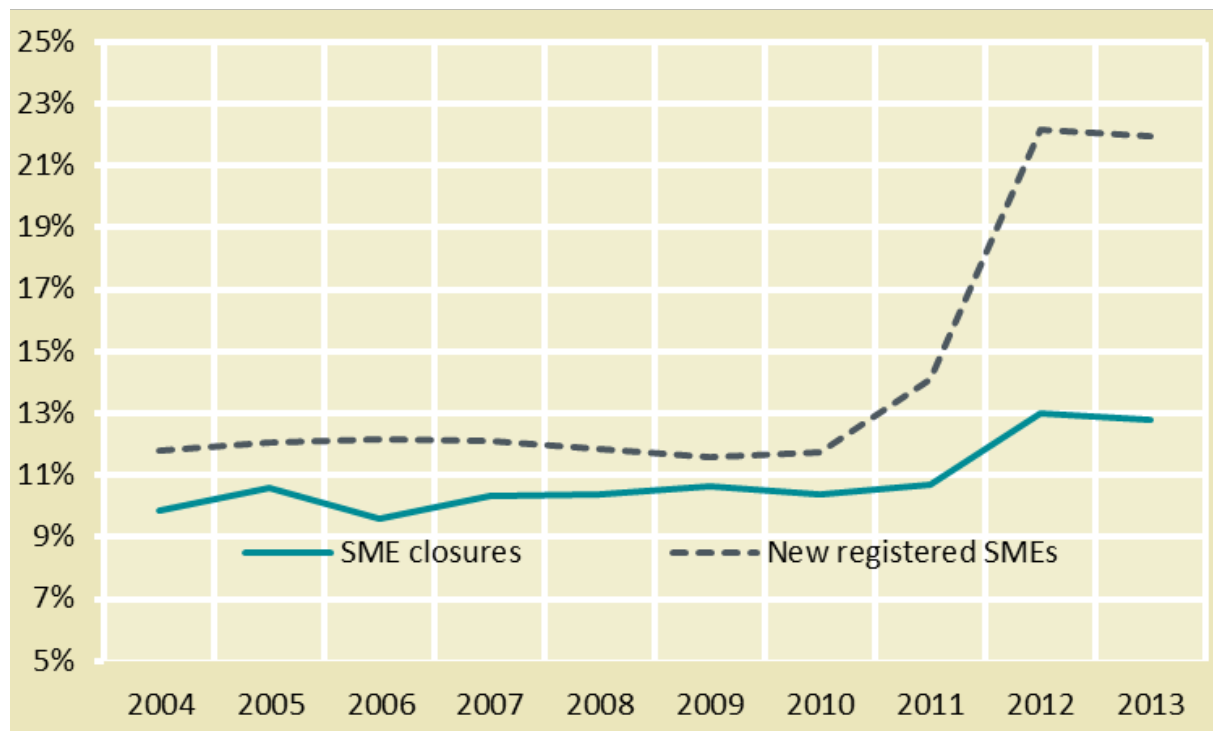


Figure 9: Canterbury's annual contribution to the national numbers of SME closures and new SMEs in the Accommodation and Food Services business division, 2004-2013

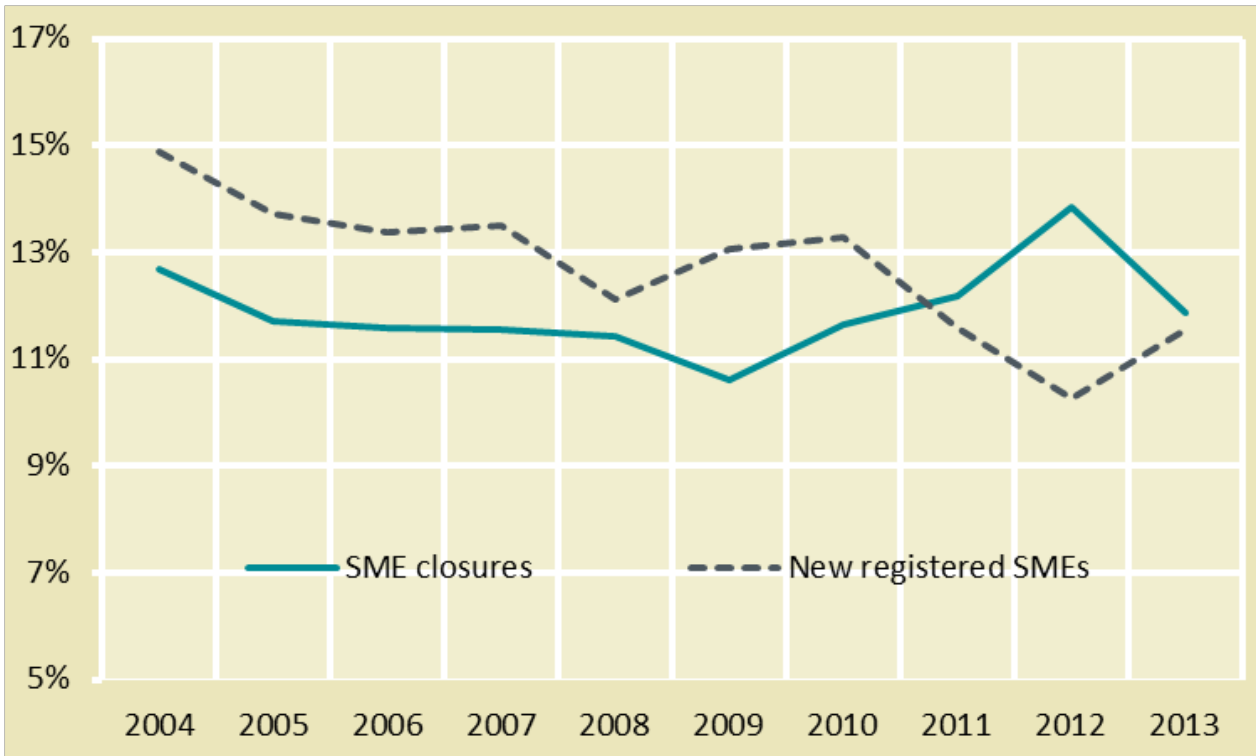
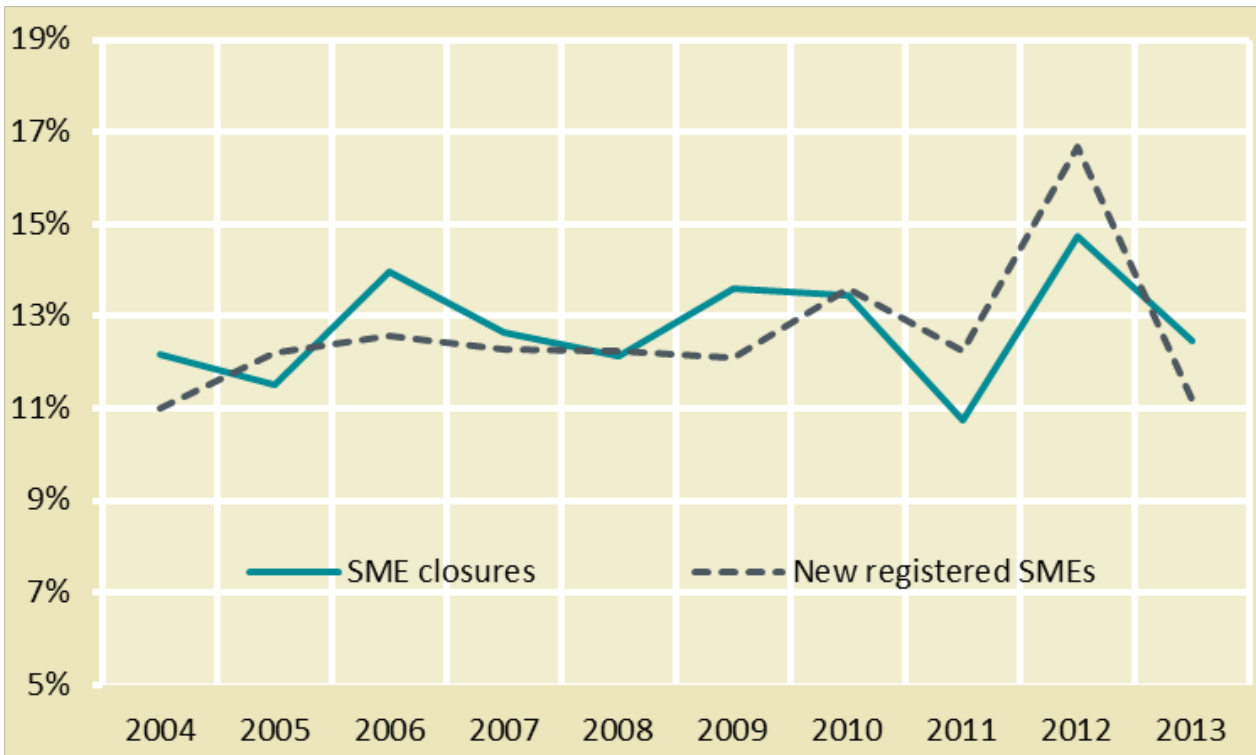


Figure 10: Canterbury's annual contribution to the national numbers of SME closures and new SMEs in the Financial and Insurance Services business division, 2004-2013





## Summary

The numbers of Canterbury's SMEs closing, and new SME registrations, are useful measures of the economic impact of the Christchurch earthquakes.

The Christchurch earthquakes caused a brief increase in Canterbury's contribution to SME closures and a sustained increase in contribution to the number of new SMEs in New Zealand.

Certain sectors and industries were affected more than others. Increases in Construction and Electricity, Gas, Water, and Waste Services were responsible for the spike in new SMEs in Canterbury's Secondary sector. There was a long-term and negative impact on the number of new SMEs in the Tertiary sector.

The following chapter considers the impact of the Christchurch earthquakes on SMEs' revenue, using GST turnover as a measure.

## 4. GST Turnover of SMEs

This chapter presents the results regarding the earthquakes' impact on the GST turnover of SMEs in the Canterbury region.

The analysis of the effect on the GST turnover of Canterbury's existing SMEs is presented first, followed by that of the new SMEs in the region.

### Existing SMEs' GST turnover

Before the Christchurch earthquakes (2001 to 2010), Canterbury contributed about 11.9% of New Zealand's existing SMEs' GST turnover (Table 5, Appendix A).

Figure 11 (below) shows the predicted and actual contribution of Canterbury's existing SMEs to the national amount of GST turnover for all existing SMEs in

New Zealand, from 2001 to 2013. The 'predicted value' is the estimate of Canterbury's contribution to the national figure if the earthquakes had not happened.

The immediate impact of the earthquakes can be seen in the 2011 tax year with a drop to 11.6% (from 11.8% in 2010); this is 0.3 percentage points lower than the predicted value. It is the lowest contribution over the entire period. However, Canterbury's contribution then increased rapidly in 2012 (to 12.5%) and in 2013 (to 13.1%), with the corresponding values 0.6 and 1.2 percentage points higher than the predicted value. This indicates a positive impact on existing SMEs' GST turnover after the Christchurch earthquakes.

Figure 11: Canterbury's SMEs' annual contribution to New Zealand's existing SMEs' GST turnover, 2001-2013

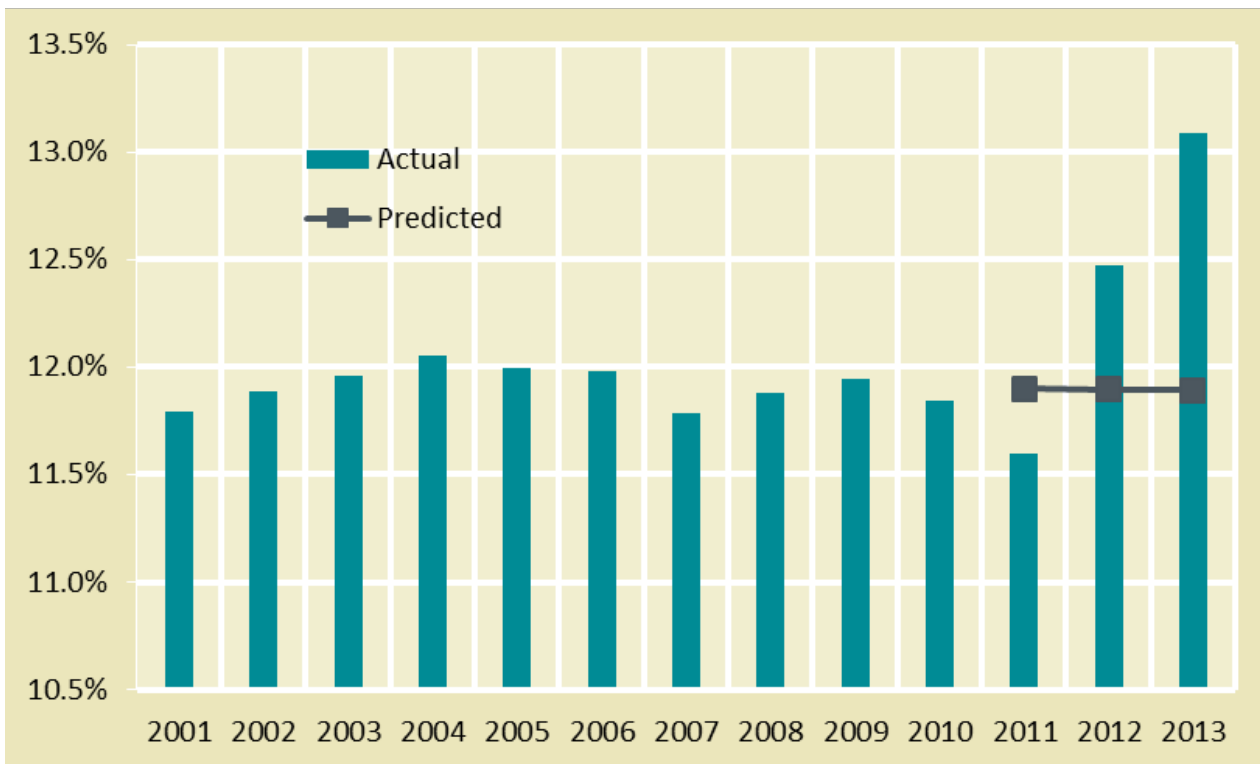


Figure 12: Canterbury's annual contribution to New Zealand's existing SMEs' GST turnover, by industry sector

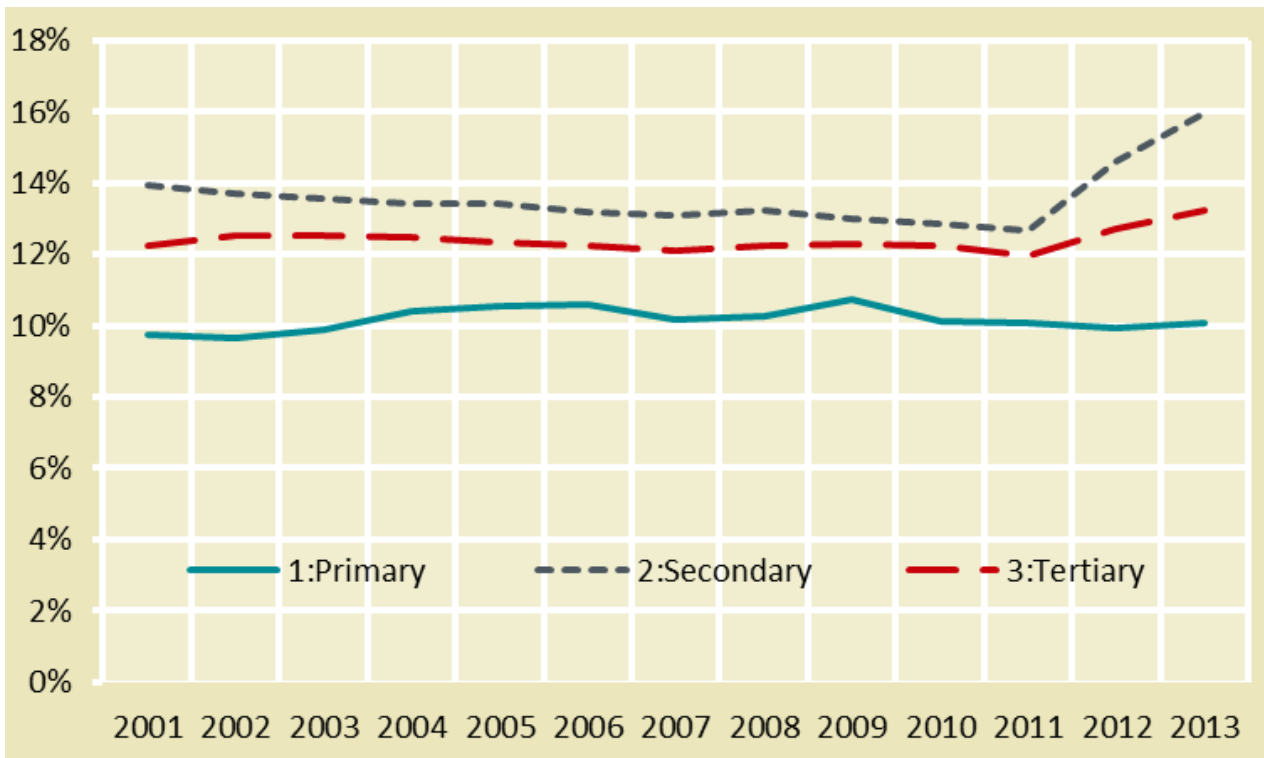
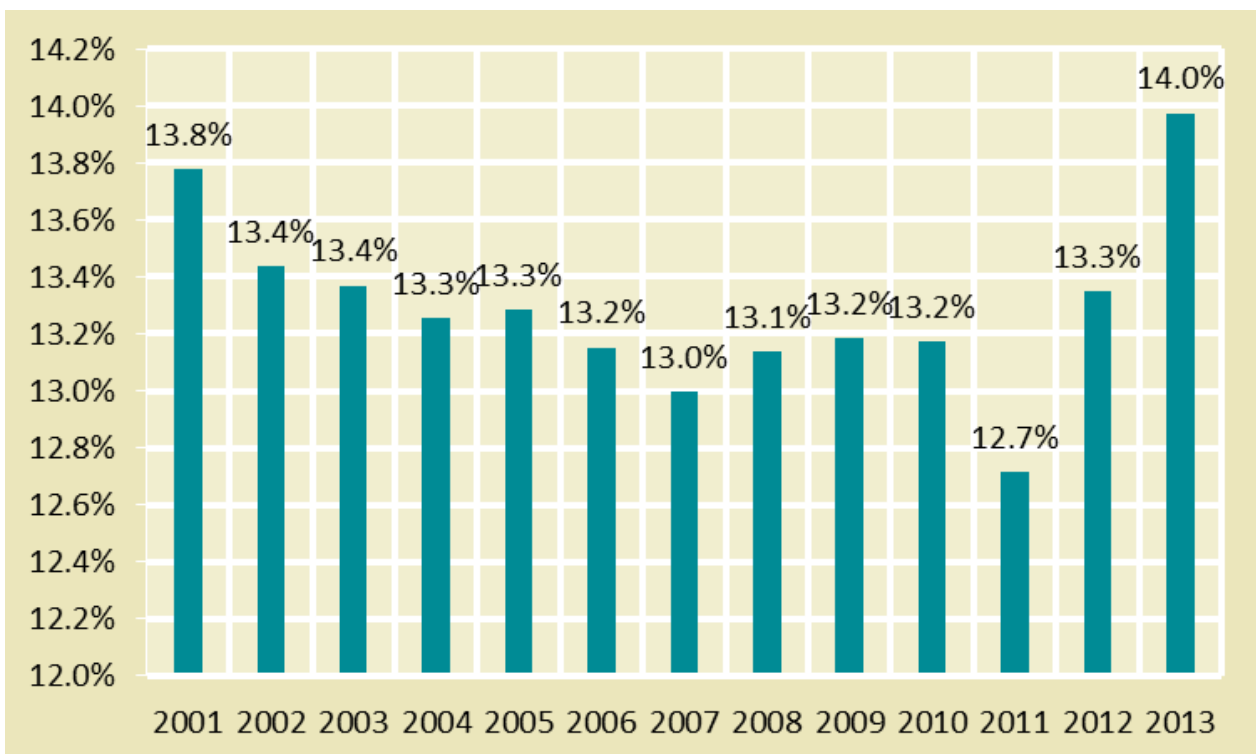


Figure 13: Canterbury's annual contribution to New Zealand's existing SMEs' GST turnover in Manufacturing



**Existing SMEs' GST turnover, by industry sector**

Figure 12 (above) shows Canterbury's contribution to New Zealand's existing SMEs' GST turnover from 2001 to 2013, by industry sector.

Canterbury's contribution in the Secondary sector decreased gradually between 2001 and 2011. At the same time, Canterbury's contribution in the Tertiary sector was relatively stable, with a slight drop in 2011. Both of these sectors were at their lowest point in 2011. Both sectors then had rapid increases in 2012 and 2013, reaching the highest levels in the past 10 years. This is most pronounced in the Secondary sector. In contrast, Canterbury's contribution in the Primary sector showed no marked change in 2012 and 2013, apart from becoming slightly more stabilised.

These results suggest that the increase in Canterbury's contribution was mainly driven by the Secondary and Tertiary sectors.

*Existing SMEs' GST turnover, by business division*

The effect of the Christchurch earthquakes also varied by the business divisions within industry sectors. The business divisions with the strongest patterns of change were Manufacturing; Rental, Hiring and Real Estate Services; and Construction.

Figure 13 (above) shows Canterbury's contribution to New Zealand's existing SMEs' GST turnover in the

Manufacturing business division. Canterbury's contribution dropped in 2011, then recovered in 2012, and reached the highest observed value in 2013.

These changes indicate that the Christchurch earthquakes had a negative impact on Canterbury's SME GST turnover for the Manufacturing business division immediately after the earthquakes, whereas afterwards there was a marked rise.

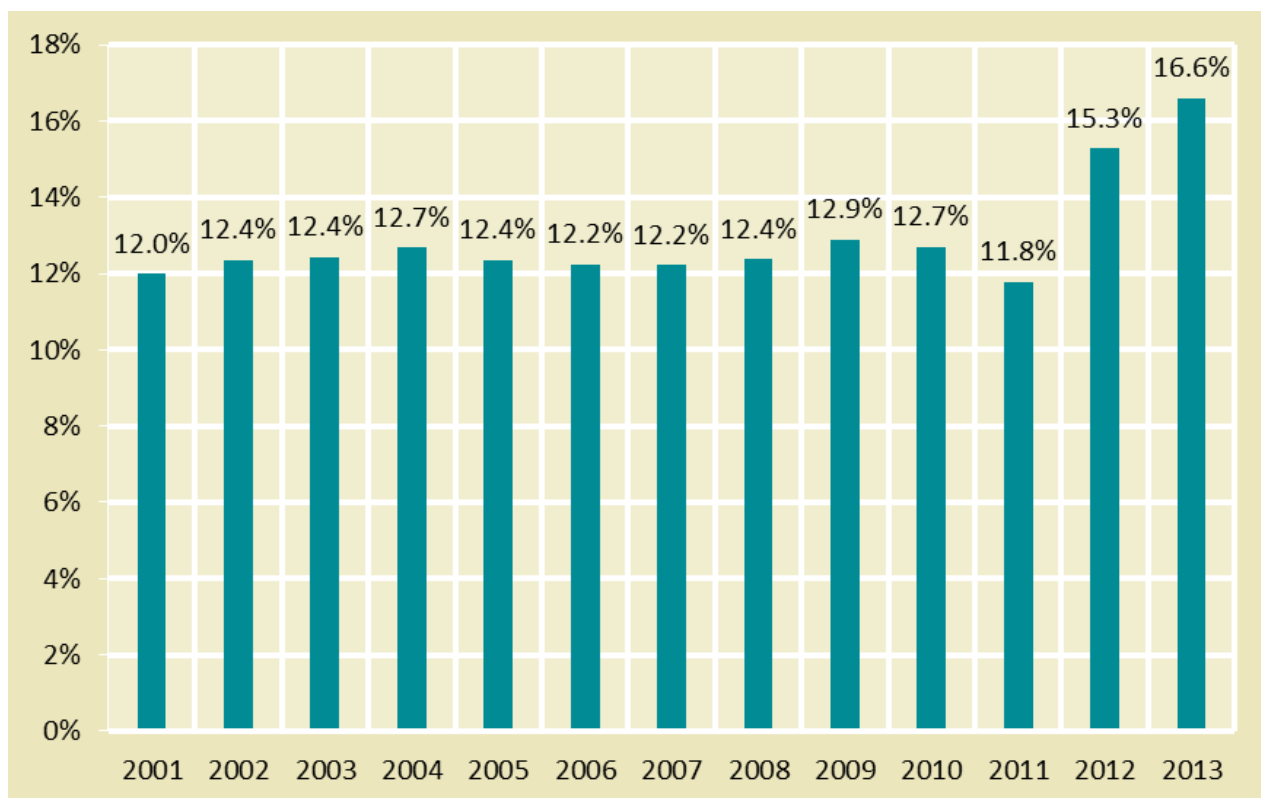
Figure 14 (below) shows Canterbury's contribution to New Zealand's existing SMEs' GST turnover in Rental, Hiring and Real Estate Services. Canterbury's contribution dropped slightly in 2011, then increased quickly in 2012, and reached its highest level in 2013.

Figure 15 (overleaf) shows Canterbury's contribution to New Zealand existing SMEs' GST turnover in the Construction industry.

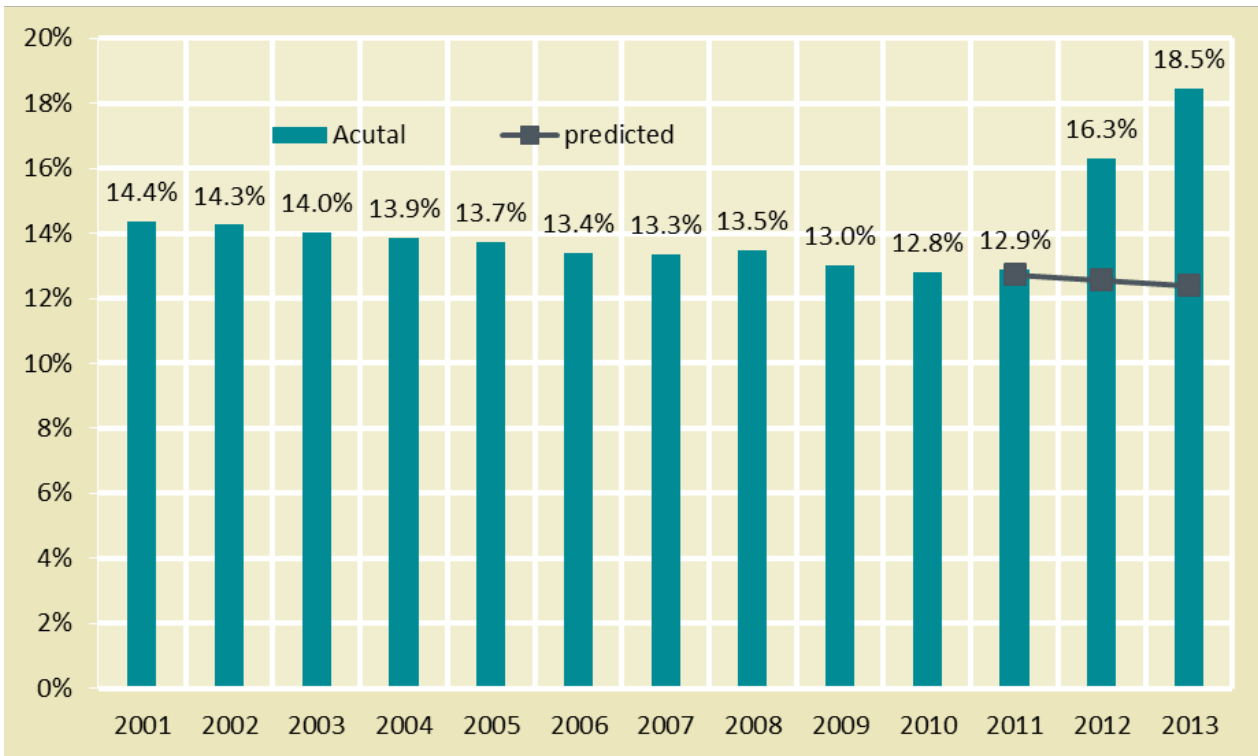
Canterbury's contribution trended downwards from 2001 to 2011 (from 14.4% to 12.9%). The contribution increased to 16.3% in 2012, which is 3.7 percentage points higher than predicted (12.6%). The contribution in 2013 was 18.5%, 6.1 percentage points higher than predicted (12.4%).

These results indicate that the earthquakes had a positive impact on GST turnover for Canterbury's SMEs in the Construction business division.

**Figure 14: Canterbury's annual contribution to New Zealand's existing SMEs' GST turnover in Rental, Hiring and Real Estate Services**



**Figure 15: Canterbury’s annual contribution to New Zealand’s existing SMEs’ GST turnover in the Construction industry**



## New SMEs’ GST turnover

The following analyses of the earthquakes’ impact on new SMEs’ GST turnover use registration periods of a year, quarter, and month. That is, a SME that registers in February 2009 will be counted in the February 2009 cohort of new SMEs, the March 2009 quarter cohort, and the 2009 annual cohort of new SMEs. For a new SME registered in February 2009, the next 12 months of GST turnover is totalled. The cohort’s overall GST turnover is calculated from the individual scores.

Figure 16 (overleaf) presents Canterbury’s contribution to New Zealand’s total number of newly-registered SMEs, and Canterbury’s contribution to this group’s GST turnover.

It is clear that Canterbury’s contribution to the overall GST turnover of all new SMEs is volatile. Canterbury’s contribution to the nation’s total GST turnover of new SMEs increased sharply from 2011, and continues to increase.

Figure 16 shows that Canterbury’s new SMEs’ contribution to New Zealand new SMEs’ *GST turnover* was generally about 1% lower than its contribution to the *total number* of newly registered SMEs in the period up to 2010. This indicates that, prior to the earthquakes, Canterbury’s newly registered SMEs had lower business turnover than New Zealand’s newly registered SMEs. In 2010, Canterbury’s figures reached the lowest level in 8 years.

Canterbury’s new SMEs’ contribution to New Zealand new SMEs’ GST turnover increased sharply from 2011. In 2013, for the first time, Canterbury’s contribution to GST turnover is higher than its contribution to the total number of New Zealand newly registered SMEs. This indicates that the earthquakes provided new business opportunities for new Canterbury SMEs registered after the earthquakes.

**Figure 16: Canterbury’s annual contribution to national figures of new SME registrations and GST turnover, 2004-2013**

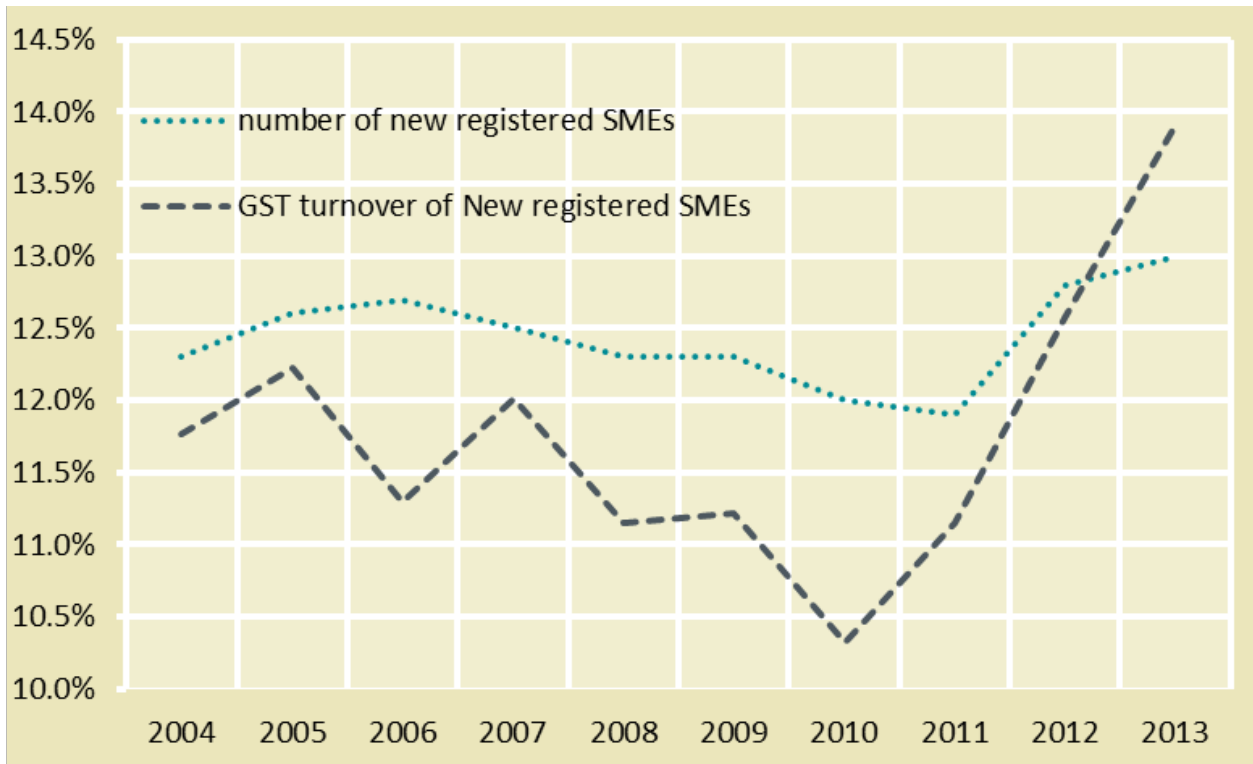


Figure 17 (overleaf) shows the percentage of Canterbury’s contribution to annual GST turnover of the nation’s newly registered SMEs between April 2003 and February 2012. Table 2 gives the overall variance in each of the three periods of interest – SMEs registered more than 12 months before the first earthquake (April 2003 to August 2009), SMEs registered just prior to the first earthquake (September 2009 to August 2010), and SMEs registered just after the first earthquake (September 2010 to February 2012).

The GST turnover of SMEs registered more than 12 months before the first earthquake (April 2003 to August 2009) show Canterbury’s past mean contribution to the GST turnover of New Zealand’s SMEs was 11.4%. This dropped 1.78 percentage points for new SMEs registered just prior to the first earthquake (September 2009-August 2010).

Canterbury’s SMEs registered just after the first earthquake (September 2010 to February 2012), had higher and more volatile levels of contributions to the GST turnover of New Zealand’s newly registered SMEs. For example, this period contains the top three contributions in the past 10 years.

The mean of Canterbury’s contribution for new SMEs registered between September 2010 and February 2012

is 12.97%, 1.6 percentage points higher than the previous period. The peak is in December 2010 with 21.4%, because these SMEs are in the repair industry and were registered after the first earthquake. The subsequent earthquakes provided these SMEs with additional business opportunities (such as damage repairs).

**Table 2: Canterbury's average contribution to New Zealand GST turnover for new registered SMEs**

Period when registered	Mean	Standard deviation	Maximum
SMEs registered April 2003-August 2009	11.40%	1.36%	15.10%
SMEs registered September 2009-August 2010 (just before first earthquake)	9.62%	1.30%	11.60%
SMEs registered September 2010-February 2012 (just after first earthquake)	12.97%	3.07%	21.40%

Figure 17: Canterbury’s monthly contribution to the GST turnover of all newly-registered SMEs, April 2003-February 2012

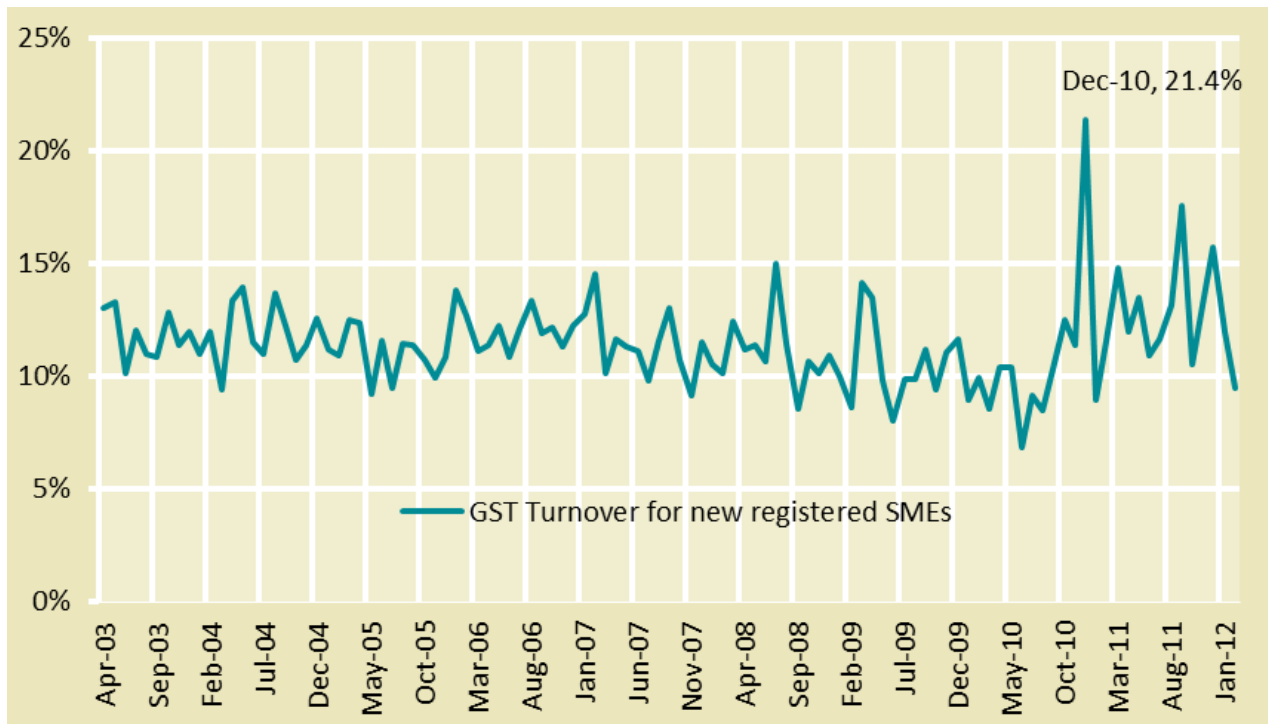
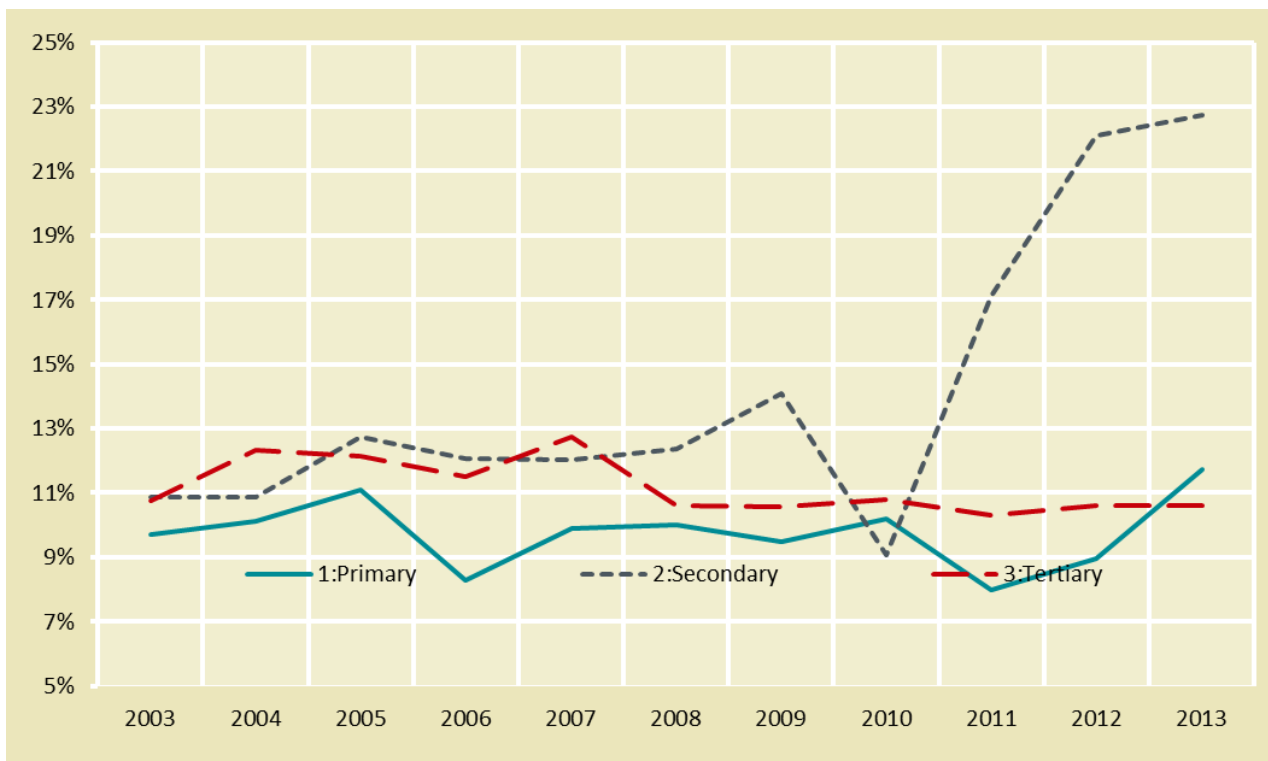


Figure 18: Canterbury’s annual contribution to the GST turnover of all newly-registered SMEs, by industry sector



**New SMEs' GST turnover, by industry sector**

Figure 18 (above) shows Canterbury's contribution to the GST turnover of the nation's new SMEs registered between 2003 and 2012 tax years, by industry sector.

The graph suggests that the increase in Canterbury's contribution was mainly caused by the increase in GST turnover by new SMEs registered in the Secondary sector.

The GST turnover of new SMEs in Canterbury's Tertiary sector dropped to 10.6% from 2008 and remained at this level, except for a small drop in 2011.

**New SMEs' GST turnover, by business division**

Figure 19 shows that not all business divisions in the Secondary sector were affected in the same way, or in the same year.

The 2011 increase in Canterbury's contribution to the total GST turnover of all New Zealand's new SMEs was mainly caused by an increase in Construction and Electricity, Gas, Water and Waste Services. The Construction industry was the main contributor as its dollar value and size is bigger than the Waste Services business divisions.

Electricity, Gas, Water and Waste Services only spiked in 2011, and quickly returned to the pre-quakes level. This suggests that there was a short peak in demand for these services after the earthquakes.

The 2012 increase in Canterbury's contribution to the nation's GST turnover of new SMEs was caused mainly by an increase in Construction.

The contribution of Canterbury's new SMEs in Manufacturing has been stable since its drop in 2010.

Figure 20 (overleaf) shows Canterbury's contribution to New Zealand's monthly GST turnover by new SMEs, in the Secondary sector.

The top seven monthly Canterbury contributions in the Secondary sector were made by new SMEs registered after the first earthquake.

Figure 21 (overleaf) shows Canterbury's monthly contribution to the New Zealand monthly GST turnover by new SMEs registered from April 2002 to February 2012 in Electricity, Gas, Water and Waste Services.

**Figure 19: Canterbury's annual contribution to New Zealand's new SMEs' GST turnover, by business divisions in the Secondary sector**

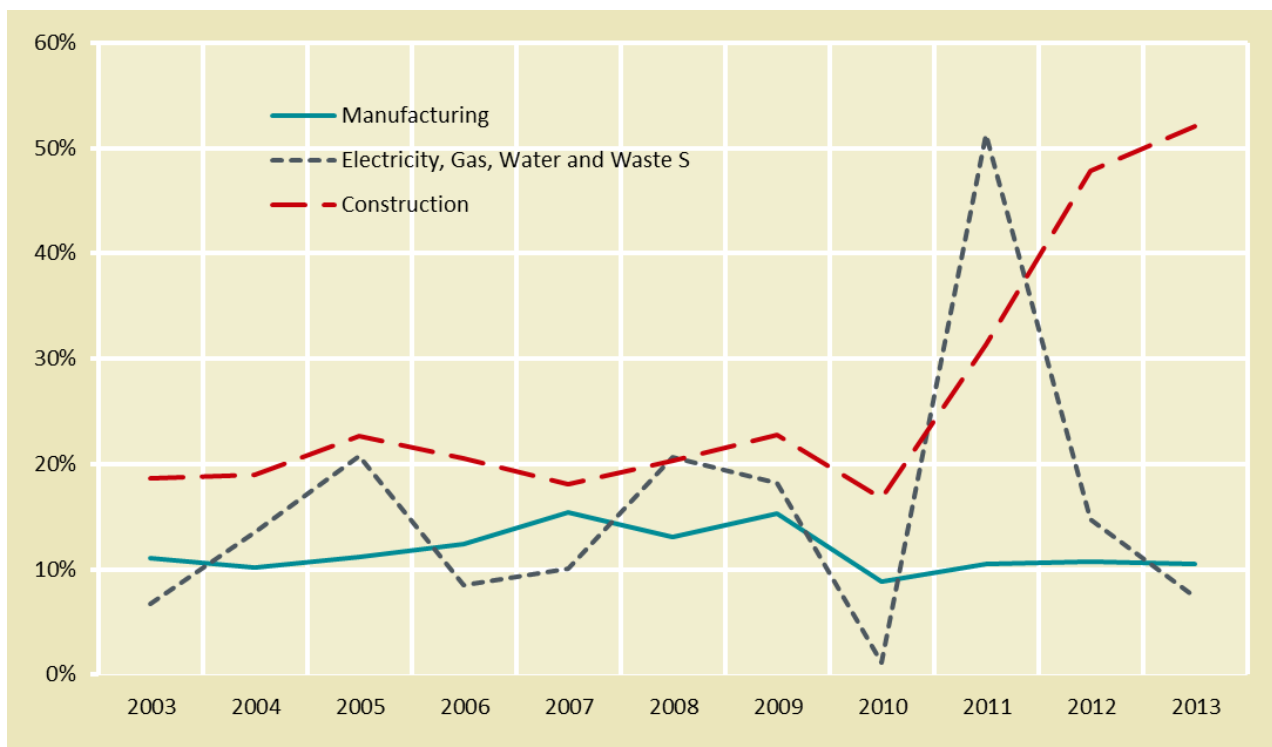




Figure 20: Canterbury’s monthly contribution to New Zealand’s new SMEs’ GST turnover in the Secondary sector

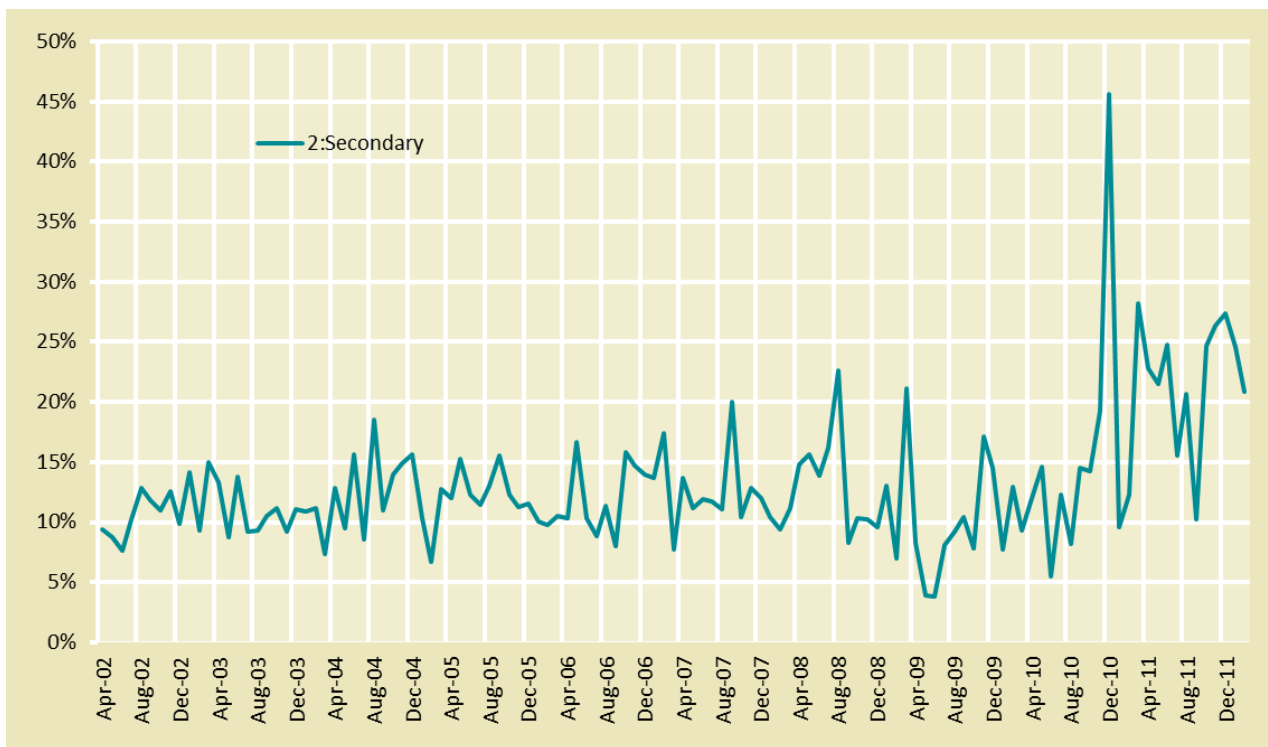


Figure 21: Canterbury’s monthly contribution to New Zealand’s new SMEs’ GST turnover in the Electricity, Gas, Water and Waste Services business division

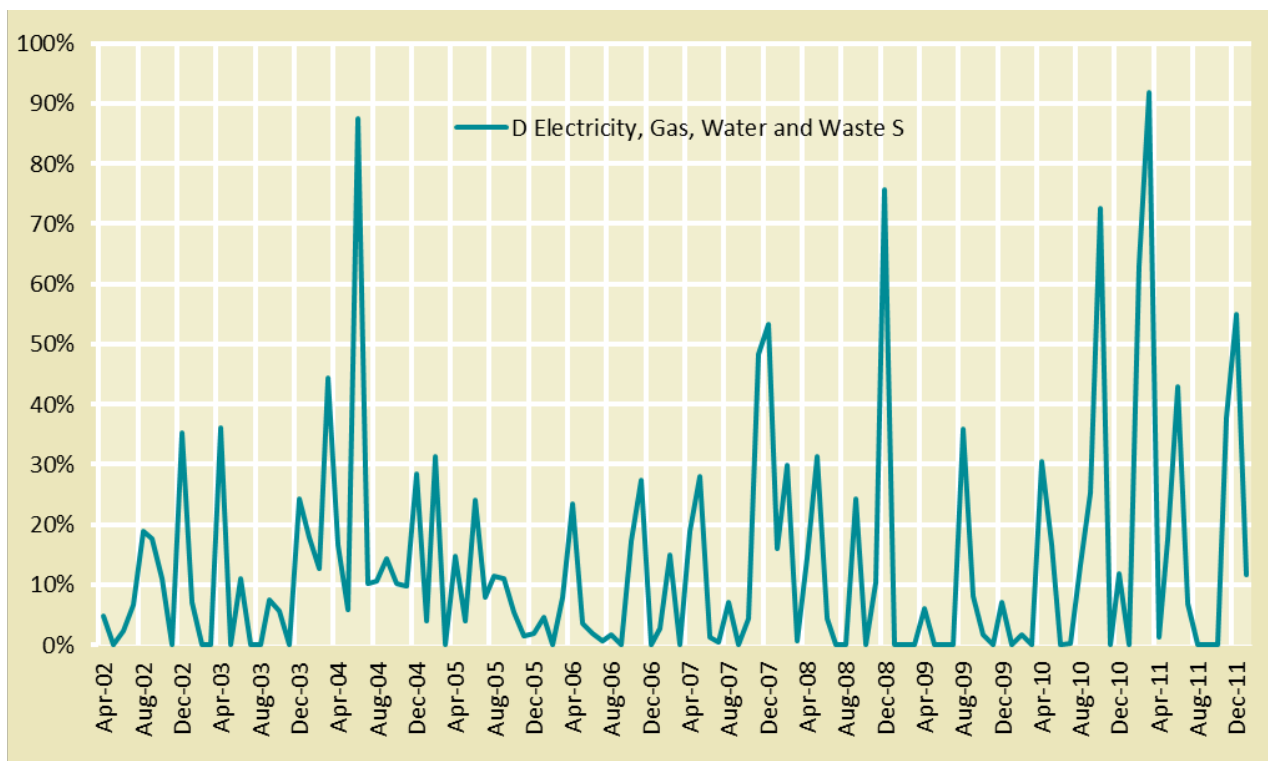


Figure 21 (previous page) shows high volatility as there are small numbers in Electricity, Gas, Water and Waste Services, and in some months there were no new SMEs registered. However, it is clear that in the months immediately after the two major earthquakes (October 2010 and March 2011), new SMEs in Canterbury made a high contribution to the national GST turnover rate. South Canterbury had six new registered SMEs in March

2011 which contributed 8% of the total GST turnover of New Zealand’s new SMEs.

Figure 22 shows Canterbury’s monthly contribution to the GST turnover of all new SMEs registered in Construction between April 2002 and February 2012.

**Figure 22: Canterbury’s monthly contribution to the GST turnover of all newly registered SMEs in the Construction industry**

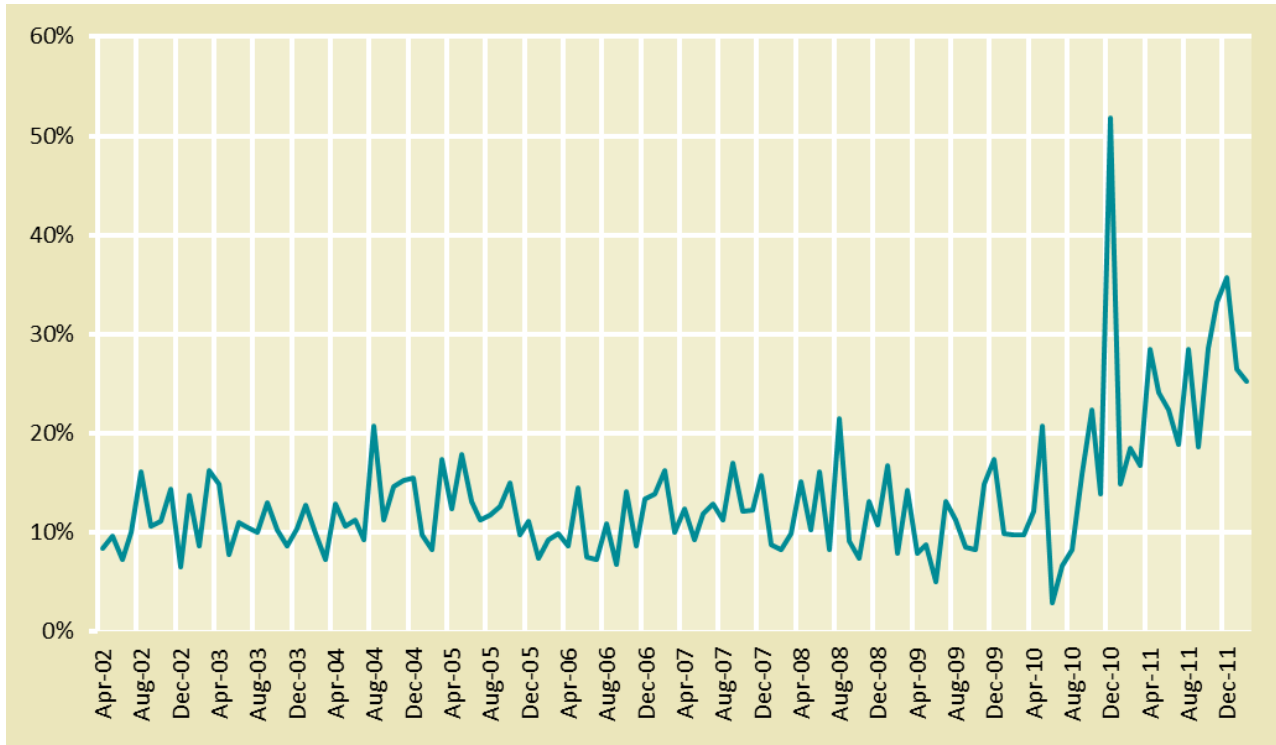


Table 3 shows the summary statistics for Canterbury’s contribution to the GST turnover of all new SMEs in Construction registered in each of the three periods of interest – SMEs registered more than 12 months before the first earthquake (April 2002 to August 2009), SMEs registered just prior to the first earthquake (September 2009 to August 2010)<sup>5</sup>, and SME registered just after the first earthquake (September 2010 to February 2012).

Before the earthquakes, the Canterbury’s quarterly contribution is stable with a mean 11.7% and standard deviation 3.3%.

**Table 3: Canterbury's contribution to New Zealand GST turnover for new registered SMEs in Construction**

Period when registered	Mean	Standard deviation	Maximum
SMEs registered April 2002-August 2009	11.73%	3.31%	21.50%
SMEs registered September 2009-August 2010 (just before first earthquake)	11.02%	3.47%	20.70%
SMEs registered September 2010-February 2012 (after the first earthquake)	21.28%	8.45%	51.80%

<sup>5</sup> The Canterbury earthquakes started affecting new SMEs’ GST turnover from this period. The GST turnover of Canterbury new SMEs registered in September 2009 is the sum of the GST turnover from October 2009 to September 2010 for this cohort.

For Construction SMEs registered between September 2009 and August 2010 (prior to the first earthquake), there was a small reduction in Canterbury’s new SMEs’ contribution to the GST turnover of New Zealand’s new

SMEs. However, for the cohort of Canterbury's new Construction SMEs registered between September 2010 and February 2012 (after the first earthquake), there was a strong, positive impact with the mean contribution increasing dramatically to 21.3% with a bigger standard deviation 8.45%.

## Summary

This chapter considered the GST turnover of SMEs as an indicator of the impact of the earthquakes.

The revenue of Canterbury existing SMEs', as represented by their GST turnover, was affected immediately after the earthquakes.

After the Christchurch earthquakes, Canterbury's contribution to New Zealand's total GST turnover for newly registered SMEs rose and became more volatile. The increase was primarily due to newly-registered SMEs in the Secondary sector, particularly Electricity, Gas, Water and Waste Services (strongest in 2011) and Construction (in 2012).

The following chapter considers the impact of the earthquakes on existing SMEs in Canterbury by examining their employment activity.

## 5. Existing SMEs' employment

This chapter presents the results regarding the earthquakes' impacts on the employment activity of existing SMEs' in Canterbury and in New Zealand.

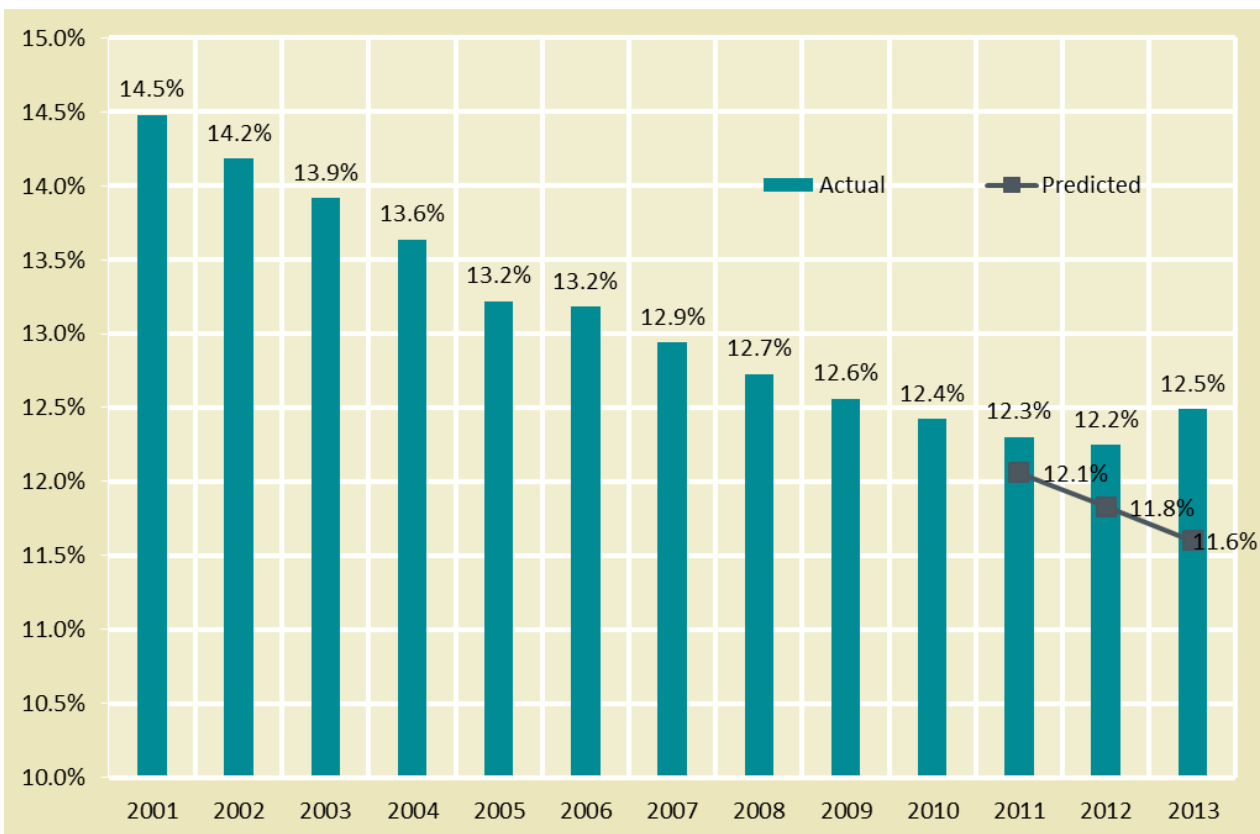
Figure 23 (below) shows Canterbury's contribution to the employment activity of the nation's existing SMEs (including Canterbury). Between 2001 and 2010, the employment activity of Canterbury's existing SMEs followed a downward trend, which was caused by the nature of the business environment.

From 2011 onwards, the downward trend began levelling off, and the contributions were higher than the

predicted values. In 2013, Canterbury's contribution to the national figure increased to 12.5%, which is 0.9 percentage points higher than predicted. These results indicate the Christchurch earthquakes had a positive impact on Canterbury's SMEs' employment activity.

It is notable that Canterbury's contribution to New Zealand's existing SMEs' GST turnover was lower than predicted in 2011 (Figure 11) whereas its contribution for *employment activity* was higher than predicted (Figure 23). This appears to be a result of the 'earthquake support subsidy'.

**Figure 23: Canterbury's annual contribution to New Zealand's existing SMEs' employment activity, 2001-2013**



**SMEs’ employment activity, by industry sector**

Figure 24 (below) shows that Canterbury’s contribution to the employment activity of the nation’s existing SMEs’ in different industry sectors was impacted by the Canterbury earthquakes at different levels.

Canterbury’s contribution to employment activity in the Primary sector had been decreasing from 2004 to 2011, and started recovering slightly in 2012 and 2013.

Similarly, Canterbury’s contribution to the Secondary sector had been decreasing from 16.1% in 2001 to 13.8% in 2011. After the earthquakes, there was a marked increase to 14.6% in 2012 and 15.5% in 2013. This indicates that the earthquakes had a positive impact on Canterbury’s SMEs’ employment activity in the Secondary sector.

Canterbury’s contribution to the Tertiary sector had been decreasing consistently from 15.9% in 2001 to 12.8% in 2012. In 2013 this figure stabilised at 12.9%.

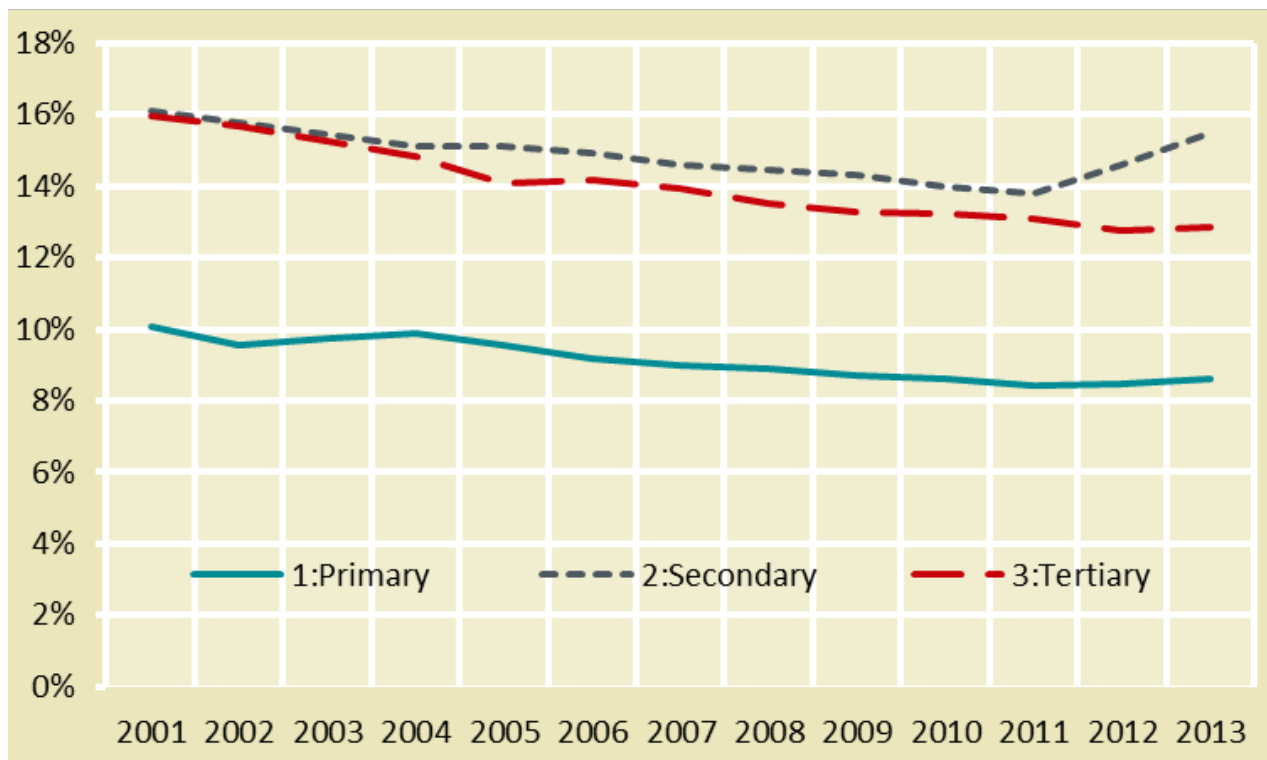
These patterns show the varying impacts the earthquakes had in each industry sector.

**SMEs’ employment activity, by business division**

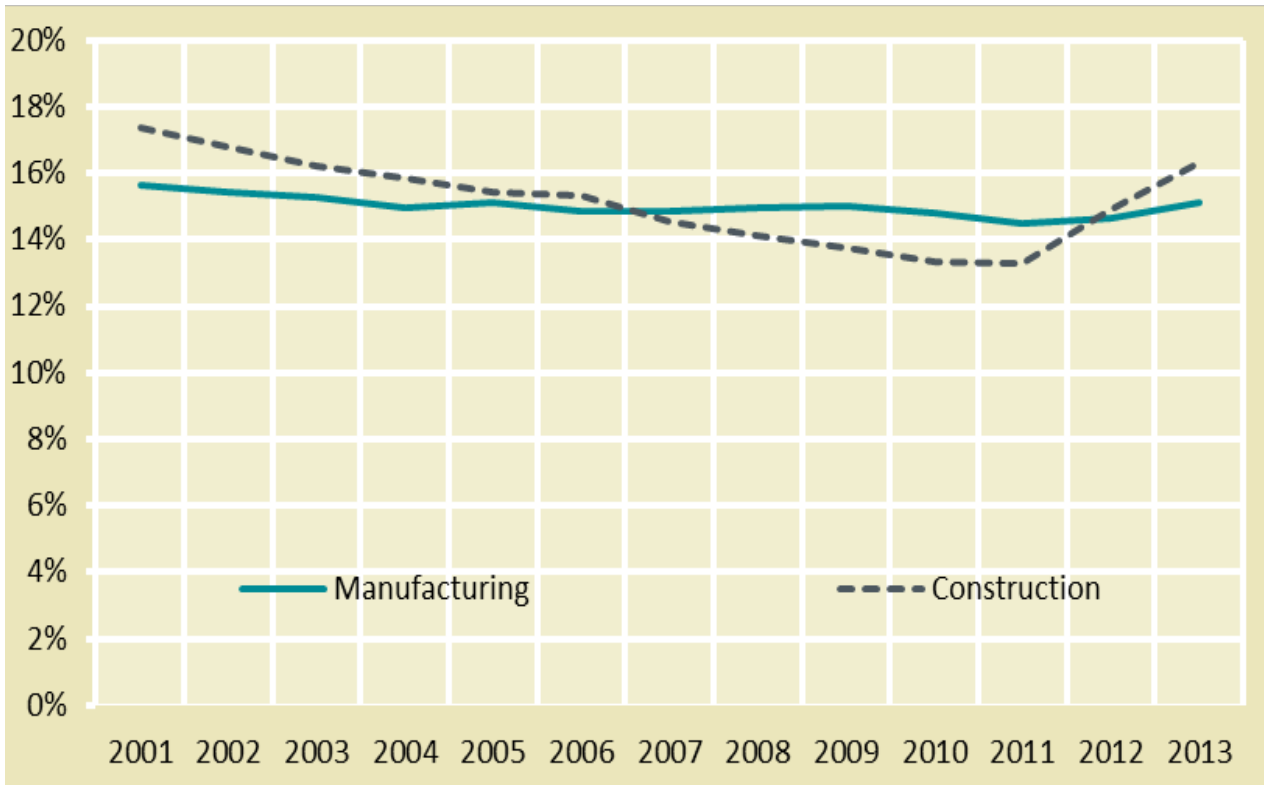
The Christchurch earthquakes had varying effects on different business divisions within the industry sectors. To illustrate this, Figure 25 (overleaf) shows Canterbury’s contribution to New Zealand’s existing SMEs’ employment activity in Construction and Manufacturing, both of which are in the Secondary sector.

In Construction, Canterbury’s contribution had been steadily decreasing, but this stopped in 2011, with a huge increase in 2012 and 2013. In contrast, Canterbury’s contribution in Manufacturing had been slowly decreasing. After a further drop in 2011, it rose moderately in 2012 and 2013.

**Figure 24: Canterbury’s annual contribution to the national employment activity of existing SMEs’, by industry sector**



**Figure 25: Canterbury’s annual contribution to the national employment activity of existing SMEs in the Manufacturing and Construction business divisions, 2001-2013**



## Summary

The results of the analysis reveal the Christchurch earthquakes had a positive impact on the employment activity of Canterbury’s existing SMEs.

The impact varied by industry sector; the Secondary sector showed the strongest growth. This was driven by Construction and Manufacturing.

The following chapter considers the impact of the earthquakes on the filing and payment compliance behaviour of SMEs in the Canterbury region.

## 6. SMEs' filing and payment compliance

As adverse events affect their operation, businesses' ability to meet their tax obligations can alter.

IR is naturally concerned about whether the tax compliance attitudes and behaviours of Canterbury's SMEs were affected by the earthquakes. Accordingly, SMEs' compliance with their GST obligations was analysed. The specific dimension of compliance measured here is timeliness. The findings relating to the filing and payment compliance of existing SMEs are presented first, followed by those for new SMEs.

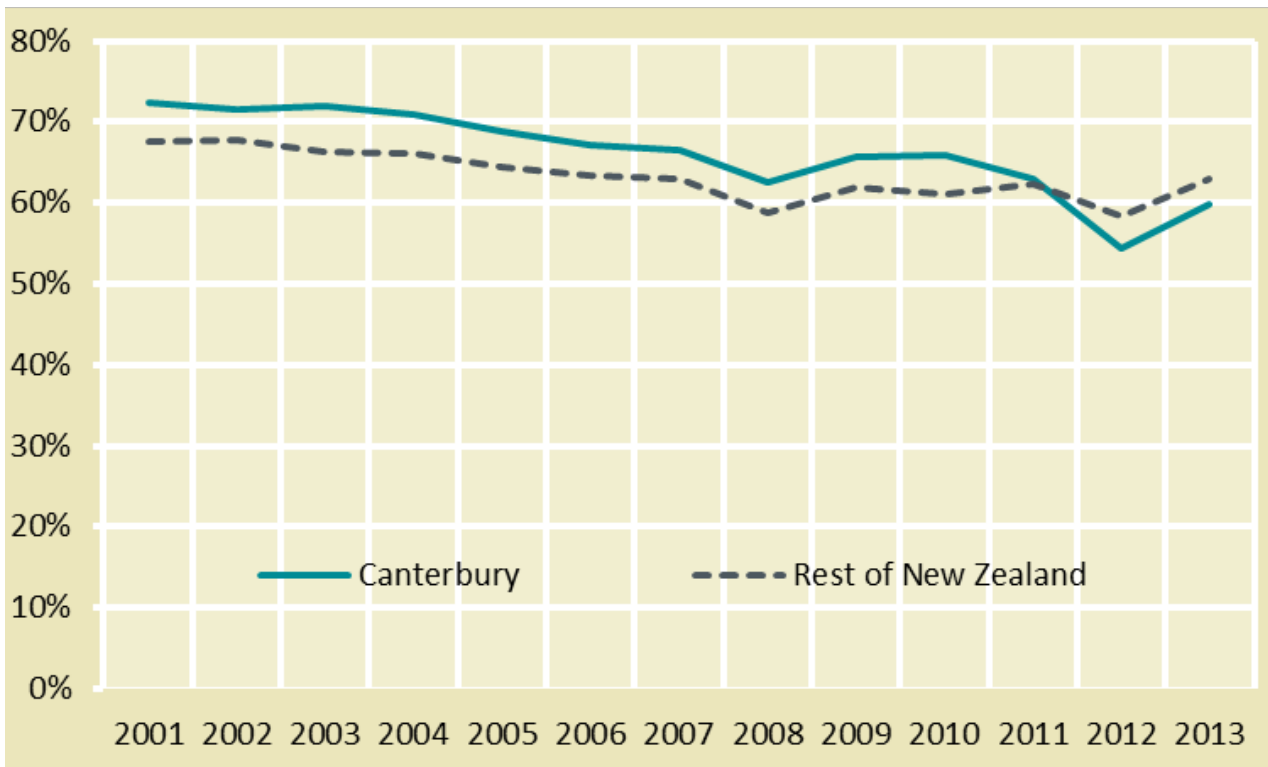
It is clear that Canterbury's SMEs' filing compliance was about four percentage points higher than the rest of New Zealand before the Christchurch earthquakes (from 2001 to 2010).

In 2011, this dropped about three percentage points while the rest of New Zealand increased about one percentage point, meaning Canterbury's percentage of GST returns filed on time in 2011 was almost identical to the rest of New Zealand. However, in 2012 and 2013, Canterbury's SMEs' filing compliance dropped again to about three percentage points below the rest of New Zealand.

### Existing SMEs' filing compliance

Figure 26 (below) shows the percentage of GST returns filed on time by existing SMEs in Canterbury and in the rest of New Zealand (excluding Canterbury).

Figure 26: The annual proportion of GST returns filed on time by existing SMEs, 2001-2013



**Figure 27: Difference between the quarterly GST filing compliance rate proportion of GST returns filed on time, by existing SMEs in Canterbury and the rest of New Zealand, 2002-2012**

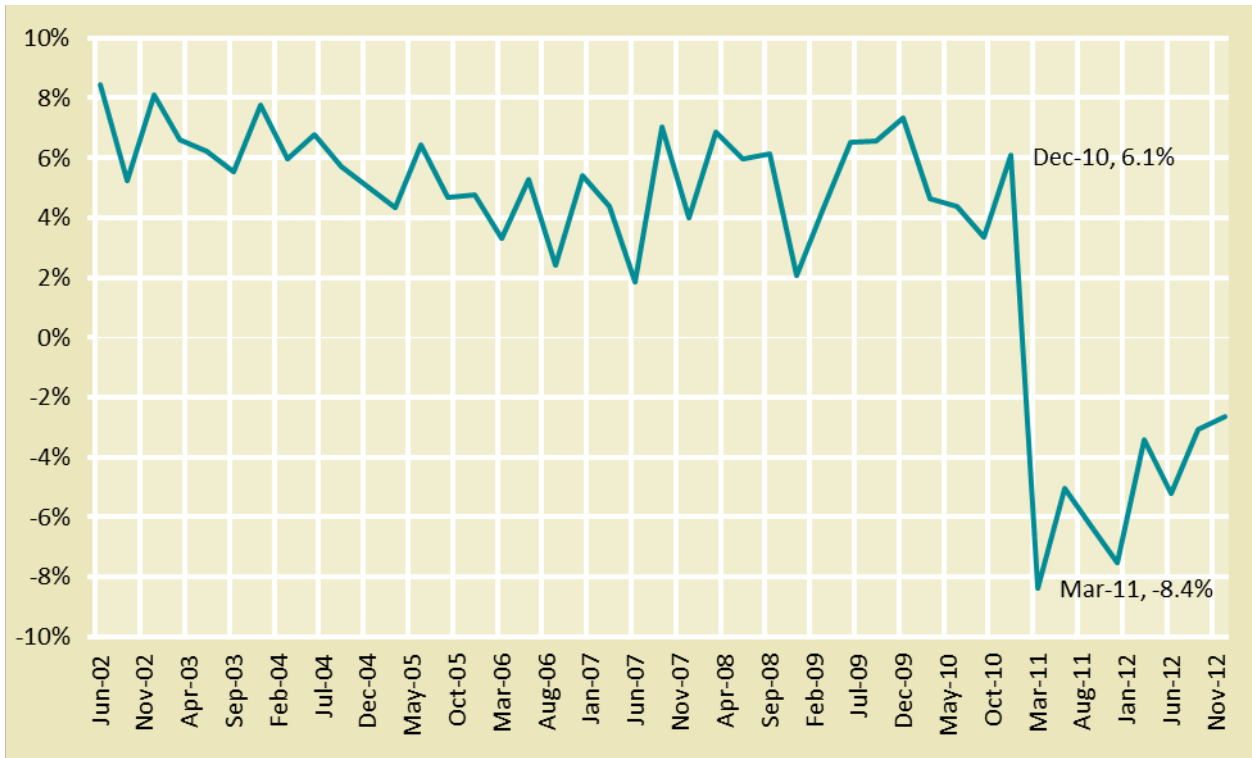


Figure 27 (above) shows the difference between the quarterly percentages of GST returns filed on time by existing SMEs in Canterbury and in the rest of New Zealand. Positive percentages show when Canterbury’s existing SMEs had better GST filing compliance than the rest of New Zealand.

There was a clear change in the March quarter of 2011, with Canterbury existing SMEs’ dropping 14 percentage points to a rate 8.4% below the national rate for filing GST returns on time. Since then, filing compliance has been slowly returning towards pre-quake normality. This indicates that only the magnitude 6.3 earthquake in February 2011 caused a major reduction in the filing compliance of Canterbury’s existing SMEs.

Figure 28 (overleaf) shows the difference between the percentages of GST returns filed on time by existing SMEs in Canterbury and in the rest of New Zealand, by industry sector. Again, positive percentages show when Canterbury’s existing SMEs’ had better GST filing compliance than the rest of New Zealand.

After the earthquakes the filing compliance of Canterbury’s SMEs in all three sectors dropped to

below that of the rest of New Zealand. Canterbury’s Tertiary sector had the largest drop in 2012, although the change was very similar across the sectors. Canterbury’s Primary sector was the only sector not to show some recovery in 2013.

## Existing SMEs’ payment compliance

Figure 29 (overleaf) shows the quarterly percentages of GST payments made on time by existing SMEs in Canterbury and in the rest of New Zealand.

After the earthquakes, Canterbury’s SMEs’ GST payment compliance changed from better than the national rate to worse than the national rate. The graph shows a dramatic reduction in the March quarter of 2011 coinciding with the February 2011 earthquake. However, it recovered quickly in the following June quarter, and was almost back to its pre-quake level by the June 2012 quarter.



Figure 28: Difference between the proportions of GST returns filed on time by existing SMEs in Canterbury and the rest of New Zealand, by industry sector, 2001-2013

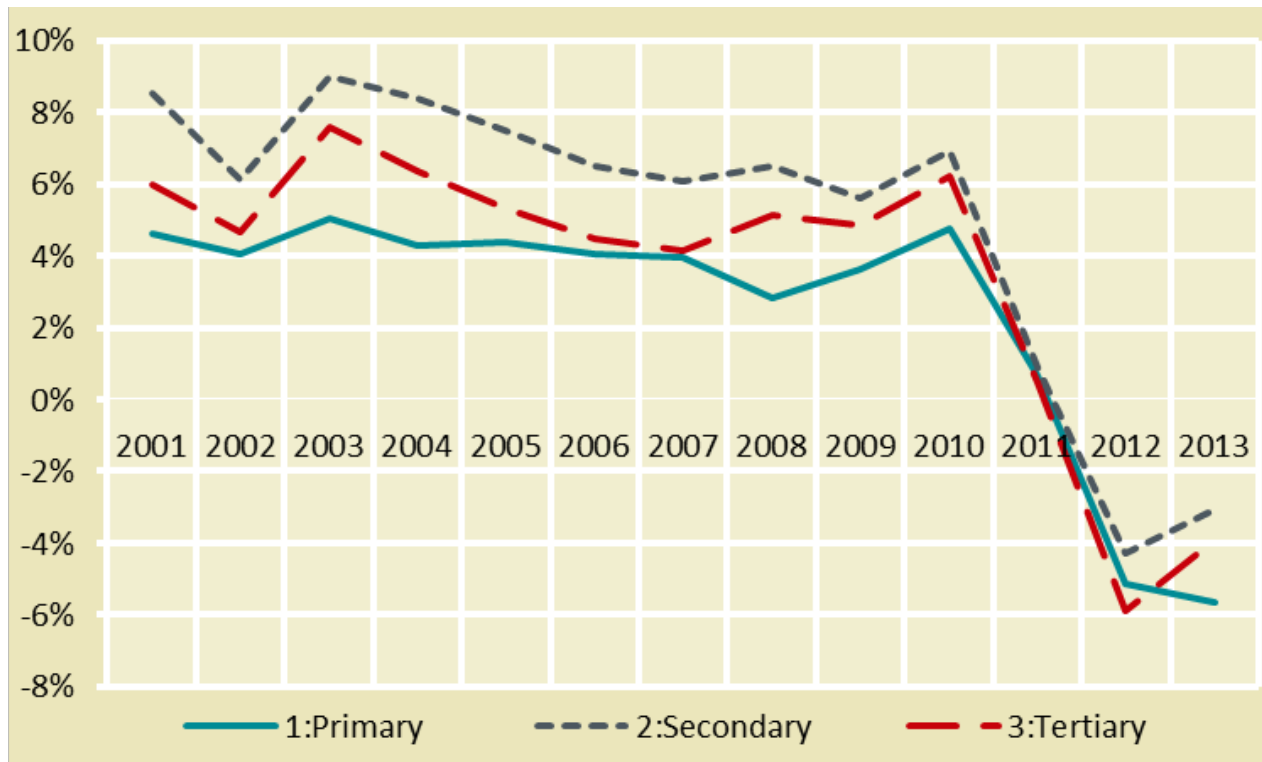
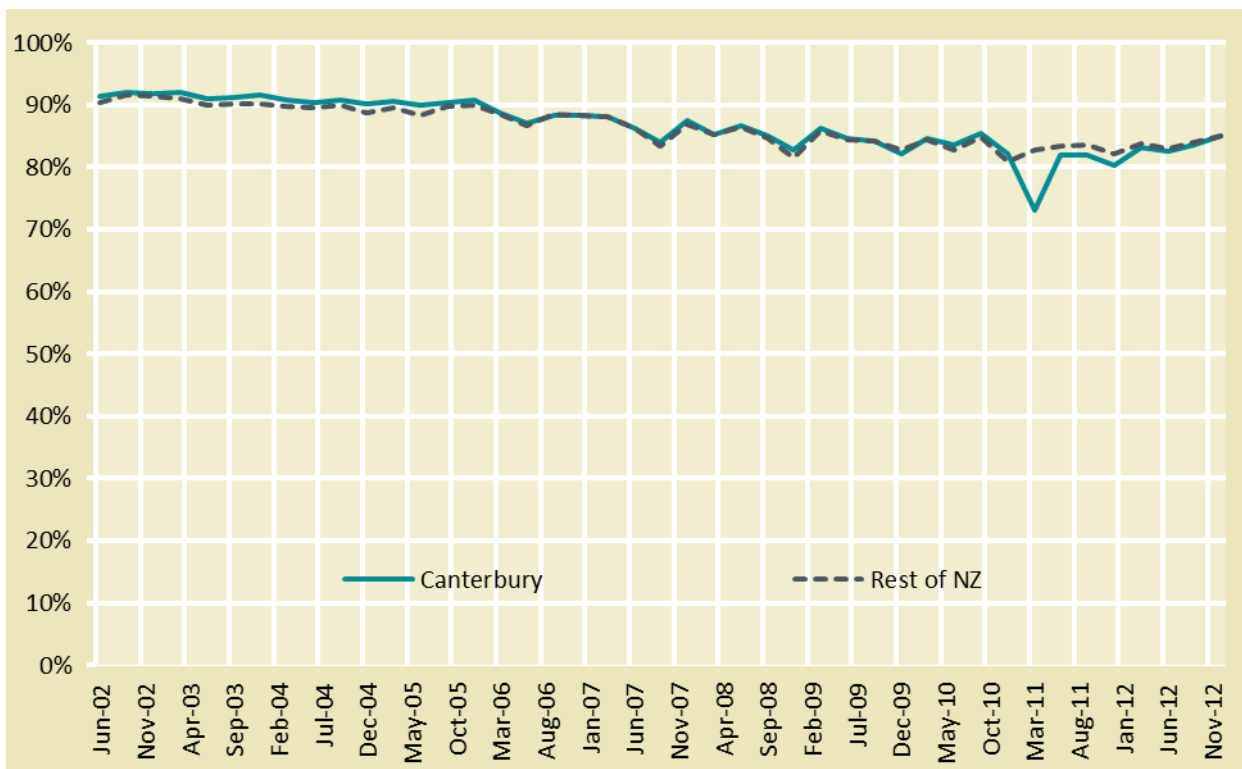


Figure 29: The quarterly proportion of GST payment made on time by existing SMEs, 2002-2012



**Existing SMEs’ payment compliance by industry sector**

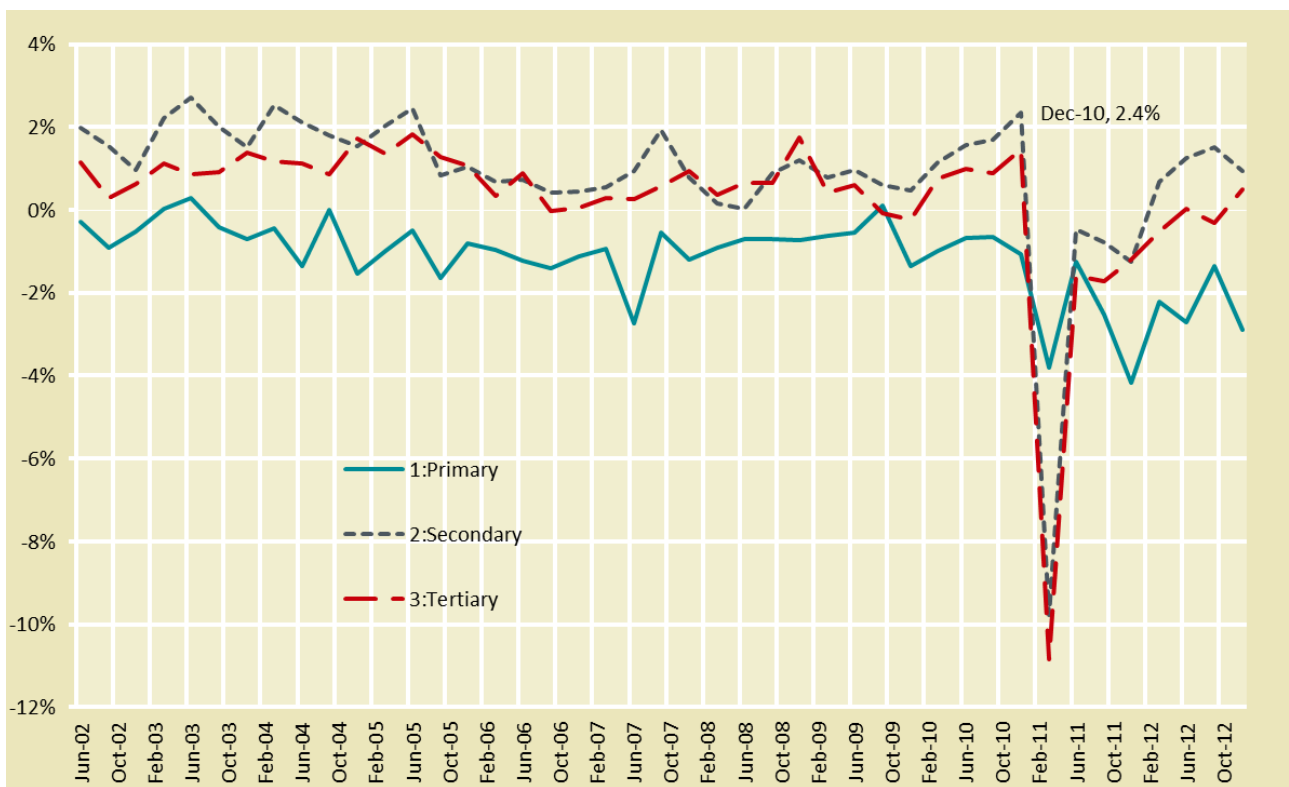
Figure 30 (below) shows the differences between on-time GST payments made by existing SMEs in Canterbury and in the rest of New Zealand, by industry sector.

Canterbury’s on-time GST payments in the Tertiary and Secondary sectors both dropped hugely in the March 2011 quarter, and recovered quickly in the following June 2011 quarter. The Secondary sector reached its pre-quake level in March 2012, while the Tertiary

sector reached its pre-quake level nine months later in December 2012.

In contrast, Canterbury’s Primary sector had a slight decrease in March 2011, returned to its pre-quake level immediately in June 2011 quarter, but then decreased again. Overall, Canterbury’s Primary sector has shown a weaker but more complicated impact and recovery in its on-time GST payments.

**Figure 30: Difference between the quarterly proportion of GST payments made on time by existing SMEs in Canterbury and the rest of New Zealand, by industry sector, 2002-2012**



**New SMEs’ filing compliance**

The following analyses of the earthquakes’ impact on new SMEs’ on-time GST filing use registration periods of a year and a month.<sup>6</sup>

Figure 31 (overleaf) shows that Canterbury had a similar overall pattern to New Zealand SMEs from 2003 to 2009, running around five percentage points higher.

The on-time GST filing compliance rate of each year’s cohort of new SMEs in Canterbury was above the national average until part way through 2010. It reduced further after the February 2011 earthquake to a level below the national average.

<sup>6</sup> That is, a SME which registers in February 2009 will be counted in the February 2009 cohort of new SMEs, and the 2009 annual cohort of new SMEs. For a new SME registered in February 2009, the next 12 months of filing activity is totalled. The cohort’s overall compliance rate is calculated from the individual scores.

Figure 31: The annual proportion of GST returns filed on time by new SMEs, 2003-2012

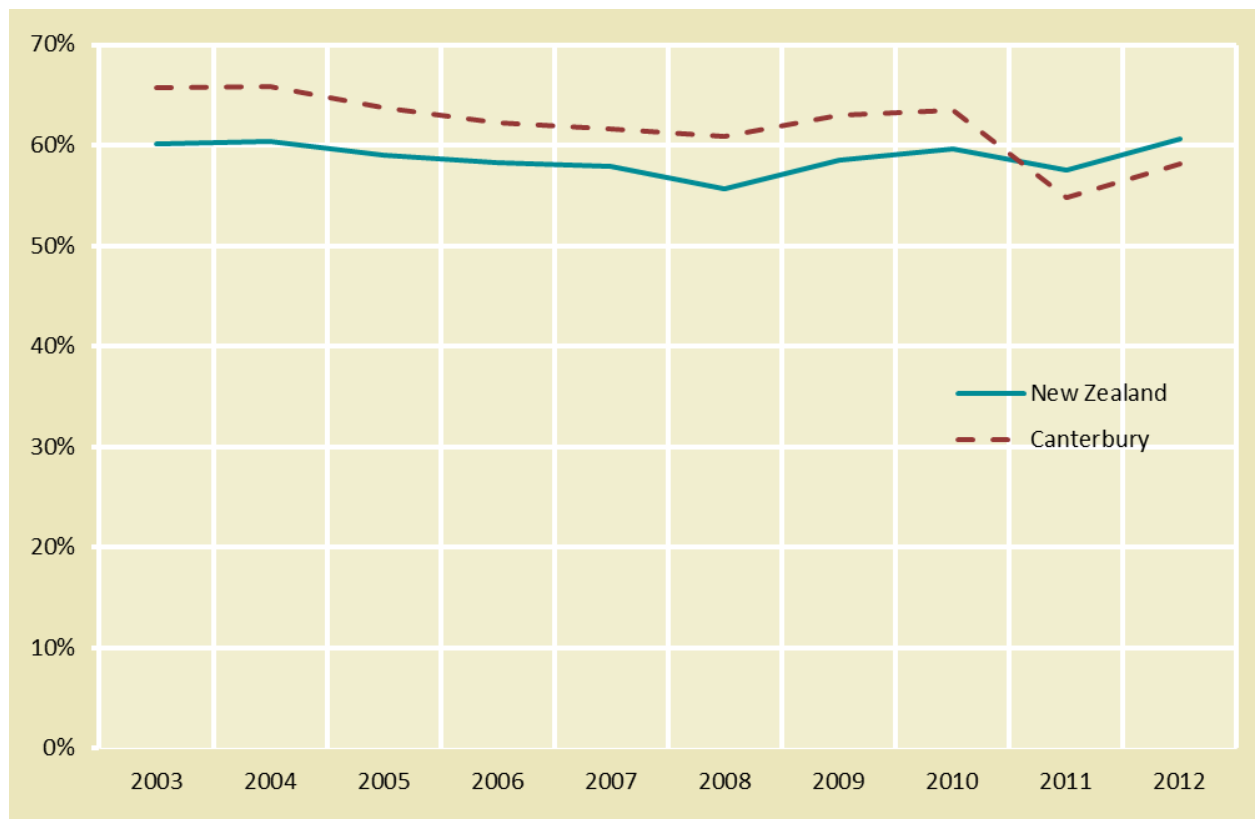
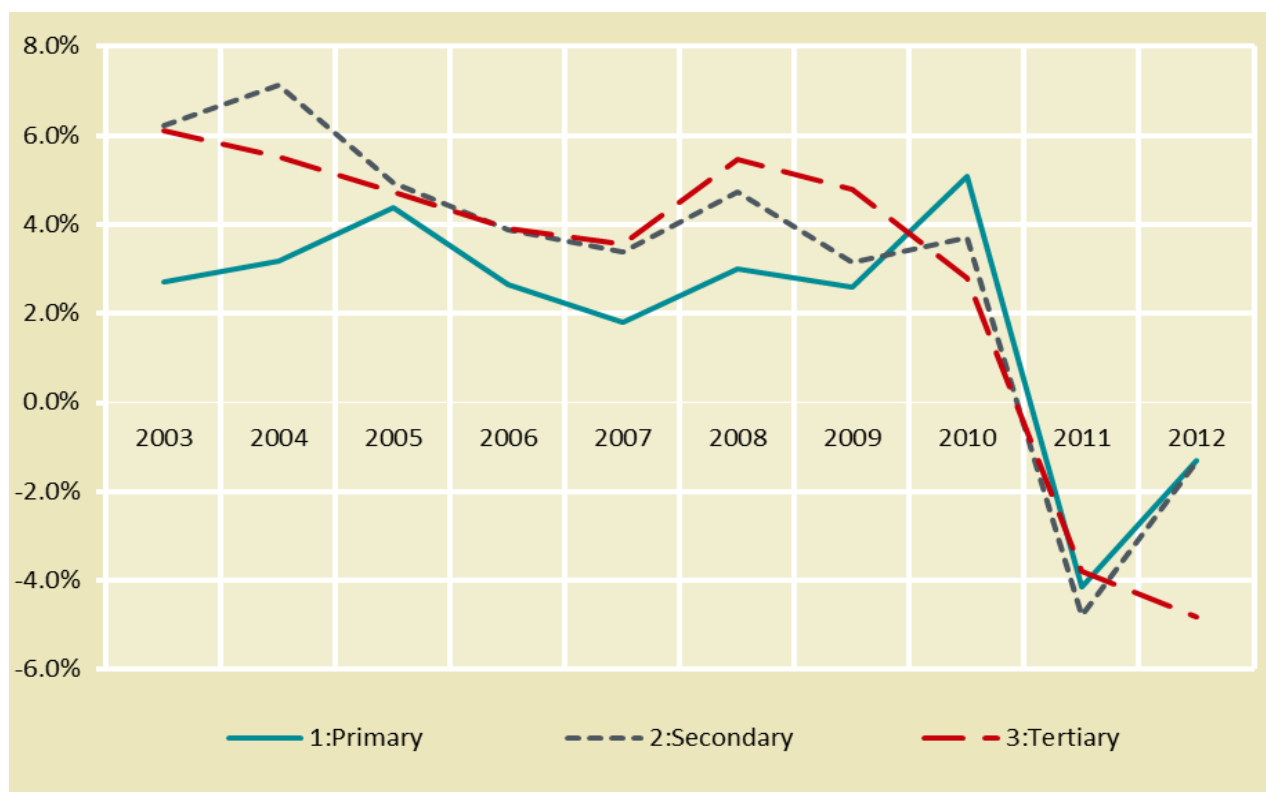


Figure 32: Difference between the annual proportion of GST returns filed on time by new SMEs in Canterbury and New Zealand, by industry sector, 2003-2012



### New SMEs' filing compliance, by industry sector

Figure 32 (above) shows the difference between the percentage of GST returns filed on time by each year's cohort of new SMEs in Canterbury and New Zealand, by the different industry sectors. Positive percentages indicate Canterbury's new SMEs' GST filing compliance is better than the national average.

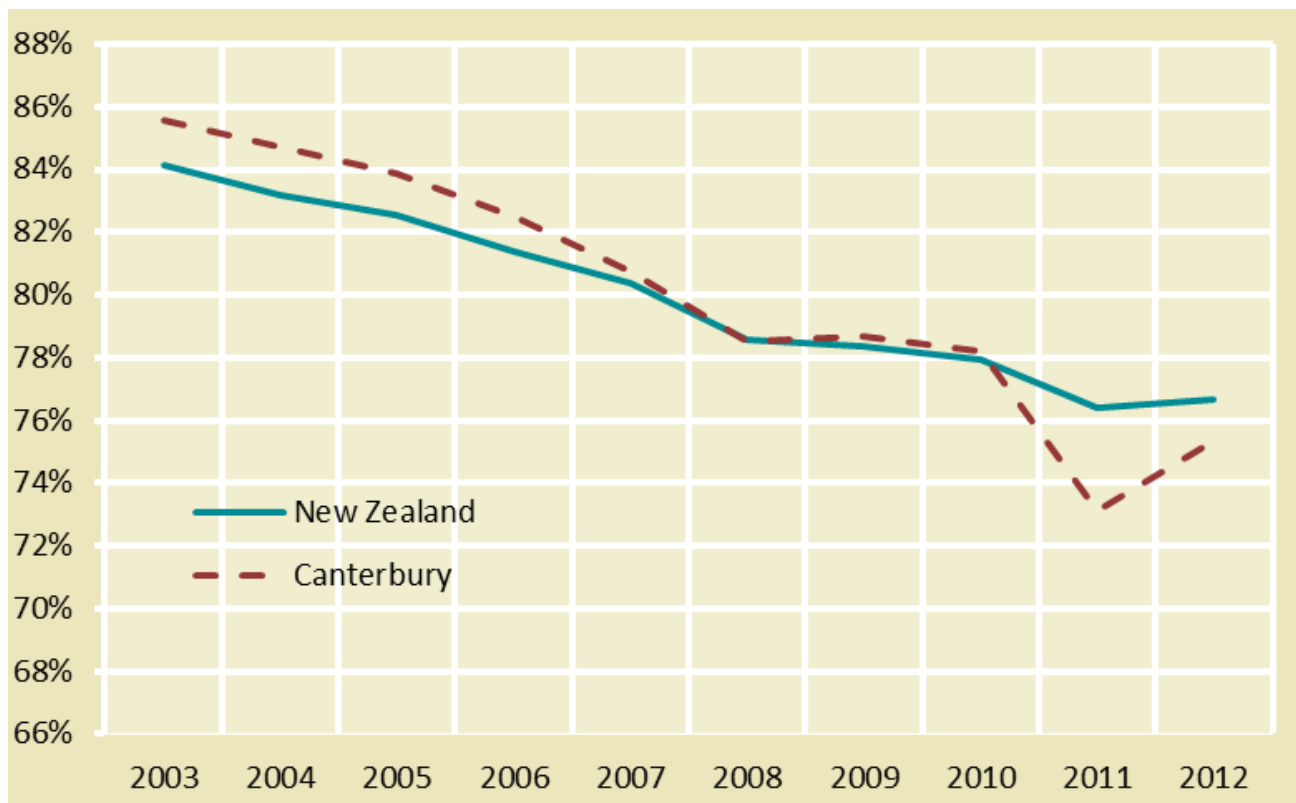
All three industry sectors were affected by the 2010 and 2011 earthquakes. In 2012 the Tertiary sector was the only sector not beginning to return to pre-quake normality. This indicates that the earthquakes' impact lasted longer in the Tertiary sector than in others.

### New SMEs' payment compliance

The following analyses of the earthquakes' impact on new SMEs' on-time GST payment use registration periods of a year, quarter, and month. The cohort's overall compliance rate is calculated from the individual scores.

Figure 33 (below) shows the percentage of GST payments made on time by each year's cohort of new SMEs in Canterbury and in New Zealand.

Figure 33: The annual proportion of GST payments made on time by new SMEs, 2003-2012



Overall, both the national and Canterbury patterns of GST payment compliance of new SMEs have been declining<sup>7</sup>. The difference between the national rate and Canterbury's was reducing from 2004 to 2007, and was very similar between 2008 and 2010.

After a dramatic decline in the GST payment compliance of Canterbury's new SMEs registered in 2011, the GST payment compliance of Canterbury's new SMEs registered in 2012 started improving. This indicates that the Christchurch earthquakes had a strong and negative impact on the payment compliance of new SMEs, and this still exists – to a lesser extent – in 2012.

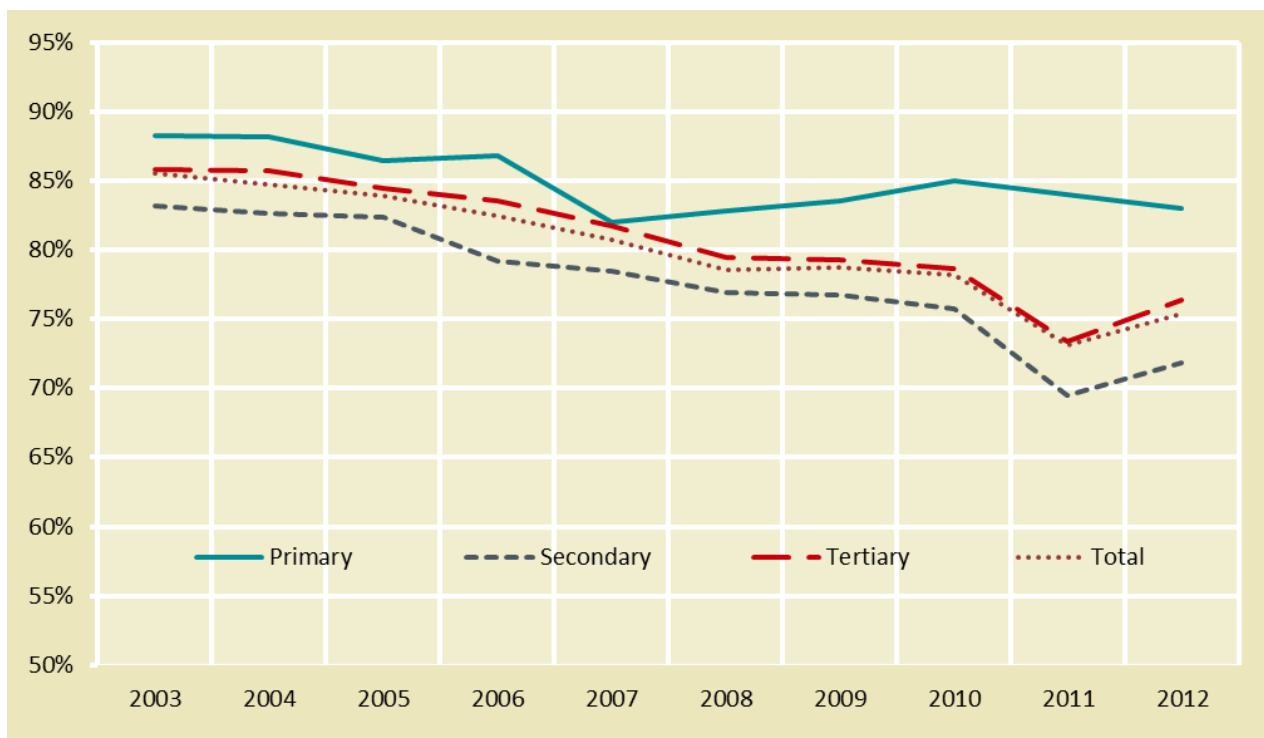
<sup>7</sup> A SME that registers in February 2009 will be counted in the February 2009 cohort of new SMEs, the March 2009 quarter cohort, and the 2009 annual cohort of new SMEs. For a new SME registered in February 2009, the next 12 months of payment activity is totalled.

**New SMEs’ payment compliance, by industry sector**

The effects of the Christchurch earthquakes can be observed among the annual cohorts of new SMEs in Canterbury. Figure 34 (below) shows that the GST payment compliance of new SMEs in the 2011 cohort in the Secondary and Tertiary sectors declined significantly. For the 2012 cohort in these sectors, the GST payment compliance started recovering.

In the Primary sector, the GST payment compliance of Canterbury’s 2011 and 2012 cohorts of new SMEs did not show any unusual change.

**Figure 34: The annual proportion of GST payments made on time by new SMEs in Canterbury, by industry sector, 2003-2012**



Exploring the activity by the month of registration lends more support to the immediate effect of the Christchurch earthquakes on the GST filing and payment compliance of new SMEs in the Canterbury region.

The decline in GST filing compliance amongst the subsequent cohorts of new SMEs appears to be related to the earthquakes – albeit delayed – but these events may not account for all of the change observed.

Figure 35 (below) presents the percentages of GST returns filed on time by new SMEs by monthly cohorts.

The filing compliance rates of Canterbury’s new SMEs are more volatile and, until March 2010, are higher than the New Zealand rates at each registration period.

The decline was greatest for Canterbury’s SMEs registered in January 2011. These impacts are still showing in the most updated data.

Figure 35: The monthly percentage of GST returns filed on time by new SMEs registered over 2002-2011/monthly cohorts of new SMEs

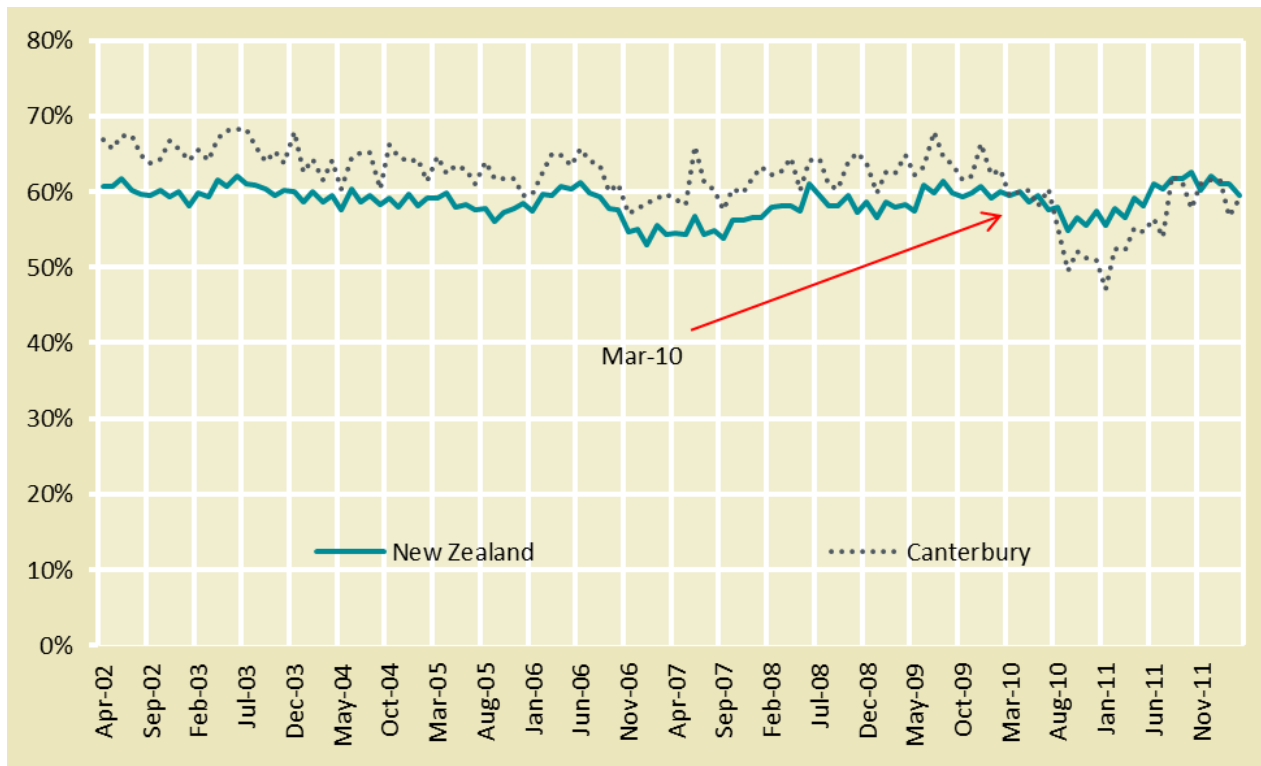


Figure 36: The monthly percentage of GST payments made on time by new SMEs, 2002-2011

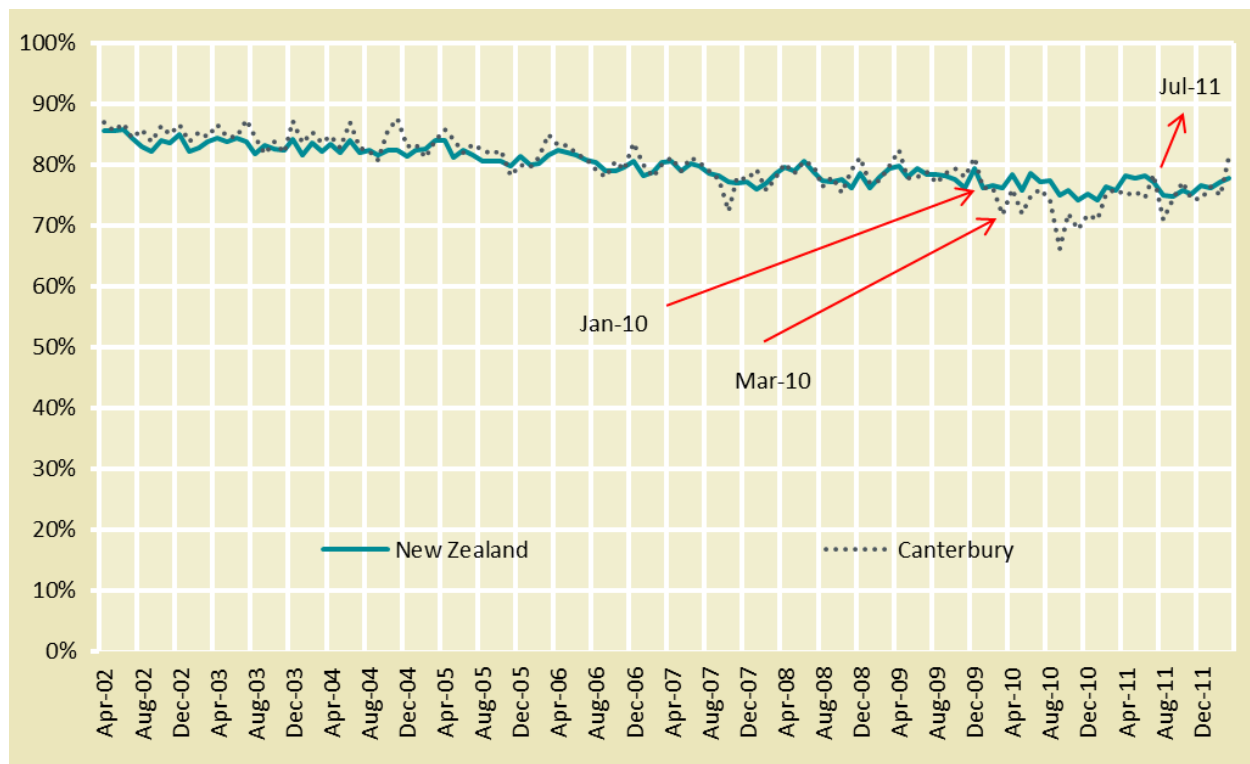


Figure 36 (above) presents the percentages of GST payments made on time by new SMEs in monthly cohorts.

There was a decline in the on-time GST payment compliance rates of Canterbury's monthly cohorts of new SMEs registered between March 2010 and June 2011, but this decline was less than the decline for on-time filing rates.

Canterbury's new SMEs registered during this period had much lower GST payment compliance than their national peers.

The Christchurch earthquakes' impact on GST payment compliance for new Canterbury SMEs registered after June 2011 is not clear.

In the Year 2 research (Inland Revenue and Colmar Brunton, 2013), one interviewee commented:

*"I always say PAYE and GST is somebody else's money. You're just collecting that from other people. You're only handling it so you need to keep records tidy. Some (SMEs) don't, either because they mentally reject the need or they are busy doing other things and it's not seen as important."*

(Interview 49)

after the Christchurch earthquakes. The reduction was strongest in the Tertiary sector.

Similarly, the payment compliance of Canterbury's 2011 new SMEs reduced dramatically before quickly improving in 2012.

The timeframe of both these patterns reflects the timing of the Christchurch earthquakes.

However, when analysing the patterns of filing and payment compliance by the month of registration, the effect is less clear. The filing and payment compliance rates of the March 2010 cohort began a downward trend that appears to have been exacerbated by the September 2010 earthquake.

The following chapter considers the impact of the Christchurch earthquakes on SMEs' tax debt.

## Summary

In 2012 and 2013, the GST filing compliance of Canterbury's existing SMEs dropped to below that of the rest of New Zealand.

Canterbury's Tertiary sector had the largest drop in filing compliance, in 2012. By 2013, Canterbury's Primary sector was the only sector not showing some recovery.

The Christchurch earthquakes had a strong and negative impact on the GST payment compliance of existing SMEs in the Canterbury region. This returned to its pre-quakes level in 2012.

Using the year of registration as the unit of analysis, the Christchurch earthquakes appear to have affected both the filing and payment compliance behaviour of new SMEs.

The filing compliance of Canterbury's 2010 and 2011 new SME cohorts reduced to below the national average

## 7. SMEs' tax debt

### Tax debt is another indicator of the economic effects of an adverse event on businesses.

This chapter presents the results for the Christchurch earthquakes' impacts on SMEs' tax debt in Canterbury and New Zealand. The results for existing SMEs are presented first, followed by those for newly-registered SMEs.

### Tax debt of existing SMEs

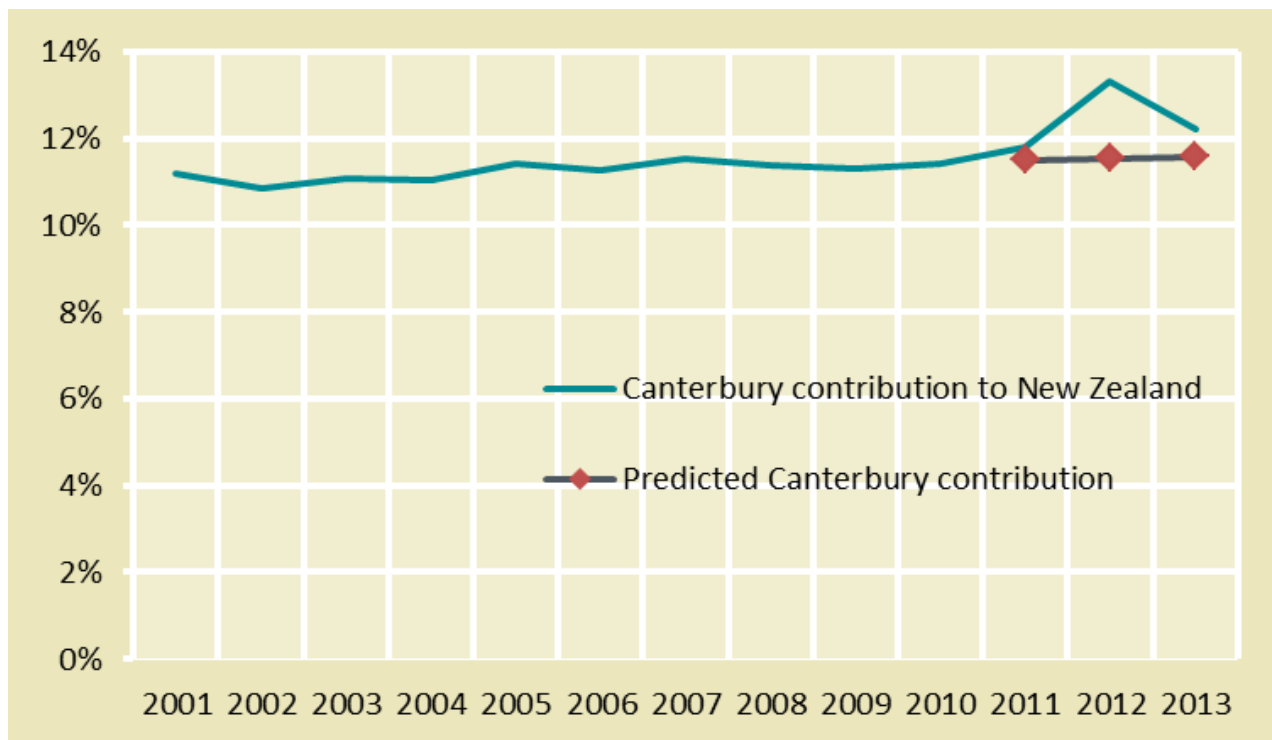
Figure 37 (below) shows Canterbury's contribution to the national number of existing SMEs incurring debt.

Before the earthquakes, Canterbury's contribution showed a slow upward trend from 2002 to 2010. In 2011, the actual value is 0.3 percentage points higher than the estimated contribution had the earthquakes

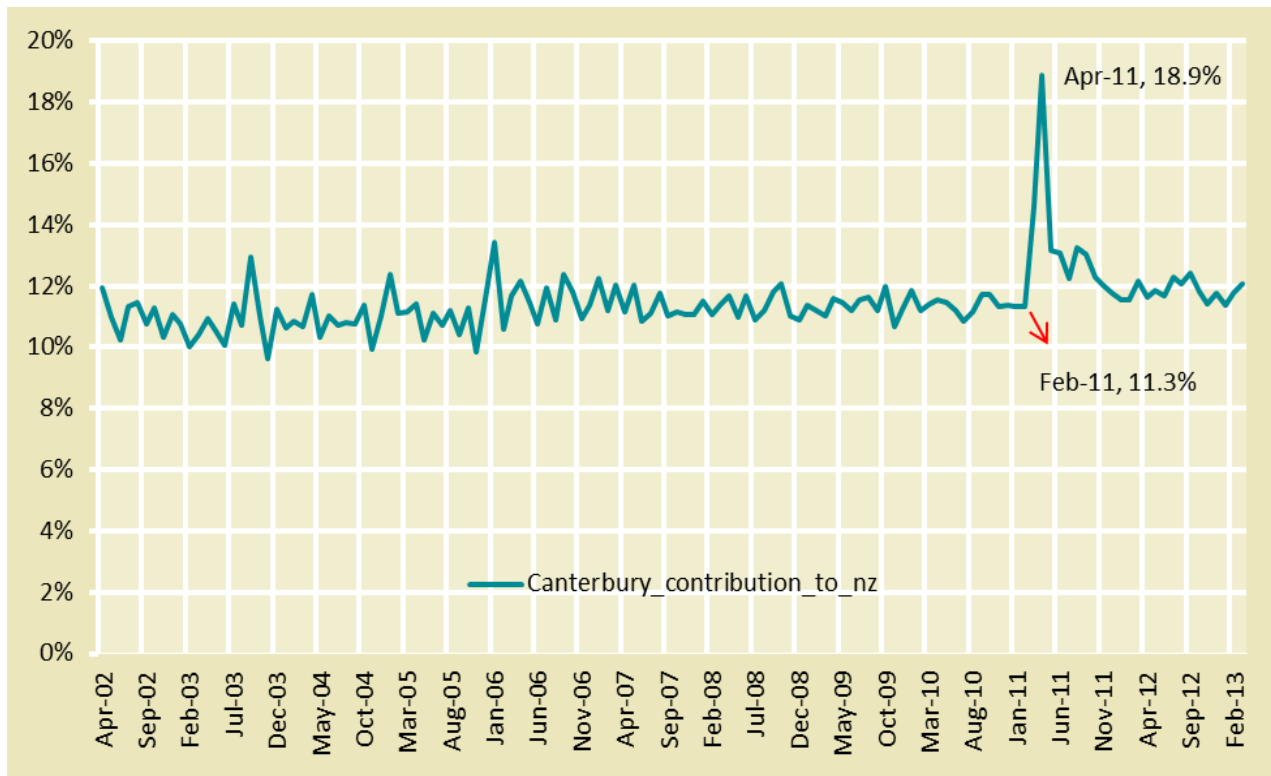
not occurred. The actual value peaked at 1.8 percentage points above the estimated value in 2012. In 2013 it had decreased again but was still 0.6 percentage points higher than predicted. This indicates that the Christchurch earthquakes had strong negative impacts on existing SMEs' debt, but this did not last long.

Figure 38 (overleaf) shows Canterbury's monthly contribution to the national number of existing SMEs incurring debt. The February 2011 earthquake greatly increased Canterbury's contribution to the monthly number of existing SMEs incurring debt. Canterbury's contribution reached 14.6% in March 2011 and 18.9% in April 2011. Canterbury's contribution quickly reduced in May 2011 and reached its pre-quakes level in December 2011.

Figure 37: Canterbury's annual contribution to the national number of existing SMEs incurring debt





**Figure 38: Canterbury's monthly contribution to the national number of existing SMEs incurring debt**

The Year 2 research (Inland Revenue & Colmar Brunton, 2013) found that tax debt can sometimes occur as a result of quick growth as much as business failure. One interviewee commented:

*“... the other thing that we have seen is that a lot of the small enterprises that are in the right sector have actually gone from businesses that might have been 10 people to now being 30 people. That always brings risk of just cashflow. ... Typically they're not so bad at paying the day-to-day bills, but they tend to forget they've got a big income tax bill at the end of the year, because they've grown so fast.”*

(Interview 4)

average. This increase in debt occurred across every sector (Primary, Secondary, and Tertiary). In 2012, the percentage of Canterbury's newly-registered SMEs incurring debt in the Primary and Tertiary sectors returned to its pre-quake level.

Figure 39 (below) shows the percentages of new SMEs in Canterbury and nationally which had incurred tax debt in the first 12 months since their registration. Before 2010, Canterbury's new SMEs had a similar pattern of rises and falls to New Zealand new SMEs, and slightly smaller proportion had debt. However, for SMEs registered in 2011 and 2012, a much higher percentage of Canterbury's new SMEs had debt than New Zealand's new SMEs. This indicates that the Christchurch earthquakes may have had a marked negative impact on the number of newly-registered SMEs incurring tax debt.

## Tax debt of new SMEs

The analysis also compared the occurrence of tax debt for newly-registered SMEs in Canterbury with the national rate (which includes Canterbury).

After the earthquakes, the proportion of newly-registered SMEs in the Canterbury area that were incurring debt was much higher than the New Zealand

Figure 39: The proportion of new SMEs incurring tax debt in their first 12 months of operation

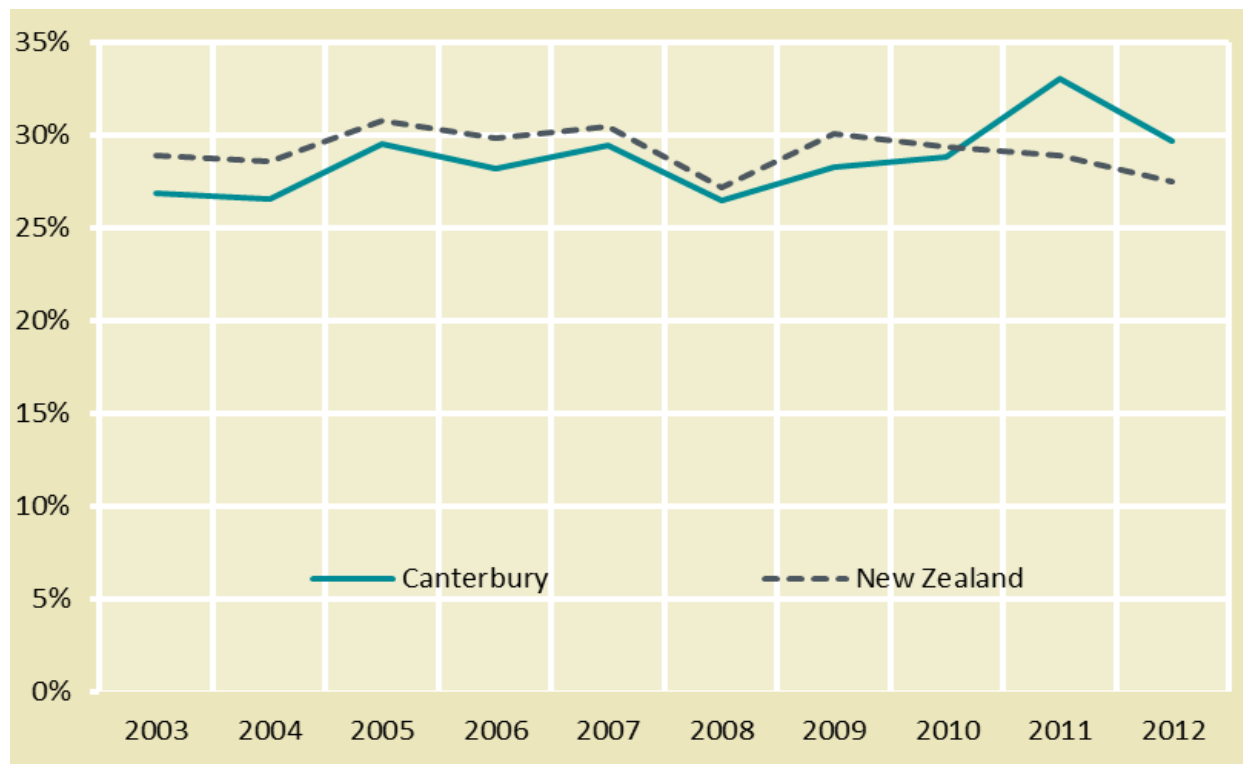


Figure 40 (below) shows the difference between the national percentage of new SMEs with debt and Canterbury. A positive value indicates the years in which a larger proportion of the nation's new SMEs had tax debt than Canterbury's (i.e., Canterbury's new SMEs had better tax debt compliance). A negative value indicates the reverse where more of Canterbury's new SMEs had tax debt than the New Zealand average.

Of all new SMEs registered between 2003 and 2010, those in Canterbury had better compliance than the national rate, shown by the positive percentages (ranging from 0.5% to 2.1%). However, the percentages went negative for new SMEs registered in 2011 (-4.1%) and 2012 (-2.2%) as a higher proportion of Canterbury's newly-registered SMEs had tax debt than New Zealand new SMEs.

Figure 41 (below) shows the monthly percentages of new SMEs that had tax debt in the first 12 months after their registration<sup>8</sup>.

Before February 2010, the proportion of newly-registered SMEs in debt in Canterbury had a similar pattern to the national average and, generally was lower, meaning a smaller proportion of Canterbury's new SMEs were in debt. However, as in Figures 39 and 40, the pattern changed. For new SMEs registered from March 2010 to March 2012, in most months, the proportion of Canterbury SMEs with debt was higher than the national rate. This indicates that the Christchurch earthquakes have had a considerable negative impact on the number of new SMEs with debt.

<sup>8</sup> Summary statistics of the difference in rates of Canterbury and New Zealand new SMEs incurring tax debt in the pre-earthquakes period (April 2002 to January 2010) and the post-earthquakes period (February 2010 to March 2012) are available in Appendix A.

Figure 40: The difference between the proportion of Canterbury’s new SMEs with debt and the national rate



Figure 41: The proportion of new SMEs incurring tax debt, by month

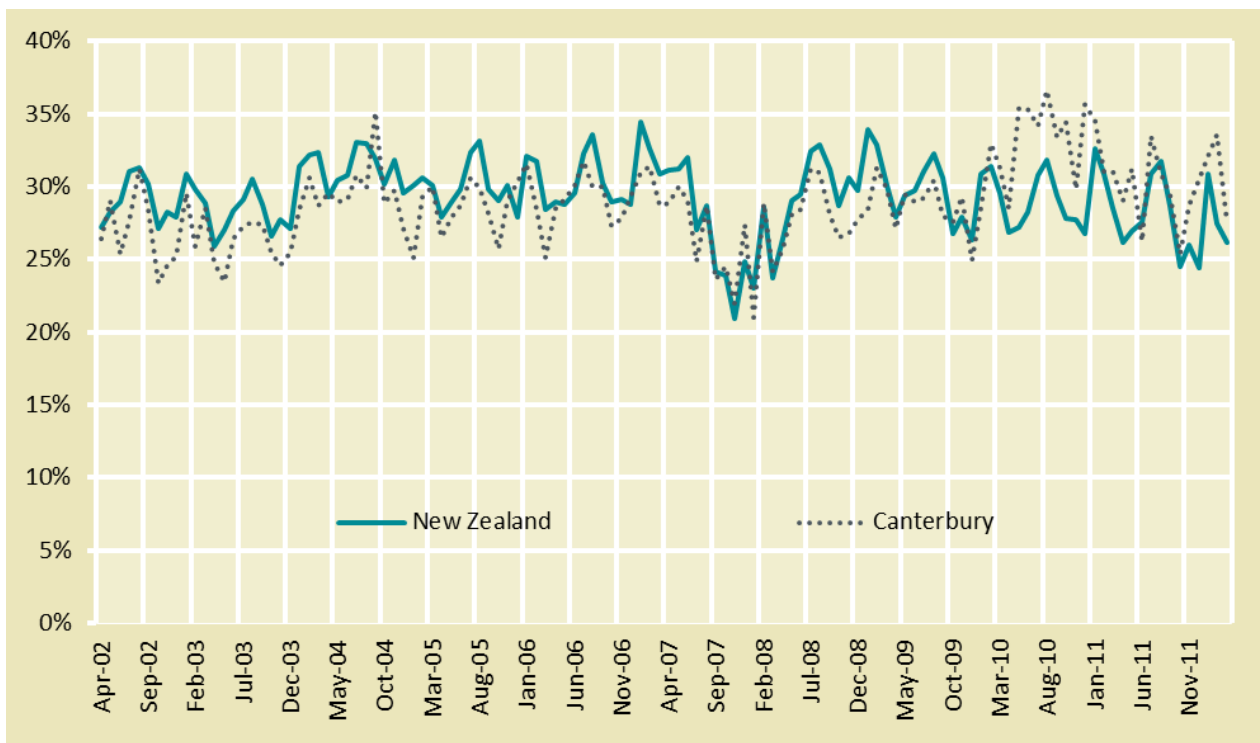


Figure 42 (below) shows the difference between the monthly percentages of New Zealand’s and Canterbury’s new SMEs with debt between 2003 and 2012. This graph provides a more detailed comparison than the yearly percentages (Figure 40).

The pre-quake distribution of the differences in the monthly percentages of Canterbury and New Zealand new SMEs with debt is clearly different to the post-quake distribution, with a pre-quake mean which is 4.6 percentage points higher. This result lends further support that the Christchurch earthquakes affected Canterbury-based SMEs.

**New SMEs’ debt, by industry sector**

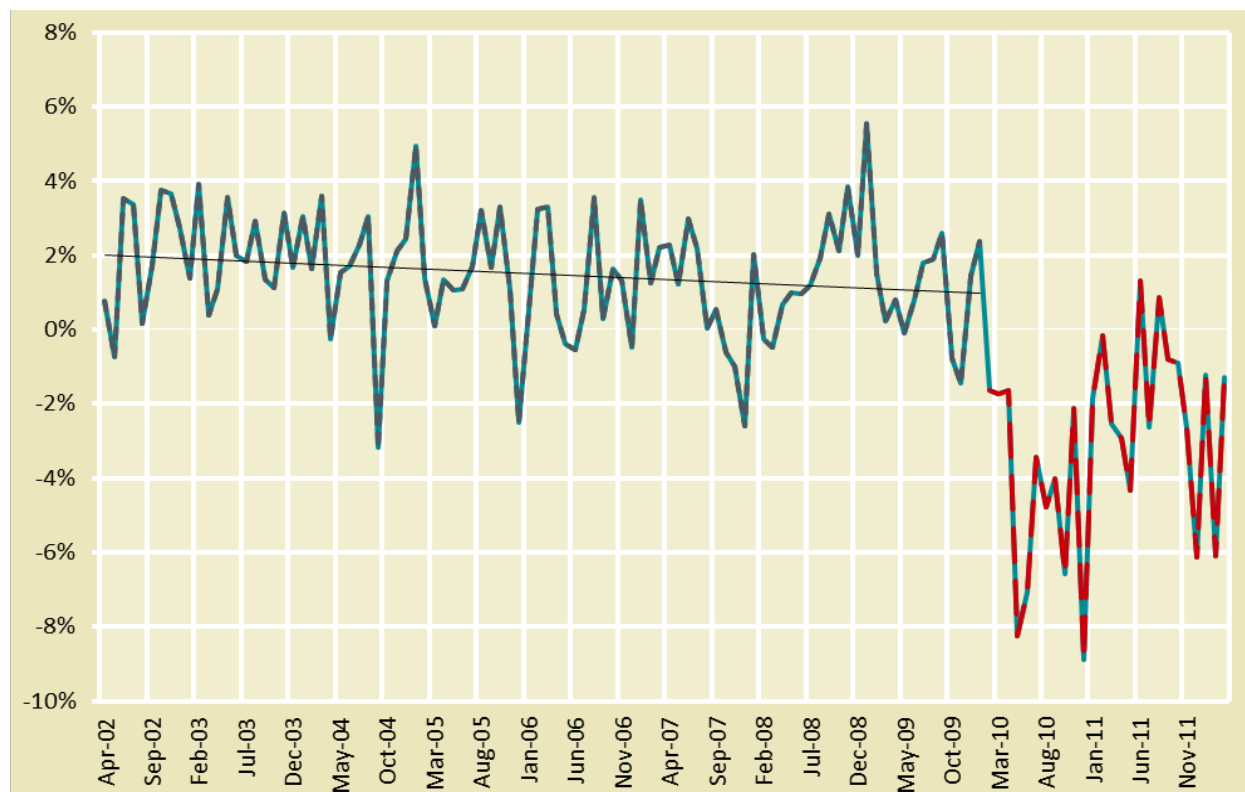
Figure 43 (overleaf) shows the difference between the percentages (by industry sector) of New Zealand’s and Canterbury’s new SMEs having debt. As in Figures 40 and 42, a positive value indicates the points in time when a greater proportion of New Zealand’s new SMEs

had tax debt than Canterbury’s new SMEs (i.e. Canterbury’s new SMEs had better tax debt compliance). A negative value indicates the reverse where more Canterbury’s SMEs had tax debt than the New Zealand average.

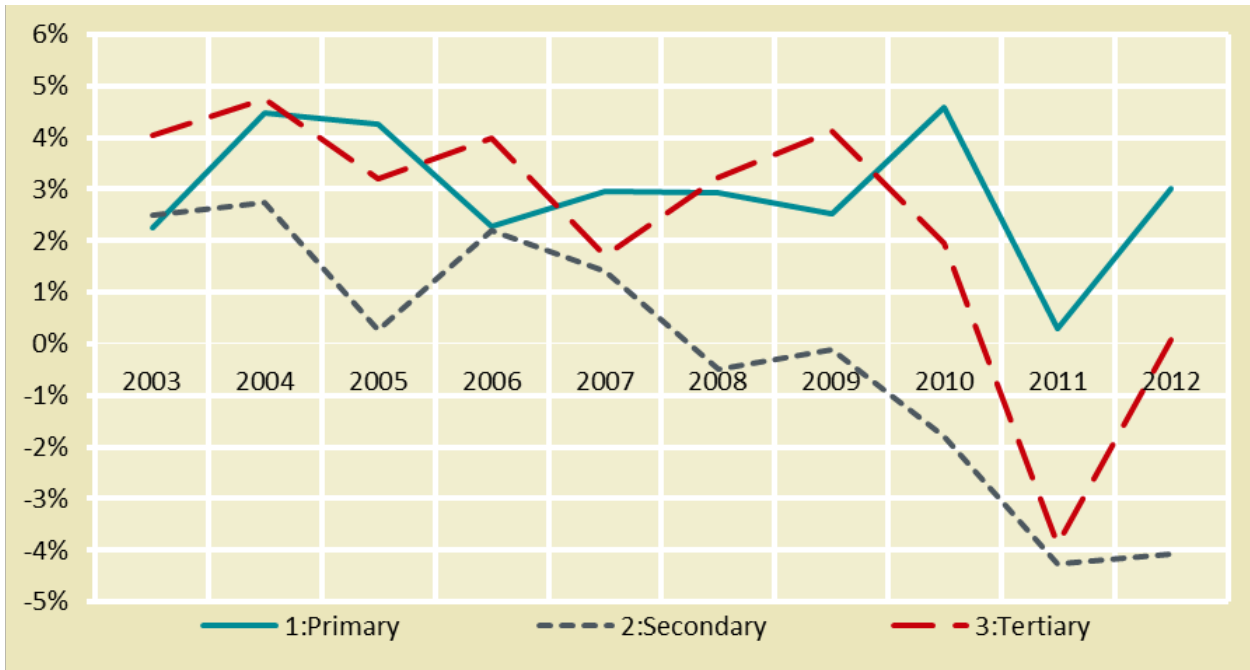
Tax debt compliance dropped for new SMEs registered in 2011 in Canterbury’s Primary, Secondary and Tertiary sectors. Even with this drop, Canterbury’s new SMEs in the Primary sector were still slightly higher than the New Zealand average in 2011.

For Canterbury new SMEs in the Tertiary sector, the drop took them from being equal to the New Zealand average in 2010 to being well below the New Zealand average. Canterbury’s new SMEs in the Secondary sector had been below the New Zealand average in 2010, and the drop took them even lower.

**Figure 42: The monthly difference between the proportion of new SMEs incurring tax debt in Canterbury and in New Zealand**



**Figure 43: The annual difference between the proportion of new SMEs incurring tax debt in Canterbury and in New Zealand, by industry sector**



For new SMEs registered in 2012, those in Canterbury’s Primary and Tertiary sectors improved their tax debt compliance towards their pre-quakes levels, whereas new SMEs in Canterbury’s Secondary sector showed very little improvement.

levels, whereas new SMEs in its Secondary sector showed very little improvement.

## Summary

This chapter has presented the results regarding the effect of the Christchurch earthquakes on the tax debt compliance of Canterbury’s SMEs.

Using the monthly rate of tax debt as a measure, it is clear that the proportion of Canterbury’s existing SMEs in tax debt increased considerably after the earthquakes. However, this quickly returned to the pre-earthquakes range, by December 2011.

A much higher proportion of Canterbury’s 2011 and 2012 cohorts of new SMEs incurred tax debt

The proportion of Canterbury’s new SMEs incurring tax debt in the 2011 and 2012 cohorts was higher than the national average. This increased debt occurred in every industry sector. For new SMEs registered in 2012, those in Canterbury’s Primary and Tertiary sectors improved their tax debt compliance towards their pre-quakes

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- 
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## Appendix A – Definitions

### Key definitions

#### *Small- to Medium-sized Enterprises (SMEs)*

- All non-individual customers registered for the GST and/or PAYE tax types, excluding non-profit organisations and those registered in a corporate service centre; and
- Individual customers registered for the GST and/or PAYE tax types, with annual turnover less than \$100 million.

#### *SME closure*

A SME that ended its GST registration in any tax year from 2004 to 2013 (to collect consistent data, we have only counted GST registration cancellations occurring within 12 months of the SME ceasing activity).

#### *Existing SME*

A SME that had an 'active' tax registration status on 4 September 2010 (the date of the first earthquake).

#### *Newly-registered SME*

A new SME that registered for PAYE or GST in any tax year from 2004 to 2013. For SMEs registering more than once, only the first registration after April 2003 is counted. In this analysis, newly-registered SMEs are presented in annual, quarterly, and monthly cohorts, by their registration date.

#### *GST*

GST is a tax collected by SMEs, on behalf of the government, on their sales and income. The rate of GST was increased from 12.5% to 15% on 1 October 2010. The GST amount for each period was calculated from the GST on sales and income.

#### *GST turnover for existing SMEs*

This is the sum of GST assessments in each return period. All years in this analysis are tax years (1 April to 31 March).

#### *GST turnover for newly registered SMEs*

The sum of GST assessments in the first 12 months following a SME's registration. By this definition, new SMEs registered in 2013 did not have the full 12 months

of GST turnover. This calculation was used for both the Canterbury SMEs and the 'rest of New Zealand' SMEs.

#### *Filing compliance of existing SMEs*

The percentage of GST returns filed on time by existing SMEs; a ratio of the number of GST returns filed on time to the total number of returns required for a return period. A return is considered to be on time if it is filed on or before the due date (no grace period).

#### *Filing compliance of newly registered SMEs*

The percentage of GST returns filed on time in each return period by newly registered SMEs; a ratio of the number of GST returns filed on time to the total number of returns required in the first 12 months after registration. A return is considered to be on time if it is filed on or before the due date (no grace period).

#### *Payment compliance of existing SMEs*

The percentage of GST payments made on time; a ratio of the number of GST payments made on time to the total number of payments required for a return period. A payment is considered to be on time if it is paid in full on or before the due date (no grace period).

#### *Payment compliance of newly-registered SMEs*

This is the percentage of GST payments made on time in each return period by newly registered SMEs; a ratio of the number of GST payments made on time to the total number of GST payments required in the first 12 months after registration. A payment is considered to be on time if it is paid in full on or before the due date (no grace period).

#### *SME incurring debt*

A SME is counted as incurring debt if it had a debt element starting in a return period regardless of how long the debt lasted. This analysis only included debts in the main tax types: GST, PAYE, and Income Tax.

*Existing SMEs' debt*

This is a ratio of the number of existing SMEs in Canterbury incurring debt to the total number of existing SMEs<sup>9</sup> in New Zealand incurring debt.

*Newly-registered SME debt*

The percentage of newly registered SMEs incurring debt in the first 12 month after registration.

*Monthly employment activity*

The number of employees by selected businesses, including part-time employees, for each month.

*Yearly employment activity*

The sum of all monthly employment numbers during each tax year. If a business employs a person for 12 months in a tax year, that is counted as 12

*Locations*

Our definition of the Canterbury Region is IR's Christchurch District Office area, which includes the Kaikoura, Hurunui, Waimakariri, Selwyn, and Christchurch City Councils.



<sup>9</sup> PAYE is the tax deducted from salary and wages. It also includes an ACC earners' levy.



## Appendix B – Analysis Tables

**Table 4: Number of newly registered SMEs in Canterbury, by business division**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Agriculture, Forestry and Fishing	1109	911	878	865	761	644	537	511	544	437
Mining	8	4	6	4	11	10	12	16	13	15
Manufacturing	420	390	435	417	375	288	243	265	246	196
Electricity, Gas, Water and Waste Services	32	30	28	19	25	14	15	30	30	15
Construction	1104	1175	1174	1091	1081	727	631	776	1305	1084
Wholesale Trade	352	343	310	300	258	243	204	233	197	181
Retail Trade	650	665	624	650	563	480	519	470	425	350
Accommodation and Food Services	594	529	501	490	438	377	403	350	313	288
Transport, Postal and Warehousing	300	331	314	312	354	272	262	227	209	164
Information Media and Telecommunications	88	96	114	70	105	70	66	75	60	45
Financial and Insurance Services	193	212	217	212	227	170	237	175	238	128
Rental, Hiring and Real Estate Services	1440	1477	1502	1420	1447	793	853	686	788	647
Professional, Scientific and Technical Services	927	919	973	1027	1051	856	780	802	790	632
Administrative and Support Services	424	454	530	512	354	328	303	246	273	222
Public Administration and Safety	25	33	38	29	26	30	50	25	28	18
Education and Training	79	87	72	69	74	83	72	69	68	68
Health Care and Social Assistance	297	265	272	304	300	273	191	203	171	127
Arts and Recreation Services	120	122	128	133	119	109	105	88	70	90
Other Services	329	398	366	371	366	292	250	254	233	200
Unknown	1797	1797	1444	1266	1715	1442	915	761	668	566

**Table 5: Canterbury's SMEs' pre-quake contribution to New Zealand's existing SMEs' GST turnover (2001-2010)**

Mean	Std Dev	Minimum	Maximum
11.9%	0.1%	11.8%	12.1%

**Table 6: Number of newly registered SMEs, by year**

	New Zealand	Canterbury	New Zealand annual change	Canterbury annual change	Annual New Zealand % change	Annual Canterbury % change	Difference in annual % change
2004	83333	10288	-	-	-	-	-
2005	81018	10238	-2315	-50	-2.78%	-0.49%	2.29%
2006	78105	9926	-2913	-312	-3.60%	-3.05%	0.55%
2007	76725	9561	-1380	-365	-1.77%	-3.68%	-1.91%
2008	78686	9650	1961	89	2.56%	0.93%	-1.63%
2009	61114	7501	-17572	-2149	-22.33%	-22.27%	0.06%
2010	55330	6648	-5784	-853	-9.46%	-11.37%	-1.91%
2011	52619	6262	-2711	-386	-4.90%	-5.81%	-0.91%
2012	52094	6669	-525	407	-1.00%	6.50%	7.50%
2013	42254	5473	-9840	-1196	-18.89%	-17.93%	0.96%

**Table 7: National number of newly registered SMEs, by business division**

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Agriculture, Forestry and Fishing	8899	7592	7406	6899	6659	5420	4576	4280	4443	3374
Mining	55	46	49	51	78	69	85	113	114	95
Manufacturing	3417	3277	3265	3004	3020	2326	2186	2261	2169	1745
Electricity, Gas, Water and Waste Services	198	197	196	217	185	149	130	170	175	136
Construction	9350	9755	9664	8994	9115	6268	5383	5499	5893	4939
Wholesale Trade	2819	2744	2553	2313	2301	1943	2068	2149	2223	1804
Retail Trade	5519	5588	5379	5710	6145	4434	4268	4314	4283	3643
Accommodation and Food Services	3992	3853	3745	3629	3609	2887	3031	3022	3049	2491
Transport, Postal and Warehousing	3055	3037	2877	2612	2956	2222	1850	1904	1954	1510
Information Media and Telecommunications	1047	1091	1054	1047	1044	991	1062	973	994	721
Financial and Insurance Services	1752	1737	1726	1724	1855	1406	1742	1429	1426	1144

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Rental, Hiring and Real Estate Services	10970	10819	11058	10689	10511	6222	6385	5706	5680	4746
Professional, Scientific and Technical Services	9373	9037	8739	9192	9753	8147	7156	7738	7429	6030
Administrative and Support Services	3587	3685	3729	3519	3381	3097	2574	2633	2703	2101
Public Administration and Safety	273	250	252	244	274	223	239	225	223	187
Education and Training	605	647	577	592	617	589	595	659	664	517
Health Care and Social Assistance	2052	2009	2002	2016	2244	2023	1603	1538	1499	1165
Arts and Recreation Services	1063	1051	1010	1082	1103	906	785	904	838	723
Other Services	2699	2720	2695	2602	2710	2209	1931	2016	1999	1663
Unknown	12608	11883	10129	10589	11126	9583	7681	5086	4336	3520

**Table 8: Newly registered SMEs' GST turnover, by year**

	GST turnover of newly registered SMEs in Canterbury	GST turnover of all New Zealand's newly registered SMEs	Canterbury's contribution to the number of New Zealand newly registered SMEs	Canterbury's contribution to New Zealand GST turnover
2003	\$163M	\$1472M		11.1%
2004	\$161M	\$1365M	12.3%	11.8%
2005	\$161M	\$1314M	12.6%	12.2%
2006	\$144M	\$1275M	12.7%	11.3%
2007	\$158M	\$1315M	12.5%	12.0%
2008	\$147M	\$1322M	12.3%	11.2%
2009	\$112M	\$1001M	12.3%	11.2%
2010	\$97M	\$937M	12.0%	10.3%
2011	\$123M	\$1102M	11.9%	11.2%
2012	\$141M	\$1120M	12.8%	12.6%
2013	\$62M	\$446M	13.0%	13.9%

**Table 9: SME closures, by year**

	New Zealand	Canterbury
2002	39,948	4,239
2003	41,248	4,253
2004	45,402	4,643
2005	44,112	4,580
2006	44,503	4,801
2007	47,043	5,262
2008	49,908	5,161
2009	48,149	5,127
2010	43,445	4,766
2011	42,463	4,585
2012	41,202	4,659
2013	22,175	2,424

**Table 10: Canterbury's contribution to the national number of SME closures in the Secondary Industry business divisions**

	Manufacturing (C)	Electricity, Gas, Water and Waste Services (D)	Construction (E)
2002	12.1%	3.1%	10.7%
2003	11.8%	22.2%	10.3%
2004	10.2%	3.4%	9.9%
2005	11.6%	13.7%	10.6%
2006	9.2%	14.0%	9.6%
2007	12.6%	12.5%	10.4%
2008	11.9%	4.3%	10.4%
2009	11.6%	10.7%	10.6%
2010	10.5%	19.6%	10.4%
2011	10.5%	12.5%	10.7%
2012	12.3%	15.5%	13.0%
2013	11.2%	18.6%	12.8%

**Table 11: Canterbury’s contribution to the national number of SME closures in the Tertiary Industry business divisions**

	Accommodation and Food Services (H)	Financial and Insurance Services (K)	Professional, Scientific and Technical (M)
2002	10.8%	12.3%	9.6%
2003	11.6%	11.6%	8.6%
2004	12.7%	12.2%	7.1%
2005	11.7%	11.5%	6.9%
2006	11.6%	14.0%	7.2%
2007	11.5%	12.7%	8.5%
2008	11.4%	12.1%	8.0%
2009	10.6%	13.6%	7.9%
2010	11.7%	13.5%	8.0%
2011	12.2%	10.7%	9.3%
2012	13.9%	14.7%	9.5%
2013	11.9%	12.5%	8.7%

**Table 12: Number of new SMEs and SME closures**

	New Zealand new SMEs	Canterbury new SMEs	New Zealand SME closures	Canterbury’s SME closures
2003	84,359	10,028	41,248	4,253
2004	83,333	10,288	45,402	4,643
2005	81,018	10,238	44,112	4,580
2006	78,105	9,926	44,503	4,801
2007	76,725	9,561	47,043	5,262
2008	78,686	9,650	49,908	5,161
2009	61,114	7,501	48,149	5,127
2010	55,330	6,648	43,445	4,766
2011	52,619	6,262	42,463	4,585
2012	52,094	6,669	41,202	4,659
2013	42,254	5,473	22,175	2,424

**Table 13: Summary statistics for Canterbury’s contribution to the national number of SME closures**

	Estimate	95% Confidence Limits	
Mean	10.6%	10.3%	11.0%
Std Dev	0.5%	0.3%	0.9%

**Table 14: Summary statistics for Canterbury’s contribution to the national number of SME closures**

	Estimate	95% Confidence Limits	
Mean	10.4%	10.1%	10.6%
Std Dev	0.4%	0.2%	0.7%

**Table 15: Annual filing compliance of new SMEs**

	New Zealand	Canterbury	Difference
2003	60.1%	65.7%	5.7%
2004	60.4%	65.8%	5.4%
2005	59.0%	63.8%	4.8%
2006	58.3%	62.3%	4.0%
2007	57.9%	61.7%	3.8%
2008	55.7%	60.9%	5.2%
2009	58.5%	63.0%	4.5%
2010	59.7%	63.5%	3.8%
2011	57.6%	54.8%	-2.8%
2012	60.7%	58.2%	-2.5%

**Table 16: Annual payment compliance of new SMEs**

	New Zealand	Canterbury	Difference
2003	84.1%	85.5%	1.4%
2004	83.2%	84.7%	1.5%
2005	82.6%	83.9%	1.3%
2006	81.4%	82.5%	1.1%
2007	80.4%	80.8%	0.4%
2008	78.6%	78.5%	0.0%
2009	78.4%	78.7%	0.3%
2010	78.0%	78.2%	0.3%
2011	76.4%	73.1%	-3.3%
2012	76.7%	75.4%	-1.3%

**Table 17: National filing compliance rate of new SMEs, by industry sector**

	Unknown	Primary	Secondary	Tertiary	Quaternary	All
2003	61.3%	64.9%	57.3%	59.2%	57.4%	60.0%
2004	60.2%	65.7%	58.1%	60.1%	57.0%	60.3%
2005	59.1%	63.7%	56.5%	58.9%	51.4%	58.9%
2006	57.2%	62.8%	55.9%	58.3%	60.1%	58.2%
2007	56.2%	63.1%	55.4%	58.0%	51.8%	57.8%
2008	54.5%	61.1%	53.4%	55.8%	49.3%	55.7%
2009	56.7%	63.8%	55.7%	58.8%	56.4%	58.4%
2010	55.3%	64.2%	58.0%	60.3%	57.8%	59.5%
2011	56.8%	62.3%	54.1%	57.8%	52.7%	57.4%
2012	58.2%	65.1%	58.3%	60.8%	56.3%	60.5%

**Table 18: Annual filing compliance rate of Canterbury’s new SMEs, by industry sector**

	Unknown	Primary	Secondary	Tertiary	Quaternary	All
2003	66.5%	67.6%	63.5%	65.6%	54.0%	65.7%
2004	63.8%	68.9%	65.2%	65.9%	53.4%	65.8%
2005	62.5%	68.1%	61.4%	64.1%	57.0%	63.8%
2006	61.0%	65.4%	59.7%	62.8%	51.0%	62.3%
2007	60.2%	64.9%	58.8%	62.2%	61.0%	61.7%
2008	59.4%	64.1%	58.1%	61.6%	64.4%	60.9%
2009	61.1%	66.4%	58.8%	64.0%	62.7%	63.0%
2010	60.0%	69.3%	61.7%	63.8%	48.3%	63.5%
2011	56.2%	58.2%	49.4%	55.7%	43.0%	54.8%
2012	58.1%	63.7%	57.0%	57.8%	52.8%	58.2%

**Table 19: National payment compliance rate of new SMEs, by industry sector**

	Unknown	Primary	Secondary	Tertiary	Quaternary	All
2003	84.6%	88.7%	81.1%	84.0%	81.7%	83.4%
2004	82.0%	87.5%	81.4%	83.3%	79.8%	82.5%
2005	81.4%	86.5%	80.7%	82.9%	77.2%	81.8%
2006	79.5%	86.4%	79.0%	81.9%	79.1%	80.6%
2007	78.1%	85.7%	78.2%	80.9%	71.5%	79.6%
2008	76.5%	84.9%	76.8%	78.6%	72.0%	77.8%
2009	76.4%	86.2%	76.2%	78.2%	69.8%	77.4%
2010	74.2%	84.6%	75.2%	78.5%	78.8%	76.9%
2011	74.5%	83.5%	73.1%	76.6%	76.7%	75.3%
2012	75.4%	83.6%	73.7%	76.8%	67.6%	75.5%

**Table 20: Annual payment compliance rate of Canterbury’s new SMEs, by industry sector**

	Unknown	Primary	Secondary	Tertiary	Quaternary	All
2003	85.8%	88.2%	83.2%	85.8%	88.5%	85.5%
2004	82.2%	88.2%	82.6%	85.7%	61.5%	84.7%
2005	82.8%	86.4%	82.3%	84.4%	67.1%	83.9%
2006	81.0%	86.8%	79.2%	83.5%	72.1%	82.5%
2007	80.0%	82.0%	78.5%	81.7%	51.6%	80.8%
2008	74.9%	82.8%	76.9%	79.4%	71.9%	78.5%
2009	77.2%	83.5%	76.7%	79.3%	64.9%	78.7%
2010	75.0%	84.9%	75.7%	78.7%	84.4%	78.2%
2011	71.3%	83.9%	69.5%	73.4%	70.6%	73.1%
2012	77.3%	83.0%	71.8%	76.4%	73.2%	75.4%

**Table 21: Filing compliance rate of new SMEs, by month**

	New Zealand	Canterbury		New Zealand	Canterbury
Apr-08	58.2%	64.5%	Apr-10	60.0%	60.0%
May-08	57.5%	60.2%	May-10	58.6%	60.3%
Jun-08	61.0%	64.1%	Jun-10	59.6%	58.1%
Jul-08	59.5%	64.3%	Jul-10	57.7%	60.3%
Aug-08	58.1%	60.9%	Aug-10	58.0%	55.4%
Sep-08	58.0%	60.4%	Sep-10	54.9%	49.5%
Oct-08	59.6%	64.0%	Oct-10	56.6%	52.0%
Nov-08	57.3%	65.1%	Nov-10	55.5%	51.3%
Dec-08	58.6%	63.8%	Dec-10	57.5%	50.9%
Jan-09	56.6%	59.9%	Jan-11	55.6%	47.1%
Feb-09	58.7%	62.7%	Feb-11	57.8%	52.4%
Mar-09	57.9%	62.5%	Mar-11	56.7%	52.4%
Apr-09	58.3%	64.9%	Apr-11	59.2%	55.2%
May-09	57.4%	62.2%	May-11	58.2%	54.6%
Jun-09	60.9%	63.2%	Jun-11	61.1%	56.4%
Jul-09	59.9%	67.8%	Jul-11	60.4%	53.9%
Aug-09	61.5%	64.6%	Aug-11	61.7%	62.0%
Sep-09	59.9%	63.6%	Sep-11	61.7%	61.3%
Oct-09	59.3%	61.6%	Oct-11	62.6%	57.8%
Nov-09	59.9%	62.1%	Nov-11	60.1%	61.1%
Dec-09	60.7%	66.3%	Dec-11	62.1%	61.6%
Jan-10	59.2%	62.2%	Jan-12	61.0%	61.6%
Feb-10	60.1%	63.0%	Feb-12	61.1%	56.7%
Mar-10	59.4%	59.6%	Mar-12	59.6%	59.2%

**Table 22: Payment compliance rate of new SMEs, by month**

	New Zealand	Canterbury		New Zealand	Canterbury
Apr-08	79.5%	80.1%	Apr-10	78.4%	75.8%
May-08	78.9%	78.5%	May-10	75.8%	71.9%
Jun-08	80.4%	80.4%	Jun-10	78.4%	74.7%
Jul-08	78.6%	79.7%	Jul-10	77.1%	75.9%
Aug-08	77.3%	76.2%	Aug-10	77.3%	74.1%
Sep-08	77.0%	77.9%	Sep-10	74.9%	66.0%
Oct-08	77.4%	75.2%	Oct-10	75.8%	71.8%
Nov-08	76.1%	79.1%	Nov-10	74.2%	69.4%
Dec-08	78.6%	81.2%	Dec-10	75.2%	71.8%
Jan-09	76.0%	76.8%	Jan-11	74.1%	70.9%
Feb-09	77.9%	77.3%	Feb-11	76.4%	75.1%
Mar-09	79.2%	79.6%	Mar-11	75.7%	75.9%
Apr-09	79.8%	82.4%	Apr-11	78.0%	75.0%



	New Zealand	Canterbury		New Zealand	Canterbury
May-09	77.9%	77.8%	May-11	77.6%	75.5%
Jun-09	79.3%	77.9%	Jun-11	78.0%	74.5%
Jul-09	78.3%	78.7%	Jul-11	77.1%	78.4%
Aug-09	78.3%	76.9%	Aug-11	74.9%	70.9%
Sep-09	78.0%	78.5%	Sep-11	74.7%	74.3%
Oct-09	77.4%	79.3%	Oct-11	75.7%	77.1%
Nov-09	76.1%	77.8%	Nov-11	75.0%	74.3%
Dec-09	79.2%	81.0%	Dec-11	76.6%	74.3%
Jan-10	76.0%	76.1%	Jan-12	76.2%	76.4%
Feb-10	76.6%	76.1%	Feb-12	77.0%	74.8%
Mar-10	76.1%	71.7%	Mar-12	77.6%	81.3%

**Table 23: Proportion of newly registered SME with debt, per annum**

	Canterbury	New Zealand	Difference
2003	26.0%	28.1%	2.0%
2004	25.7%	27.7%	2.0%
2005	28.8%	30.1%	1.3%
2006	27.5%	29.1%	1.6%
2007	28.9%	29.7%	0.8%
2008	25.8%	26.6%	0.8%
2009	27.6%	29.4%	1.8%
2010	28.2%	28.8%	0.6%
2011	32.4%	28.2%	-4.1%
2012	29.0%	26.9%	-2.1%

**Table 24: Difference in the percentages of New Zealand and Canterbury yearly new registered SMEs with debt in industry sectors**

	Unknown	Primary	Secondary	Tertiary
2003	1.6%	2.1%	2.3%	1.6%
2004	-0.7%	4.0%	3.5%	2.0%
2005	1.1%	4.9%	0.1%	0.9%
2006	1.1%	2.5%	2.2%	1.4%
2007	4.5%	2.7%	1.1%	-0.3%
2008	-0.2%	2.6%	0.0%	0.9%
2009	3.2%	2.7%	0.0%	1.6%
2010	2.8%	4.7%	-1.8%	0.2%
2011	-4.6%	0.3%	-4.0%	-4.3%
2012	1.0%	3.2%	-4.1%	-1.4%

Table 25: Proportion of newly registered SMEs with debt, by month

	New Zealand	Canterbury	Difference		New Zealand	Canterbury	Difference
Apr-08	25.6%	24.9%	0.8%	Apr-10	25.9%	27.2%	-1.3%
May-08	28.2%	27.6%	0.6%	May-10	26.6%	34.6%	-8.0%
Jun-08	28.7%	27.9%	0.8%	Jun-10	27.4%	35.2%	-7.7%
Jul-08	32.0%	30.8%	1.2%	Jul-10	30.2%	33.6%	-3.4%
Aug-08	32.4%	30.8%	1.5%	Aug-10	31.2%	36.6%	-5.4%
Sep-08	30.8%	27.3%	3.5%	Sep-10	28.9%	33.2%	-4.3%
Oct-08	28.0%	26.0%	2.0%	Oct-10	27.2%	33.6%	-6.4%
Nov-08	30.2%	26.2%	4.0%	Nov-10	27.2%	29.0%	-1.8%
Dec-08	29.3%	27.1%	2.2%	Dec-10	26.2%	34.9%	-8.8%
Jan-09	33.5%	27.9%	5.6%	Jan-11	32.3%	34.3%	-1.9%
Feb-09	32.4%	30.5%	1.9%	Feb-11	30.4%	30.9%	-0.4%
Mar-09	29.5%	28.5%	1.1%	Mar-11	27.9%	29.8%	-1.8%
Apr-09	27.0%	26.4%	0.5%	Apr-11	25.3%	28.1%	-2.8%
May-09	28.6%	28.7%	-0.1%	May-11	26.1%	29.8%	-3.7%
Jun-09	29.0%	28.4%	0.6%	Jun-11	26.8%	25.4%	1.4%
Jul-09	30.5%	28.7%	1.9%	Jul-11	30.3%	32.9%	-2.6%
Aug-09	31.7%	29.3%	2.5%	Aug-11	31.1%	30.6%	0.6%
Sep-09	30.1%	27.8%	2.3%	Sep-11	28.3%	29.3%	-1.1%
Oct-09	26.3%	26.8%	-0.5%	Oct-11	23.8%	24.5%	-0.7%
Nov-09	27.4%	29.1%	-1.8%	Nov-11	25.4%	28.2%	-2.8%
Dec-09	26.0%	24.5%	1.4%	Dec-11	24.0%	29.7%	-5.6%
Jan-10	30.3%	27.5%	2.8%	Jan-12	30.5%	31.6%	-1.2%
Feb-10	30.9%	32.8%	-1.9%	Feb-12	27.1%	33.2%	-6.1%
Mar-10	29.0%	29.3%	-0.3%	Mar-12	25.6%	27.1%	-1.5%

**Table 266: Canterbury's contribution to New Zealand's existing SMEs' GST turnover by industry**

	Wholesale	Manufacturing	Rental, Hiring and Real estate	Finance and Insurance services	Construction
2001	9.3%	13.8%	12.0%	7.0%	14.4%
2002	10.2%	13.4%	12.4%	6.3%	14.3%
2003	10.2%	13.4%	12.4%	6.1%	14.0%
2004	9.8%	13.3%	12.7%	6.3%	13.9%
2005	9.7%	13.3%	12.4%	7.8%	13.7%
2006	9.4%	13.2%	12.2%	9.8%	13.4%
2007	9.4%	13.0%	12.2%	10.0%	13.3%
2008	9.5%	13.1%	12.4%	10.6%	13.5%
2009	9.5%	13.2%	12.9%	10.2%	13.0%
2010	9.6%	13.2%	12.7%	10.0%	12.8%
2011	9.8%	12.7%	11.8%	9.9%	12.9%
2012	10.4%	13.3%	15.3%	8.5%	16.3%
2013	10.6%	14.0%	16.6%	11.0%	18.5%

**Table 277: Canterbury's contribution to New Zealand's existing SMEs' employment activity, by industry sector**

	Primary Sector	Secondary Sector	Tertiary Sector
2001	10.1%	16.1%	15.9%
2002	9.5%	15.8%	15.7%
2003	9.8%	15.5%	15.3%
2004	9.9%	15.1%	14.8%
2005	9.5%	15.1%	14.1%
2006	9.2%	14.9%	14.2%
2007	9.0%	14.6%	13.9%
2008	8.9%	14.5%	13.5%
2009	8.7%	14.3%	13.3%
2010	8.6%	14.0%	13.2%
2011	8.4%	13.8%	13.1%
2012	8.5%	14.6%	12.8%
2013	8.6%	15.5%	12.9%

**Table 2828: Canterbury's contribution to New Zealand's existing SMEs' employment by industry**

	Electricity, Gas, Water and Waste Service	Wholesale Trade	Retail Trade	Manufacturing	Construction	Agriculture, Forestry and Fishing	Financial and Insurance Services
2001	3.6%	11.5%	17.3%	15.6%	17.4%	10.0%	11.8%
2002	3.8%	11.4%	16.8%	15.4%	16.8%	9.5%	10.4%
2003	3.1%	11.2%	16.7%	15.3%	16.2%	9.7%	9.8%
2004	3.1%	10.9%	17.0%	14.9%	15.8%	9.8%	10.8%
2005	4.0%	10.4%	16.7%	15.1%	15.4%	9.5%	12.0%
2006	4.9%	10.2%	16.3%	14.9%	15.3%	9.1%	12.6%
2007	5.6%	10.2%	16.0%	14.9%	14.5%	8.9%	11.6%
2008	6.9%	10.3%	15.4%	14.9%	14.1%	8.9%	8.4%
2009	7.4%	10.3%	15.5%	15.0%	13.8%	8.7%	7.7%
2010	6.4%	10.4%	15.3%	14.8%	13.3%	8.5%	8.6%
2011	6.7%	10.7%	14.7%	14.5%	13.3%	8.3%	8.3%
2012	6.5%	10.7%	14.6%	14.7%	14.9%	8.4%	7.4%
2013	6.7%	10.9%	15.1%	15.1%	16.3%	8.5%	8.1%

**Table 29: Existing SMEs' annual percentage of GST payments made on time**

	Canterbury	Rest of New Zealand	Difference between Canterbury and rest of New Zealand
2001	92.0%	91.5%	0.5%
2002	91.8%	91.4%	0.5%
2003	91.8%	91.0%	0.8%
2004	91.0%	90.0%	1.0%
2005	90.5%	89.5%	1.0%
2006	89.8%	89.0%	0.8%
2007	87.9%	87.8%	0.1%
2008	85.7%	85.6%	0.2%
2009	85.5%	85.0%	0.5%
2010	84.1%	84.0%	0.1%
2011	80.4%	82.8%	-2.3%
2012	82.0%	83.3%	-1.4%
2013	83.5%	83.8%	-0.3%

**Table 290: Existing SMEs' annual percentage of GST payments made on time, by industry sectors**

	Canterbury			Rest of New Zealand			Difference between Canterbury and rest of New Zealand		
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
2001	92.5%	91.3%	92.3%	93.2%	89.6%	91.8%	-0.8%	1.7%	0.5%
2002	92.8%	91.2%	92.0%	93.2%	89.5%	91.8%	-0.5%	1.7%	0.3%
2003	92.7%	90.9%	92.2%	93.0%	89.1%	91.4%	-0.3%	1.8%	0.9%
2004	92.0%	90.4%	91.4%	92.3%	88.1%	90.4%	-0.3%	2.3%	1.1%
2005	91.1%	89.9%	91.0%	92.1%	88.0%	89.8%	-1.0%	1.9%	1.3%
2006	90.6%	88.6%	90.4%	91.5%	87.3%	89.3%	-1.0%	1.3%	1.1%
2007	89.7%	86.1%	88.4%	90.9%	85.6%	88.0%	-1.1%	0.6%	0.4%
2008	87.5%	84.0%	86.3%	88.9%	83.2%	85.8%	-1.4%	0.8%	0.5%
2009	88.6%	82.9%	85.7%	89.3%	82.3%	84.9%	-0.7%	0.7%	0.8%
2010	87.9%	81.4%	84.3%	88.6%	80.5%	83.9%	-0.7%	0.9%	0.4%
2011	86.0%	77.0%	80.2%	87.8%	78.8%	82.7%	-1.8%	-1.8%	-2.4%
2012	86.1%	78.8%	81.9%	88.4%	79.1%	83.1%	-2.3%	-0.3%	-1.2%
2013	85.9%	80.9%	83.8%	88.2%	79.7%	83.8%	-2.3%	1.2%	0.1%

**Table 301: Existing SMEs' annual percentage of GST returns filed on time**

	Canterbury	Rest of New Zealand	Difference between Canterbury and rest of New Zealand
2001	72.4%	67.6%	4.8%
2002	71.6%	67.8%	3.8%
2003	72.0%	66.4%	5.6%
2004	71.0%	66.1%	4.9%
2005	68.8%	64.5%	4.3%
2006	67.2%	63.4%	3.7%
2007	66.5%	63.0%	3.5%
2008	62.5%	58.7%	3.8%
2009	65.7%	62.0%	3.7%
2010	66.0%	61.2%	4.8%
2011	62.9%	62.4%	0.6%
2012	54.3%	58.5%	-4.1%
2013	59.8%	62.9%	-3.1%

**Table 312: Existing SMEs' annual percentage of GST returns filed on time**

	Canterbury			Rest of New Zealand			Difference between Canterbury and rest of New Zealand		
	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary	Primary	Secondary	Tertiary
2001	73.4%	71.9%	72.6%	68.8%	63.4%	66.7%	4.6%	8.5%	6.0%
2002	72.6%	70.6%	72.0%	68.5%	64.4%	67.4%	4.1%	6.1%	4.7%
2003	73.0%	70.7%	72.6%	67.9%	61.7%	65.0%	5.1%	9.0%	7.6%
2004	72.1%	70.0%	71.3%	67.8%	61.6%	64.9%	4.3%	8.4%	6.4%
2005	70.8%	67.6%	68.9%	66.4%	60.1%	63.6%	4.4%	7.5%	5.3%
2006	69.4%	65.4%	67.2%	65.4%	58.9%	62.7%	4.1%	6.5%	4.5%
2007	68.8%	65.1%	66.6%	64.8%	59.0%	62.4%	3.9%	6.1%	4.1%
2008	64.8%	60.3%	62.8%	62.0%	53.8%	57.6%	2.8%	6.5%	5.1%
2009	68.0%	62.8%	65.9%	64.3%	57.2%	61.1%	3.6%	5.6%	4.8%
2010	68.8%	62.6%	66.3%	64.0%	55.7%	60.0%	4.8%	6.9%	6.2%
2011	66.4%	59.0%	63.0%	65.7%	58.1%	62.5%	0.6%	0.9%	0.5%
2012	57.9%	51.0%	54.1%	63.0%	55.3%	60.0%	-5.1%	-4.3%	-5.9%
2013	61.0%	56.6%	60.3%	66.6%	59.7%	64.3%	-5.7%	-3.1%	-3.9%

**Table 323: Existing SMEs incurring debt, by year**

	Canterbury's contribution to rest of New Zealand	Predicted Canterbury contribution to rest of New Zealand
2001	11.2%	-
2002	10.9%	-
2003	11.1%	-
2004	11.0%	-
2005	11.4%	-
2006	11.3%	-
2007	11.5%	-
2008	11.4%	-
2009	11.3%	-
2010	11.4%	-
2011	11.8%	11.5%
2012	13.3%	11.5%
2013	12.2%	11.6%