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MEMO

TO: Phil Taylor and Penny Pasley, Bell Gully
DATE: 19 June 2015
FROM: James Mellsop
SUBJECT: CWH/NZWSI - conference follow-up information request

1. Introduction

Following the conference on 10 June 2015 regarding the proposed merger of CWH and NZWSI, the Commerce Commission has made the following request, via a 12 June 2015 email to Bell Gully:

Request to NERA

1. Referred to at the Conference please provide the literature on productivity impacts of de-regulating monopolies.

This memo briefly outlines the literature I had in mind when making my comments at the conference. This is literature that I have reviewed for other projects in the past. I have had a (very) quick look for any updates, but have not identified anything – however, this update review has not been comprehensive.

2. Literature on productivity impacts of de-regulation

There are numerous techniques identified in the literature for quantifying productive efficiencies,[1] but most of these are relatively complex, data intensive, and appear to be more broadly suited to an industry-level analysis, rather than for merger-specific analysis as is required here.

Nonetheless, while we may not apply the techniques themselves, the results of these broad industry-level studies are still informative, as they can provide an indication of the productive efficiencies that result from increases in competition. Many of these studies estimate changes in total factor productivity (TFP) growth from increases in competition or between monopoly and competition. TFP growth is defined as the ratio of output growth to input growth, and is generally considered to be a good measure of productive efficiency.[2] An increase (decrease) in TFP is associated with an increase (decrease) in productive efficiency. That is, an increase in TFP means

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[1] For a review see T.J. Coelli (1995), "Recent Developments in Frontier Modelling and Efficiency Measurement", *Australian Journal of Agricultural Economics*, 39(3), 219-245.

[2] Caves and Christensen (1980) contend that TFP is the "best single measure of productive efficiency". *See* Douglas W. Cave and Laurits R. Christensen (1980), "The Relative Efficiency of Public and Private Firms in a Competitive Environment: The Case of Canadian Railroads", *Journal of Political Economy*, 88(5), 958-976.

that more output can be produced for the same inputs or, equivalently, the same output can be produced with fewer inputs, i.e., cost savings.

The particular literature I was referring to at the conference is as follows:

- Disney, Haskel and Heden (2003) analyse a sample of UK manufacturing firms, and find that increased competition leads to an increase in annual TFP growth by 1.3 percentage points (compared to a firm in a less competitive environment);[3, 4] and
- Daβler, Parker and Saal (2002) provide a similar analysis, testing the impact of liberalisation on TFP growth in the telecommunications market.[5] Their results show that, on average, TFP growth increased by approximately 3 percentage points in the year following liberalisation (i.e., moving from monopoly to competition) of telecommunications markets.[6]

What these results indicate is that a firm in a relatively more competitive market will have annual TFP growth of between approximately 1 percentage point and 3 percentage points higher than a firm in a relatively less competitive (or monopoly) market. To put this another way, if the annual productivity growth of a firm in a less competitive market is static, all else equal, the same firm in a more competitive market would have annual productivity growth of between approximately 1 percent and 3 percent.

In my view, Disney, Haskel and Heden (2003) is the more relevant study for present purposes, as it measures TFP growth between two levels of competition, whereas the Daβler, Parker and Saal (2002) study is comparing monopoly and competition. As I described at the conference,[7] I think it would be wrong to consider the factual in the present case to be a monopoly, due to the ongoing competition from overseas scours.

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[3] Richard Disney, Jonathan Haskel, and Ylva Heden (2003), "Restructuring and Productivity Growth in UK Manufacturing", *Economic Journal*, 113, 666-694.

[4] Note that this study is a more recent and rigorous (for various reasons, including a much larger sample, preferable measures of productivity, control for extra inputs and more measures of competition) application of the methodology used by Nickell (1996). Nickell (1996) finds that a firm operating in a more competitive environment in the UK manufacturing sector will have higher annual TFP growth by between 3.8 and 4.6 percentage points (compared to a firm operating in a less competitive environment). See Stephen Nickell (1996), "Competition and Corporate Performance", *Journal of Political Economy*, 104(4), 724-746. Disney et al note that the Nickell study, with a small sample of firms observed for a minimum period of time, results in selection bias which overstates the correlation between productivity and competition. They confirm this result empirically by using a small sample similar to Nickell's, and also show with their large sample that the results are robust to any sort of selection bias. They conclude, "Market competition significantly raises both the level and growth of productivity. This result is robust to selectivity correction. Studies that have not corrected for selectivity [which is a reference to Nickell] overstate the magnitude of the competition effect" (page 691).

[5] Thoralf Daβler, David Parker and David S. Saal (2002), "Economic Performance in European Telecommunications, 1978-1998: A Comparative Study", *European Business Review*, 14(3), 194-209.

[6] Calculated from Daβler et al (2002) Table VIII , page 204 based on the average percentage change in the TFP index for the relevant countries for the year following liberalisation.

[7] See, e.g., page 45 of the transcript.