ECONOMIC BULLETIN

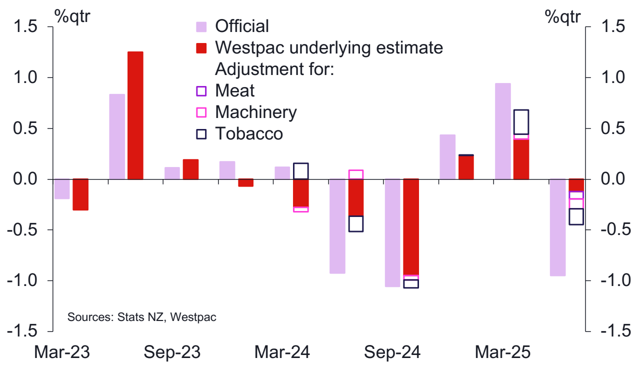
GDP insights.

29 Oct 2025 | **Michael Gordon**, Senior Economist | +64 9 336 5670 | +64 21 749 506 | michael.gordon@westpac.co.nz

Order and balance

- **Quarterly GDP growth has been unusually volatile in recent times, with large seasonal swings that can't be traced to any particular industry.**
- **We believe that this stems from two of the steps used in calculating GDP – chain-linking and seasonal adjustment – which are interacting in an unusual way.**
- **Switching the order of these steps would prevent this interaction, producing results that are less volatile and easier to interpret.**
- **We've also identified some industry-specific timing issues that have had an impact on quarterly growth rates. Adjusting for these gives us a clearer picture of how the economy has been evolving.**
- **Put together, our adjusted estimate for the June quarter is -0.1%. Coming after (downwardly adjusted) gains of 0.2% and 0.4% in the two previous quarters, that still points to a mid-year loss of momentum, but less dramatically than in the official figures.**

Quarterly GDP growth with adjustments



There's no doubt that June quarter GDP was a shocker. The reported 0.9% fall was much worse than the median market forecast of -0.3% and implied a sharp deterioration in the economy compared to the solid 0.9% rise in the March quarter.

However, as we highlighted in both our **forecast** and our **review**, there's more to these figures than meets the eye. Over half of the fall in the June quarter was due what's referred to as the 'balancing item', rather than movements in any particular sector. That itself wasn't a surprise – in fact it was the main reason why we and other forecasters were expecting a negative outturn at all. But the balancing item has become a much larger component of GDP over the last year. We've been puzzling over what caused this change, while making ad-hoc adjustments for it in our forecasts in the meantime.

We now believe we've come up with the answer. It relates to two of the methods used to calculate GDP – chain-linking and seasonal adjustment – along with a one-off change in a key industry. None of these are a problem on their own, but they're interacting in a way that is creating a surprising amount of volatility in the final results.

Fortunately, the solution is simpler than the cause. Switching the order in which these two steps are applied would prevent this interaction, leading to quarterly figures that are less volatile and more intuitive.

In the second part of this note, we identify a few industry-specific issues that have also affected quarterly growth in recent times. These are largely timing issues, so we think it's reasonable to make adjustments for them to get a clearer picture of the economy's momentum.

Put together, our adjusted estimate for growth in the June quarter is -0.1%. Coming after (downwardly adjusted) growth rates of 0.2% and 0.4% in the two previous quarters, that still points to a loss of momentum as we entered the middle part of this year. But it's a much more modest downturn than the official figures suggest, and hardly worthy of the catastrophising that we've seen from some corners. Annual GDP growth is left largely unchanged by our adjustments, at -0.4% for the year to June compared to the official estimate of -0.6%.

Method 1: Chain-linking.

The balancing item is key to identifying the recent issues with the GDP figures, so we need to start with where it comes from. Total GDP is not simply the sum of the individual parts. Instead, it uses a more roundabout approach called chain-linking, which works as follows:

- Calculate the percentage change in real (inflation-adjusted) output for each industry.
- Assign a weight to each industry based on its share of GDP in nominal (dollar value) terms.
- Calculate the weighted-average growth rate.
- Apply this growth rate to the previous level of GDP to get the new level.

The use of both real and nominal values is what makes the results differ from a straight add-up of output by industry. Chain-linking is regarded as the correct way of calculating GDP, as it does a better job of keeping things in proportion over the longer term. But on its own, it shouldn't make much difference to quarterly growth rates.

The balancing item is the difference between total (chain-linked) GDP and the sum of the industries. This isn't directly reported by Stats NZ, but we can calculate it ourselves.

Method 2: Seasonal adjustment.

When we're tracking the progress of the economy, we want to abstract from changes that are predictable simply because of the time of year (e.g. agricultural output drops in winter, retail spending spikes ahead of Christmas). So for measures like GDP, it's standard to apply seasonal adjustment – an algorithm that tries to identify and remove seasonal patterns based on the historic behaviour of the data.

For a composite series like GDP, there are two options for how to apply seasonal adjustment. The first is *direct*: add up the components, then adjust the total. The second is *indirect*: adjust each of the components separately, then add them up. Changing the order of these steps will produce slightly different results; there's nothing in the algorithm that forces them to match.

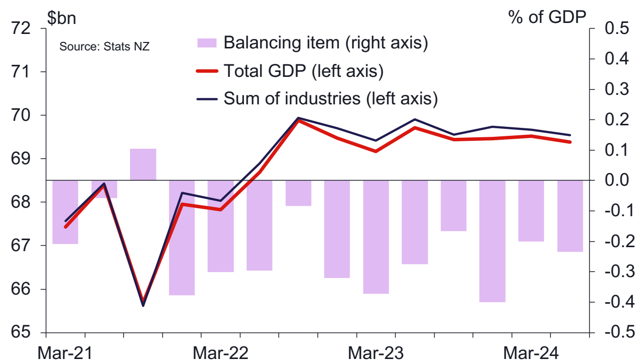
Stats NZ uses *direct* adjustment for total GDP – that is, add (or rather chain-link) then adjust. They do adjust each industry separately for reporting purposes, but this isn't what goes into the final calculation.

Combining the two.

There's no hard-and-fast rule about which seasonal adjustment option to use. But a useful test is to calculate the balancing item after the figures have been seasonally adjusted. If there's some lingering seasonality in GDP that isn't being fully captured by direct adjustment, this will show up in the balancing item instead. In this case, indirect adjustment may be the better option.

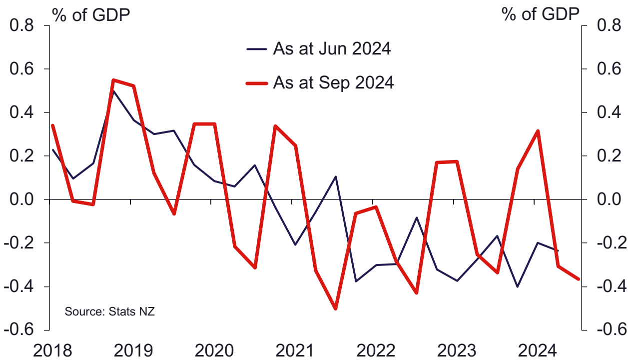
The chart below shows the balancing item from the June quarter 2024 release, prior to the recent issues. At the time the balancing item was persistently negative, but the variations from quarter to quarter were generally small – a fraction of a percent of GDP. There was also a mild seasonal pattern, with September quarters tending to be stronger, but again not large enough to be a concern.

GDP and balancing item, as at June quarter 2024



But in the September 2024 release, something changed – the balancing item became much more variable, and it now has a pronounced seasonal pattern. What this tells us is that there's been a change in the seasonality of GDP that the algorithm isn't fully capturing, which is detracting about 0.5% from reported growth in June quarters while adding about 0.5% in December quarters.

The balancing item changed dramatically last year



What happened?

The timing of the change is an important clue. The September quarter is when Stats NZ makes its annual revisions to GDP, to incorporate more detailed but less timely information. That includes updating the industry weights that are used in chain-linking. The weights are drawn from the national accounts for the previous March year, or the latest year for which the data is available.

So, it's a reasonable guess that the change in seasonality stems from a change in the industry weights. But which ones? The variation in the balancing item amounts to hundreds of millions of dollars per quarter; there is no one industry that's large enough to account for movements of this size. The largest group is professional services, at about $6.7bn per quarter, and its weight has barely changed.

Instead, we believe that it's due to the *absence* of an industry – namely, the closure of the Marsden Point oil refinery, which previously accounted for about 0.6% of GDP. Crucially, the refinery's output had no seasonal pattern to it, so its closure meant a slight increase in the average degree of seasonality across the economy.

The use of chain-linking amplified this effect. Once the refinery's weight dropped to zero, this meant that the weights for every other industry – including those that do have strong seasonal patterns – went up. The result was that the amplitude of the seasonal pattern in GDP increased by about 0.6 percentage points. That might seem like a small effect, but that's the magnitude of the change that we're trying to explain.

There is one seeming challenge to our story: the refinery was closed in March 2022, so why is it only in the last year that it has had this effect on GDP? The reason again relates to the chain-linking method: the closure wasn't reflected in the industry weights until the national accounts for the year ended March 2023. And those figures weren't available until late 2024, in time to be included in the September quarter 2024 release.

The last piece of the puzzle is the seasonal adjustment algorithm. Because its calculations are based solely on historic data, it can take several years for it to recognise that a structural change has occurred. Given another few years, the seasonal adjustment would gradually catch up with the new reality, and the volatility in quarterly GDP would dampen down again.

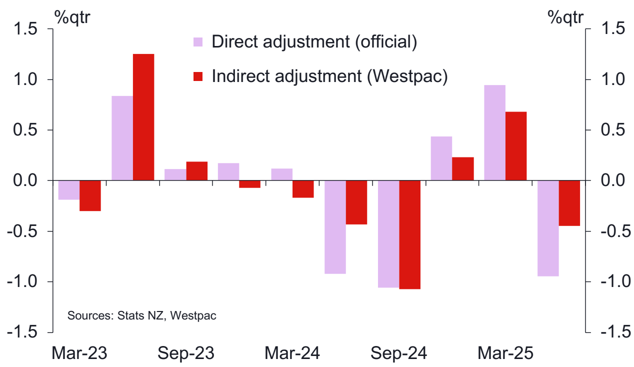
To sum up: (1) the closure of the refinery increased the average seasonality across industries, (2) the effect was both delayed and amplified by the chain-linking process, and (3) the seasonal adjustment has yet to recognise this change. Not one single cause, but an interaction between three factors, which is what made it so hard to identify.

Our proposed solution.

At this point, a solution has already presented itself. This unusual interaction, and any similar issues in the future, could be avoided by switching the calculation of GDP to *indirect* seasonal adjustment – that is, adjust then add. The reason is that, by first removing the seasonal pattern from every industry, a change in the industry weights could no longer introduce a new seasonal pattern into the total.

The chart below shows our estimates of what quarterly GDP growth over the last few years would have been using indirect adjustment. The reported 0.9% fall in the June quarter would be softened to a 0.4% decline – though that comes after a downward revision to the gains in the two previous quarters. Because seasonality is about the timing of activity within the year, switching to indirect adjustment would not affect the annual rate of growth, which would remain at -0.6% for the year to June.

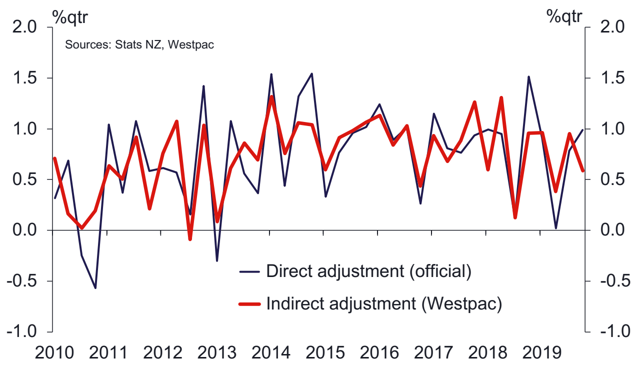
Quarterly GDP with alternative seasonal adjustment



Switching to indirect adjustment would mean revising quarterly GDP not just for the last few years, but over the entire history of the series. Would it be problematic to rewrite history to this extent? Our assessment is 'no': there is no obvious point at which the government or the RBNZ might have acted differently if the GDP figures had been reported in a different way at the time. Policymakers rarely take action based on a single GDP result – they recognise that it's noisy from quarter to quarter, and can go through several rounds of revisions for years after the initial release.

Perhaps the main benefit to policymakers would be that an indirectly-adjusted GDP series would produce more smoothly evolving estimates of the economy's output gap. The following chart shows our estimates of quarterly growth in the decade before Covid. The indirect series is often (though not always) less variable, with the overall pattern broadly the same as for direct adjustment.

Quarterly GDP growth over the 2010s

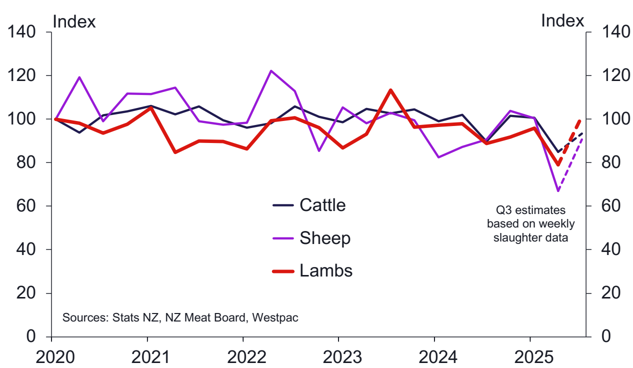


Other adjustments.

The seasonal adjustment method is not the only thing that has contributed to the recent volatility in GDP. We've also identified three sector-specific issues that together have had a noticeable impact on the overall results. As with seasonal adjustment, these are largely matters of timing within the year, rather than the overall pace of growth. So we think it's legitimate to make some adjustments to get a clearer picture of what's going on.

Meat: Meat processing was down sharply in the June quarter – we estimate that slaughter numbers were down 20% in seasonally adjusted terms. However, feedback from customers indicated that farmers were holding stock back to allow them to put on more weight, to take advantage of the record-high prices being paid by processors. Subsequent data has borne this out, with a strong catch-up in the weekly slaughter numbers as the end of the season approached.

Livestock slaughter by weight, seasonally adjusted

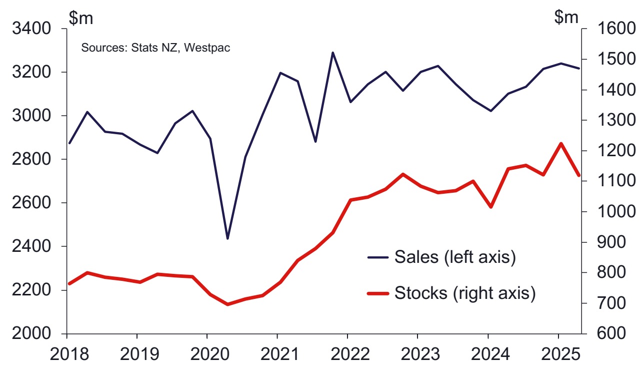


In GDP terms, the drop in meat processing should have been balanced out by a rise in on-farm production in the agriculture sector. However, Stats NZ doesn't have a reliable way to measure this on a quarterly basis. As a result, we estimate that GDP growth was understated by 0.1% in the June quarter, and will be boosted by around 0.1% in the September quarter.

Machinery: Machinery and equipment manufacturing was one of the biggest contributors to GDP growth in the March quarter (up 5.8%), and one of the biggest negatives in the June quarter (down 6.2%). Looking a bit closer though, the variation was not in sales, but in stocks of finished goods, which briefly spiked higher in the March quarter. For GDP, output = sales + change in stocks, so the spike in stocks meant that output was recorded as being above-normal in the March quarter, below-normal in the June quarter, and will presumably be back up to normal in the September quarter.

The value of stocks is relatively difficult to measure – even more so in real terms, due to the challenge of calculating an accurate price deflator. We're inclined to view this spike in stocks as more noise than genuine, so we've made an adjustment to smooth through it. (There was a similar spike in the other direction in March 2024, which we have also adjusted for.)

Machinery and equipment manufacturing



Tobacco: Indirect taxes, such as GST or alcohol and tobacco excise, are recorded in GDP in the 'unallocated taxes' category, as they don't count towards the value-added for any given industry. Tobacco excise has become a source of volatility for GDP in recent years, due to a shift in the timing of imports – they're less concentrated in the December month than they used to be. This is another instance where the seasonal adjustment hasn't yet caught up with the new pattern, and it's large enough to affect the reported growth rate for the entire economy.

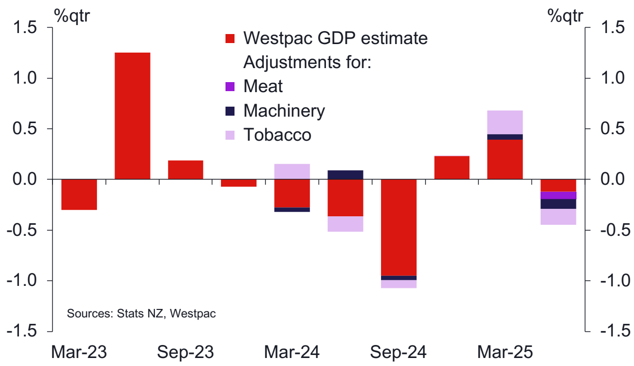
We don't have a lot of clarity on how much tobacco excise contributes to the 'unallocated taxes' category, but our conservative estimate is that this added 0.25% to growth in the March quarter, reduced it by 0.15% in the June quarter, and could reduce it by 0.1% in the September quarter.

The final results.

We estimate that these timing issues added 0.3% to reported growth in the March quarter, and reduced it by 0.35% in the June quarter. Putting this together with the impact of switching to indirect seasonal adjustment, our estimate of the underlying pace of growth in the June quarter is -0.1%.

That's quite different from the -0.9% that was officially reported. But it's still a disappointing result, coming at a time when we would've hoped to see the economy gaining some momentum on the back of lower interest rates. And our downward adjustments to the December and March quarters show that the economy's initial recovery wasn't all that convincing in the first place.

GDP growth with timing adjustments



What next?

The factors that we've identified here won't be as much of an issue for the September quarter GDP release (due on 18 December). The balancing item will only add around 0.1% to growth, and the other timing issues will add another 0.1% at most.

But there are a host of other issues that will affect the September quarter result, as Stats NZ will be applying its annual round of revisions. That will include updated industry weights, taken from the national accounts for the year to March 2024. When they're released on 14 November, we'll check whether they point to any revisions to the recent GDP track – though we don't expect that they will fix the seasonality issue, if we're right that it was caused by the Marsden Point closure.

There will also be revisions across a range of industries as they're benchmarked against annual data sources. This can lead to sizeable revisions to the overall rate of growth for the last couple of years – more often upwards than downwards – but generally has only a small impact on the quarterly profile.

Finally, Stats NZ sometimes use this opportunity to make methodological changes to the GDP calculations. If they make any major changes this time – such as a switch to indirect seasonal adjustment – they'll give notice ahead of the GDP release.

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