

Response to Professor Borland

Comments prepared for
the AER

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1 Background

Professor Jeff Borland has prepared a 'Labour Cost Escalation report' for Envestra limited, dated 23 March 2011.

Professor Borland is a highly respected member of the economics profession in Australia. His opinions are always worth listening to.

Among other things, he raises questions with respect to:

- Changes in the composition of the workforce that may affect wage measures.
- The potential for detrending AWOTE level data.
- Revisions to the productivity forecasts over time.

This note considers each of these matters.

1.1 The bigger picture

Professor Borland's comments concentrate on compositional effects on productivity as a reason to use AWOTE as the base wage measure to be adopted by the AER.

It is perhaps appropriate to begin by noting that there are a number of other issues also relevant to the appropriate choice of wage measure.

For example, and as Access Economics noted in its 13 December 2010 report for the AER, "*compositional effects tend to make AWOTE far more volatile than the LPI*", and that "*These volatility problems become more pronounced at greater levels of disaggregation, with the difference in volatility more pronounced in the utilities sector than across all industries as a whole (quarter-to-quarter changes are some two to three times more volatile for the AWOTE measure than the LPI measure)*". That report went on to note that volatility makes AWOTE a poor base for interpreting history and for forecasting.

The Access Economics report also added that "*More broadly, compositional changes arising from the business cycle, changed educational levels, the pace of recruitment and retirement, the degree of outsourcing, changed relativities in the employment of men and women and compositional changes arising from shifts in average hours worked can all distort AWOTE as a proxy for 'changes in the price of labour'*".

A number of other matters that are relevant to the choice of LPI versus AWOTE for the AER's purposes are also discussed in our report.

That said, nor is the LPI a perfect measure. As also noted in our 13 December 2010 report for the AER, "*it is sometimes relevant that the composition of the workforce is changing. That is particularly true in analysing the implications of wage developments for the Australian economy as a whole. For example, promotions are easier to get during a sustained expansion, reflecting the strength of cyclical demand rather than pure productivity. Other things equal, that adds to total incomes in the economy, but doesn't show up in the LPI (which does not 'recognise' that people at a certain seniority today are, on average, different to those who were at that level some years past).*"

1.2 Compositional change: The theory

There are a few key issues here.

- Does it make sense for the AER to pay for compositional change in a firm's workforce?
- Does a concentration on issues around workforce composition miss a number of shortcomings in the use of AWOTE?

1.2.1 The appropriate wage measure

Does it make sense for the AER to pay for compositional change in a firm's workforce?

As Professor Borland notes at his Paragraph 17, "it is correct that higher skills should mean high labour productivity, and that a higher skilled workforce should be able to produce a higher output".

That is, compositional change in skill mix is a business choice. If the business chooses to pay for a skill mix with a higher (or lower) average wage, then it also gets the associated productivity benefit (loss) of that decision.

As Access Economics noted in its 13 December 2010 report for the AER, "If these compositional effects are occurring, then they should also be having an impact on the productivity of the sector's workforce. That is, the higher skills should mean higher productivity – meaning that if the utilities are choosing to have a higher skilled workforce then, other things equal, that higher skilled workforce should be able to achieve the same output than would otherwise be achieved with more (lesser skilled) workers."

Hence if the AER compensates a business for compositional effects that have seen a shift to a more skilled workforce, then the AER would be effectively paying twice (and businesses would be left with an incentive to move to more skilled workers over time)

1.2.2 The appropriate productivity adjusted wage measure

There is an extra step to consider if productivity adjustments are made to a wage measure. If, for example, productivity adjustments are made to a wage measure, then it is appropriate for the productivity adjustment to 'match' the wage measure to which it is being applied.

As the LPI excludes compositional effects, it is therefore an empirical question as to the impact of using different measures of productivity adjustment in adjusting the LPI for productivity effects.

As Access Economics noted in its 13 December 2010 report for the AER, "*any such bias is unlikely to be large, and must be balanced against the rather more significant types of problems with AWOTE measures*".

We would also add that it is not clear that any such shifts would only occur in the one direction – turnover would produce compositional shifts all the time, and one year's change may simply cancel out the change from the previous year.

1.3 Compositional change: The numbers

That raises the specific question of just how large any adjustment for compositional change is likely to be.

Access Economics' 13 December 2010 report for the AER gave an example of the extent of compositional change required to generate the then gap between growth in AWOTE and growth in the LPI.

Professor Borland’s Paragraphs 26 and 27 reference that example by Access Economics. He argues that the Access Economics’ example is “misleading” in part because labour turnover is quite high.

That is why Professor Borland’s Table 1 (following his Paragraph 10) is important here. It provides a benchmark for quantifying the impact of compositional change on wage costs in the utilities sector in recent years.

The table below replicates that used by Professor Borland, but adds the relevant wages for these occupations as at August 2008.

It would be preferable to use the wages attaching to these occupations in the utilities sector itself, rather than for Australia as a whole, but these data are not available at that level of disaggregation. However, using a proxy of occupational wages at the national level is unlikely to have an impact on the following results.

The additional feature in Table 1 below is that, when weighted for relative wages across these occupations, it shows that composition productivity effects in the utilities sector should have been reducing the average wage payable in the sector by about 0.8 percentage points in each of the last two years.

Table 1.1: Impact on average wages of compositional change in employment in the utilities sector

	Wages as at August 2008 (\$)	Share (%) Nov-08	Share (%) Nov-09	Share (%) Nov-10
Managers	\$ 1,405.90	12.2	10.6	11.2
Professionals	\$ 1,488.80	17.6	16.3	14.2
Technicians and Trades Workers	\$ 1,083.30	23.6	27.6	25.4
Community and Personal Service Workers	\$ 880.50	-	-	-
Clerical and Administrative Workers	\$ 945.30	19.6	19.5	22.4
Sales Workers	\$ 933.60	3.4	2.4	3.0
Machinery Operators and Drivers	\$ 1,039.40	14.2	13.8	15.7
Labourers	\$ 847.30	9.4	9.8	8.3
All occupations				
Weighted average AWOTE		\$ 1,133.47	\$ 1,123.90	\$ 1,115.07
Change due to compositional effects			-0.8%	-0.8%

These calculations indicate that the utilities sector has been saving money by, on average, moving to a less skilled workforce.

As a key issue here is whether AWOTE or LPI is the better measure to base the AER’s judgements on, it is therefore particularly noteworthy that this calculation shows that compositional effects do not explain the gap.

Indeed they go the other way.

1.4 Dealing with volatility

Professor Borland’s report notes at Paragraph 25 that “the AWOTE series exhibits greater volatility than the LPI series”.

However, he argues that this volatility could be addressed. For example, the dollar amounts for AWOTE could be detrended.

The resulting series could then be used to get a better handle on what had really happened in history, and that latter assessment could be used as the jumping off point for forecasts.

Hence, for example, a detrended AWOTE series for the utilities is likely to show less growth recently.

However:

- It is not clear that a detrended AWOTE series would be better than the LPI. There is no guarantee that the trending process would successfully strip the AWOTE series down to useful information.
- Importantly, deciding to detrend the data still leaves the ‘end point problem’. Trend estimates are best obtained with reference to values both before and after the period being considered. But for recent data there is no information on ‘what happens next’. Accordingly, to get a trend estimate of current wage levels in the utilities, the statistician ideally needs to know what the next several AWOTE estimates will be. In the absence of that, the statistician can apply filters, but the end result is still that the latest information in a detrended series is the least reliable (and can be positively misleading, amplifying the strength of some cycles). That is why it is standard practice for the Australian Bureau of Statistics to include a discussion on how trend estimates will evolve given the next release of a figure (the ABS discusses with process in *Time Series Analysis: The Process of Seasonal Adjustment*¹).
- It is also why trended data is regularly revised as new information becomes available. These revisions may prove problematic for the types of uses to which the AER puts wage measures. (To use an analogy, the CPI is often used in commercial contracts because it is not revised.)

1.5 Productivity estimates

Measured productivity typically rises in recoveries. As unemployment and underemployment among the workforce goes down, and as the capacity utilisation in factories, mines, shops and offices increases, then output per worker increases. As the utilisation of labour increases, workers are shifted to more productive tasks, retrained as necessary, or simply used more efficiently.

Hence as projections of recovery strengthen, it is typical for projections of productivity to do the same.

Professor Borland’s report (Paragraphs 28 to 33, and Figures 1 and 2) notes that Access Economics’ productivity forecasts rose over time.

The period Professor Borland refers to is one in which:

- Access Economics’ forecasts of global growth – and particularly emerging economy growth – went up,
- our forecasts for industrial commodity prices and national income growth rose,
- our forecasts of real business investment went up, and
- our forecasts for employment went up, but
- our forecasts for working age population went down.

Accordingly, the mix of revisions to Access Economics’ forecasts across the time period to which Professor Borland refers was a potent recipe for upward revisions to the outlook for productivity.

Similarly, those productivity revisions could be expected to be more notable in sectors and States where the impetus in demand relative to supply would have the largest impact.

Accordingly, and as would be expected from the mix of revisions over time, Professor Borland notes that our upward productivity revisions were more notable in Queensland than South Australia, and more notable in the utilities and construction sectors.

¹<http://www.abs.gov.au/websitedbs/d3310114.nsf/51c9a3d36edfd0dfca256acb00118404/5fc845406def2c3dca256ce100188f8e!OpenDocument>

Conclusions

The comments by Deloitte Access Economics on Professor Borland's report in this note should be read in conjunction with Access Economics' more detailed 13 December 2010 report for the AER.

The conclusions from Deloitte Access Economics' analysis are that:

1. LPI is a better measure of changes in labour costs than AWOTE for the AER's purposes for a number of reasons – see section 1.1 above.
2. One of those reasons is that the LPI excludes compositional effects. If it did not do so and the AER compensated a business for compositional effects that have seen a shift to a more skilled workforce, then the AER would be effectively paying twice (and businesses would be left with an incentive to move to more skilled workers over time) – see section 1.2.1 above.
3. Where labour cost measures are adjusted for productivity, the productivity adjustment should ideally match the wage measure. That 'matching' is an empirical question. Any bias from using standard productivity measures that do not explicitly adjust for compositional effects is unlikely to be large, and it may well be temporary. Moreover, it must be balanced against the rather more notable types of problems with AWOTE measures – see section 1.2.2 above.
4. In the specific example considered here, attempting to quantify compositional effects suggests that the latter have been cost saving. That is, that were any adjustment to be made to Deloitte Access Economics' estimates of productivity adjusted labour costs in the utilities sector, the latter should go *down* rather than *up* – see section 1.3 above.
5. If there is a case for a separate adjustment to the productivity measure to account for compositional effects, that should not simply take the gap between growth in AWOTE and that in the LPI and attribute that gap to compositional effects. To do so would be to ignore the other factors that lead to AWOTE being a poor measure for the AER's purposes. (Moreover, the specific example considered here underlines that the AWOTE/LPI gap is a particularly poor indicator of compositional effects – going in the wrong direction.) Rather, if any such measure is needed, a proxy for compositional effects should be separately quantified using arms' length data such as that sourced from the Australian Bureau of Statistics – see section 1.3 above.
6. It would be possible to detrend AWOTE levels to assist with the volatility in AWOTE series. However, it is not clear that a detrended AWOTE series would be better than the LPI. For example, the latest information in a detrended series is the least reliable (meaning that the benefit of detrending is least when it is needed most) and trend estimates are regularly revised (which may prove problematic for the types of uses to which the AER puts wage measures) – see section 1.4 above.
7. Access Economics' estimates of productivity growth have risen over time, and have been more apparent in States and sectors which are most closely linked to the continuing strength in emerging economies at the global level and the resource sector in Australia. That mix of changes in productivity projections is exactly what you would expect to see given the changes in forecasts which occurred across the same period for (1) stronger emerging economy growth, (2) stronger Australian employment growth and (3) stronger gains in real business investment but (4) weaker Australian population growth – see section 1.5 above.

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