

Measuring labour cost escalation in Canterbury

Comments on Orion's submission and Infometrics
forecasts

NZIER report to the Commerce Commission

4 October 2013

About NZIER

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Each year NZIER devotes resources to undertake and make freely available economic research and thinking aimed at promoting a better understanding of New Zealand's important economic challenges.

NZIER was established in 1958.

Authorship

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Summary

This report provides our assessment of labour cost escalation issues raised in Orion's submission on the Commerce Commission's draft decision on a customised price path (CPP) for Orion (20 September 2013).

Orion's main submission, on labour cost escalation, is that the forecasts of labour cost escalation used by the Commerce Commission and produced by NZIER are too low.¹

Orion submits that alternative forecasts produced by Infometrics are better because:

- the NZIER wage projections are based on low estimates of the scale of the Canterbury rebuild
- the system dynamics model used by NZIER to forecast Canterbury construction industry labour costs uses an extreme assumption of wage symmetry
- NZIER appears to misrepresent the international evidence of the impact of natural disasters

Most of our assessment deals with the Infometrics report in Attachment C in Orion's submission.

We find that:

- Contrary to Infometrics conclusions, their forecasts are lower than our forecasts
 - Infometrics forecast is for inflation to be the same as in the past
 - our forecast is for an unprecedented increase in labour cost inflation in the construction sector
- Infometrics forecasts only appear higher than NZIER's because Infometrics has adopted a bespoke measure of labour costs while we prefer to use a standardised official measure of labour costs
- our forecast methods and assumptions are robust given the unprecedented nature of labour demand surge in the construction sector in Canterbury
- our assessment of international experience is reasonable given that no single international example is intended to be definitive.

¹ The NZIER reports are 'NZIER - Canterbury Labour Cost: Assessment of Orion's Projections' (17 June 2013) and 'NZIER – Labour Cost Escalation in Canterbury (Stage 2 forecast report)', 23 July 2013 available for download at <http://www.comcom.govt.nz/regulated-industries/electricity/cpp/orion-cpp/>

Alternative forecasts

Infometrics forecast is for lower inflation between 2012 and 2019 than between 2001 and 2009

Infometrics has forecast labour cost escalation averaging 5.4% annual percent change between 2012 and 2019. Historical average growth in Infometrics labour cost measure was 5.6% between 2000 and 2009, prior to a recession.

Infometrics forecasts include a doubling of construction activity compared to a previous peak but lower inflation than observed during the previous peak. This result might reflect Infometrics use of an econometric model calibrated to historical labour market dynamics.

Producing forecasts with a model calibrated to historical data can be quite problematic if the forecast period includes market conditions known to be very different from anything observed historically. It makes sense to explore historical market dynamics to consider how or why these might change in the future but using an econometric model to produce forecasts is probably not the best approach in this context.

By comparison, our forecasts are for unprecedented labour cost inflation. Our choice of forecast method was deliberately chosen to be able to account for unusual circumstances and to accommodate the possibility of unprecedented changes in labour costs. We considered historical labour market dynamics and international experience but our forecast method was chosen because it focuses on understanding inflation dynamics and trade-offs without being constrained by experience in recent history.

Irrespective of these methodological issues, infometrics conclusion that our forecast of labour cost escalation is “too low” is mainly due to the use of different cost measures.

Different cost measures makes comparison difficult

Infometrics submission is not easily compared with NZIER’s forecasts because it is based on a raw labour cost measure (LEED earnings/ LEED filled jobs) and NZIER’s is based on a measure adjusted for labour market composition, the Statistics New Zealand Labour Cost Index (LCI).

Orion has noted in its submission that (paragraph 321, emphasis added):

*The additional modelling undertaken by Infometrics confirms the Commission’s conclusion that our CPP proposal estimates (which were based on information from local quantity surveyors) of a **Canterbury Construction Labour Index (CCLI)** were too high. However the analysis undertaken by Infometrics concludes that the NZIER forecast (used in the Draft Decision) is too low. A summary of **the three forecasts of the CCLI** is included in Table 1 of the Infometrics paper, and replicated below.*

This comparison is misleading because the three forecasts are for different indices. The three forecasts are not all forecasts of the CCLI.

The LCI is a robust measure of labour cost inflation

Infometrics is of the view that the LCI is not a good measure of labour cost escalation and has used earnings per filled job as a measure of unit labour costs, the economics term for wages.

Earnings per filled job is a blunt wage measure. It has no adjustment for quality of actual labour input and so it will not accurately estimate changes in wages. This is why there are other statistics produced by Statistics New Zealand which are explicitly intended to reflect wages. Earnings per filled job is not an official measure of wages.

We have used the Statistics New Zealand's Canterbury construction labour cost index to measure changes in wages. The labour cost index compares changes in costs on a like-for-like basis by taking account of changes in the mix of workers and hours worked.

Wage measures need to take account of standardised units of labour input, such as hours worked. Peaks in economic growth or construction activity typically result in more hours worked per filled job. Under these conditions an 'earnings per filled job' measure will exaggerate changes in wages or unit labour costs because earnings can go up solely because of more units of labour being used rather than more paid for each unit.

Compositional effects also need to be controlled for when measuring wages at an industry level. A large increase in construction which requires highly skilled and expensive labour will translate into an increase in wage "inflation" when using a raw earnings based measure of wages but it may just be that fewer low price labourers are being used in the sector and more engineers or crane drivers. So it is not comparing like with like.

Comparing like with like is important when thinking about and forecasting the implications of a surge in construction demand because new supply of lower skilled labour may be easier to come by - it is likely to be more abundant - and so cost escalation might be lower for lower skilled labour. We canvassed this issue in our report by reflecting on the likely labour cost inflation for lower skilled workers. We did not use a low-skilled labour forecast in our final analysis because we did not have sufficient contextual information. However, it is the case that earnings-based wage information will overstate wage inflation if it does not control for any increase in the numbers engineers and crane drivers relative to lower skilled labour.

Symmetry of wage changes

Infometrics has raised questions about the reasonableness of assuming that wages can fall as quickly as they rise. Infometrics raises concerns that this assumption is unconventional and unduly biases forecasts on the low side.

Our assumption of symmetry is reasonable under the circumstances of modelling extreme changes in demand. If we were analysing labour markets under more usual conditions we might make a different assumption. Reconstruction in Canterbury is, however, unusual and we have made assumptions which take into account these unusual labour market conditions.

Our assumption is that wage offers for new construction projects are capped at a 1% increase or a 1% decrease per month. These changes do not apply to people who are already employed on projects. This has the effect that when demand for construction workers falls, overall labour costs fall much more slowly. In our central projection, demand for labour falls by 25% between 2017 and 2019 and labour costs fall by 5%. This is not an extreme result, although the decline is the end result of an extreme set of market conditions.

International evidence

The labour market implications of reconstruction after a major natural disaster are difficult to assess. As one part of our assessment of Orion's forecasts we provided international experiences as an illustration of the dynamics of likely cost inflation.

In our forecast report to the Commerce Commission we also reflected on international experience and compared our forecasts to experiences elsewhere in the world:

Our forecasts are for wage inflation dynamics in the construction sector similar to dynamics in Japan following the 1995 Kobe earthquake (see Figure 3). The forecasts include longer lived inflationary effects relative to alternative international benchmarks we considered in our earlier report (p. 5).

Infometrics has questioned whether it makes sense to compare construction sector wage inflation in Canterbury with wage inflation following the Kobe earthquake. Infometrics observes that the scale of reconstruction in Kobe was a smaller share of the Japanese economy than the Canterbury reconstruction effort is as a share of the New Zealand economy. Infometrics suggests that this means that reconstruction in Canterbury will be more disruptive and will result in stronger local cost pressures.

The size of a rebuild relative to the size of the rest of the economy only tells part of the story. There are a number of other considerations, such as whether new workers can be attracted to the area, the price required to attract these workers and whether those paying are willing to accept that price. As discussed in our report (p.6):

The key drivers of cost escalation and its rate of increase are:

- *the scale of demand relative to labour supply*
- *the willingness of buyers to pay higher costs or to defer projects until costs are lower*
- *the wage premium needed to draw labour into Canterbury.*

These drivers are interrelated but the first two are the most important. If demand for labour is price insensitive and there is no opportunity to slow projects then costs will rise rapidly. This drives up localised costs (such as housing costs) which will increase the wage premium required to draw labour into Canterbury.

People in Japan are wealthier than New Zealanders, on average, and are likely to have a higher willingness to pay as a result. Japanese laws on migrant labour are more stringent than New Zealand's and this could have made it more difficult to attract additional workers to Kobe than to Canterbury.

It was not our intention, however, to characterise the Canterbury experience as the same as one overseas experience or another. We have observed that comparatively fast increases in wages are associated with subsequent rapid and deep declines. We noted that the dynamics in our forecasts meant they had a pattern that was similar to what occurred in Kobe rather than in other parts of the world.

Size of rebuild

Infometrics is concerned that we should have modelled a \$40 billion construction task instead of a \$27.6 billion task. Current Treasury estimates of the rebuild cost are \$40 billion, plus or minus \$5 billion. As discussed in our Stage 2 report, “More recent higher estimates (e.g. \$40 billion) are not used because we cannot determine the extent to which these estimates include cost escalation. Thus \$27.6 billion is assumed to be a volume measure.” (p.14).

We assume that cost escalation was not factored into earlier estimates of rebuild costs. This assumption means that our labour cost escalation forecast is an additional factor in reconstruction costs, over and above the \$27.6 billion task.

NZIER’s forecasts would not necessarily be higher if we had assumed a larger rebuild. Timing of the rebuild and related dynamics are key drivers of cost escalation. A rapid rebuild has the effect of increasing the size of the task at hand. A rapid rebuild then leads to more rapid labour cost escalation. This was illustrated in Figure 6 of our forecast report. The prospect of rapid inflation then encourages people to defer or cancel reconstruction plans. Deferral of construction projects has the effect of reducing the size of the task at hand and reducing upward pressure on wages. The absolute size of the rebuild matters, but not as much as other issues such as questions of timing.