

A misleading rev counter?

Capacity utilisation is not as stretched as many fear

- **Capacity utilisation (CUBO) is currently high.**
- **CUBO is a direct input into the RBNZ's measure of the output gap.**
- **The RBNZ assumes equilibrium CUBO to be 89%. We believe this is too low.**
- **NZ's economic reform period should be excluded when calculating equilibrium CUBO, as it massively skewed the distribution of responses.**
- **Post reforms, simply 'weeding out' half those with extreme spare capacity raises CUBO by 4.4 percentage points.**
- **Equilibrium capacity utilisation is likely closer to 90%.**

Capacity utilisation (CUBO)¹ is very high. At 91.4%, this is in the top decile of results for the past 45 years. It seems churlish to question just how pressing capacity constraints are at present, but that is what we are going to do! We will argue that the weeding out / transformation of poor performing firms in the post deregulation period has led to a marked rise in CUBO. Adjusting for this 'reform' effect suggests that capacity utilisation may not be as constraining as feared.

Acronym city

While very "pointy-headed",² this is an important issue. CUBO is a direct input into the RBNZ's measure of excess demand in the economy. The current high level of CUBO has the RBNZ worried that the economy may be capacity constrained despite low growth rates, and that inflation will prove persistent.

Briefly, an inflation expectations augmented Phillips curve is the kernel of the RBNZ's inflation forecasting framework.³ To measure the degree of excess demand in the economy, the RBNZ uses a "multivariate" filter to generate a measure of the output gap. The inputs into

this multivariate filter are: Hodrick-Prescott (HP) filtered output (augmented with an inflation gap); HP filtered unemployment gap; and CUBO relative to assumed equilibrium (see Figures 1 to 3).

Figure 1: Output gaps

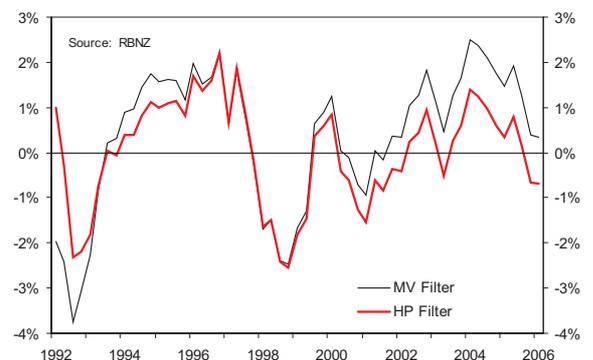
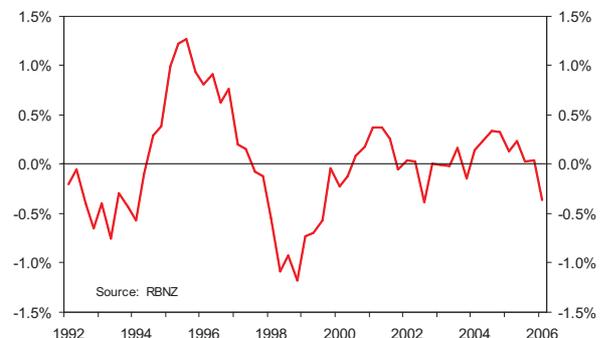


Figure 2: HP filtered unemployment gap (inverse scale)



¹ As measured in the NZIER Quarterly Survey of Business Opinion.

² If your head is decidedly oval (or flat), read no further. However if you are reading this footnote, self-selection is evident and you can continue reading!

³ The Phillips curve represents the trade-off between excess demand in the economy and inflation.

Figure 3: Capacity Utilisation

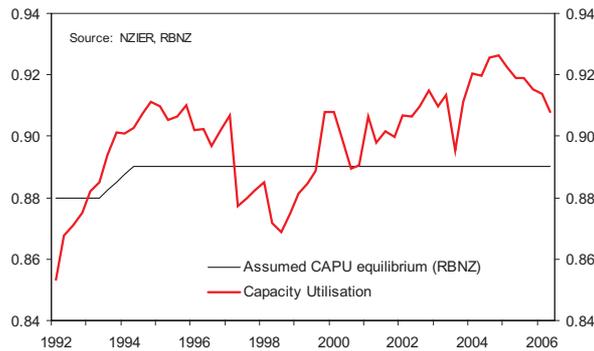
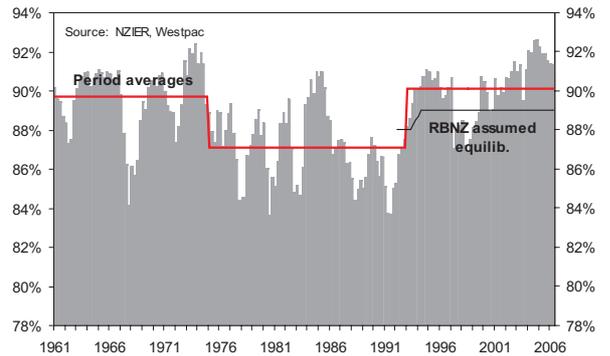


Figure 4: Capacity Utilisation



What is CUBO?

The CUBO measure is constructed from responses of manufacturers and builders to the NZIER survey. Respondents are asked “Excluding seasonal factors, by how much is it currently practicable for you to increase your production from your existing plant and equipment without raising unit costs? None, 1-5%, 6-10%, 11-20%, Over 20%, Not Applicable”. CUBO distils these responses into one summary measure.

Spandex tights

CUBO is undoubtedly high, but the question is: how tight? That is, where is CUBO currently compared to its perceived equilibrium. The RBNZ assumes that the equilibrium CUBO is 89% (see Figure 3). We think that is too low.

There are a couple of reasons we think CUBO may be overstating the true degree of capacity constraints:⁴

1. CUBO is not an economy-wide measure. It covers only manufacturing and construction. Construction has undoubtedly been **the** constrained sector in recent years, but that shouldn't be extrapolated to the rest of the economy.
2. Structural change in NZ means that firms are now more efficient and tend to operate at higher levels of capacity utilisation.

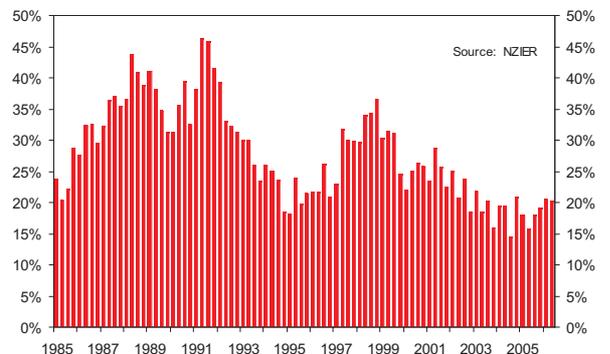
It is this second point that we will delve into – the impact of NZ's reform period on equilibrium CUBO.

Figure 4 indicates that, prior to the negative terms of trade shock in 1974/75⁵, NZ used to operate at a high degree of capacity utilisation (averaging 89.7%). That shock, and the reform era of the 1980s, saw the degree of capacity utilisation drop substantially (to an average of 87.1%). Post 1993, the average has lifted to 90.1%.

Finches and their distribution

The reform experience was Darwinian for NZ businesses: evolve or die. The economic shock resulted in a marked change in distribution of CUBO respondents. By the late 1980's / early 1990's around 40% of respondents said they had greater than 20% spare capacity available (see Figure 5). These were the respondents at the sharp end of the reforms: they either had to adapt or cease their business. This they have done. By the mid 1990's, only 20% of firms had >20% spare capacity.

Figure 5: Respondents with >20% spare capacity

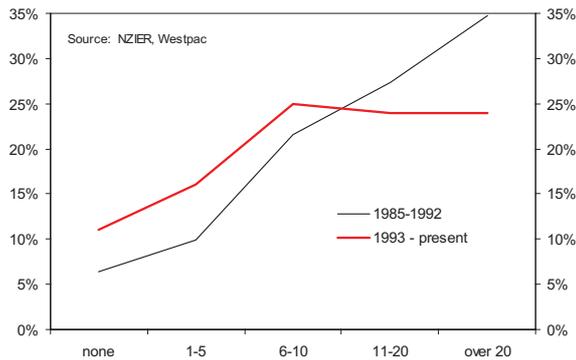


Most of the change in distribution was from the reduction in those reporting large amounts of spare capacity. Figure 6 shows the change in average distribution of CUBO responses between 1985 – 1992 (reform period) and 1993 – present. The big adjustment is in the >20% category (the tail), with the bottom three (most efficient) categories equally sharing the uplift.

⁴ See our Bulletin “A question of capacity”, 25 July 2005

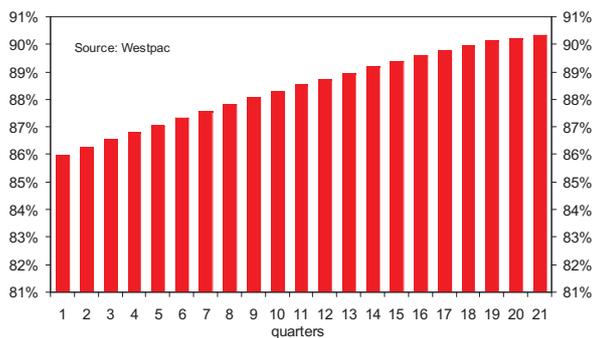
⁵ NZ was hit with the double whammy of reduced export prices when Britain joined the EEC and higher import prices from the first oil shock.

Figure 6: Average distribution of CUBO responses



As a way of trying to quantify the impact of reforms, we have undertaken a ‘what if’ exercise. What would be the impact on CUBO if we dropped the proportion of firms reporting >20% spare capacity from 40% to 20%, and assume that those firms become like a ‘normal’ NZ firm?⁶ Of note is that we are assuming no change in the capacity utilisation (or efficiency) of other respondents. It is only the distribution of the ‘under-performers’ that we are changing.⁷

Figure 7: Hypothetical CUBO: >20% from 40 to 20, rest of distribution unchanged



The results are startling (*see Figure 7*). Just by culling or transforming half of the ‘under-performers’, CUBO increases by a massive 4.4 percentage points.

We are by no means saying that CUBO is not a reliable measure. Spare capacity is spare capacity and it doesn’t matter where that excess lies. Rather, we are trying to get at what is the level of normal or equilibrium capacity. As with standard measures of the output gap, actual growth is measurable but potential growth isn’t. But perceptions of potential growth, or equilibrium capacity utilisation, is all important.

New beginnings

While we can’t categorically state the level of equilibrium CUBO, the above analysis suggests that it is higher than the RBNZ’s assumption. It is our contention that the reform period made CUBO aberrantly low. A reasonable base working assumption for equilibrium CUBO is to take the average of CUBO excluding the reform period. 90% seems reasonable.⁸

Although this all seems very esoteric, it does have important implications for perceptions of relative stress and inflation pressure in the economy and, consequently, monetary policy. Output gaps are an area of unknowns, intuition, prejudice and judgement. But, at the least, it is always useful to have informed judgement.

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⁶ We drop the proportion of firms in the >20% category by 1 percentage point per quarter. We allocate those firms across the other response categories (0, 1-5, 6-10, 11-20) so that the relative share in each other category is unchanged from its 1985 – 2006 average. In terms of results, this is the same as assuming that half of those with extreme spare capacity ceased business.

⁷ We also examined the impact of moving half the >20% capacity into the neighbouring 11-20% category rather than across the rest of the distribution. This had the effect of raising CUBO by 2 percentage points. However, this excludes any effects of ‘weeding out’ and enhanced efficiency across all firms.

⁸ Although we think that the RBNZ has understated equilibrium CUBO, their multivariate filter may still be ‘about right’ given that their method of filtering suggests the unemployment gap is now negative. A negative unemployment gap intuitively doesn’t seem right. So compensating errors may be at work!