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RBA/ESA Economics Competition 2015

SECOND PRIZE

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Falling Commodity Prices:
Riding the Rollercoaster

Falling Commodity Prices: Riding the Rollercoaster

"Give commodity markets credit: they are anything but boring."
The Economist (2014), 'Oil and Trouble.'

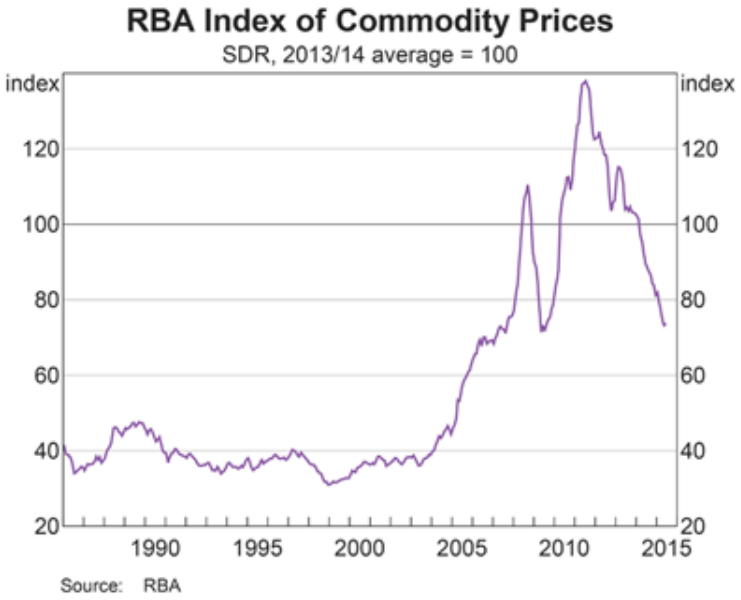
(1,994 words)

In recent years, the Australian economy has been the beneficiary of strong global demand for commodities and the correspondingly high terms of trade (TOT). This precipitated divergent levels of growth across the country and saw the Australian economy characterised as 'patchwork' in nature. Since then, sluggish global demand conditions alongside the transition within the mining sector from the investment to production phase has engendered a mismatch of supply and demand and translated into falling commodity prices. To the extent that this weak demand and over-supply is protracted, we can expect to see a rebalancing of the economy as the 'other-tradables sector' and 'non-tradables sector' grow in importance over time. This rebalancing process will be facilitated by a flexible exchange rate, mobile labour markets, productivity enhancing reform and accommodative monetary policy.

Cause for concern?

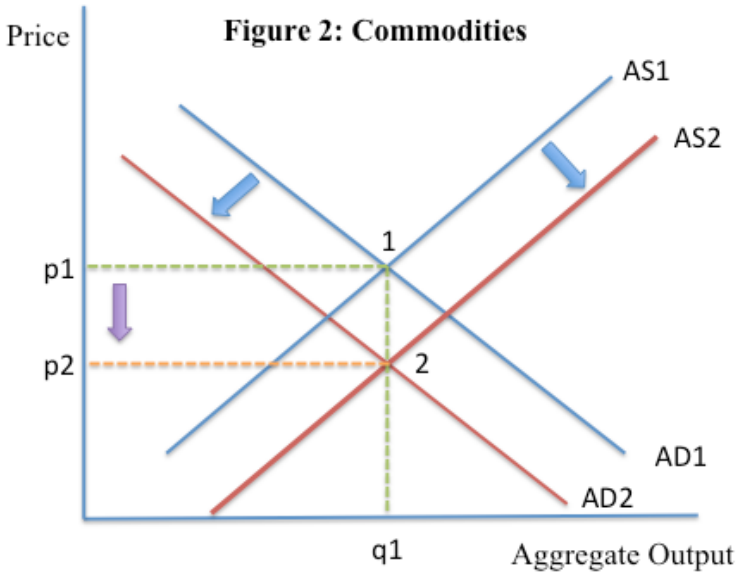
Commodity prices increased drastically over the period 2003-2011 peaking at over 120 index-points in 2011 before declining rapidly to around 75 index-points in mid-2015 (*figure 1*).

Figure 1



Importantly, commodity prices are likely to continue to fall in the future. Weak global demand conditions that are likely to prevail into the foreseeable future alongside the transition into the production phase of the mining boom has misaligned the forces of supply and demand.

Figure 2 shows that the transition into the production phase has caused a shift in the aggregate supply curve right in line with increased volumes of output whilst a fall in global demand for commodities (particularly China) has shifted the aggregate demand curve to the left.



This is reflected in a shift in the commodities-market equilibrium from point (1) to (2) (holding q constant *for now*) and an *unambiguous* fall in price from p1 to p2.

Implications of the decline

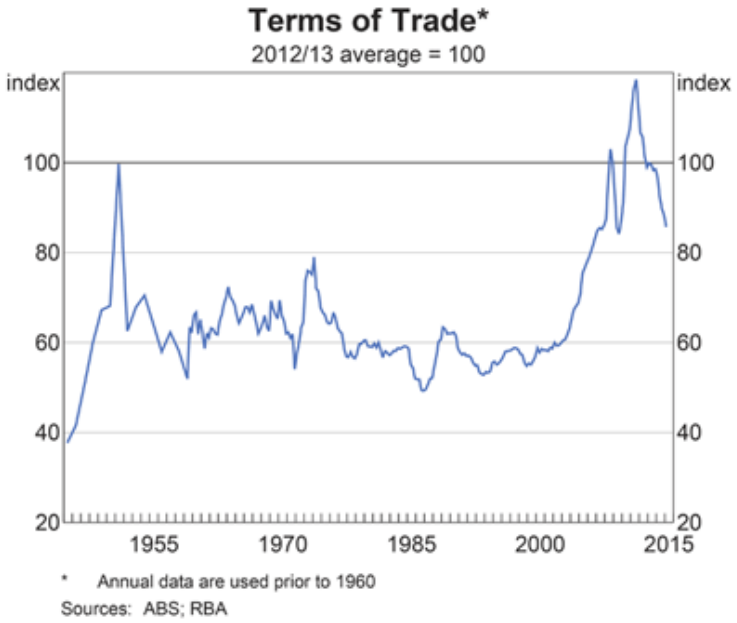
I will analyse the sectorial implications of falling commodity prices within the framework of the canonical model; (Salter (1959); Swan (1960)) expanded upon by Gregory (1976); Corden (1984). This demarcates the economy into a 'resource-sector,' 'other-tradable sector' and 'non-tradable sector' (see Plumb, Kent and Bishop, 2013).

1. TOT and Macroeconomic stability

Declining commodity prices correspond strongly to a reduction in the TOT (Stevens, 2011). Historically, downswings in the TOT have been accompanied by below average per capita GDP growth and at times sharp increases in unemployment (Atkin et al, 2014). In particular, the protracted duration and magnitude of the current TOT boom implies a sharp contraction in economic activity in line with the falling TOT is possible (Minifie, 2013). Increased labour redundancies corresponding to decreased profitability and reduced labour demand in the mining sector *could* exacerbate frictional and even structural unemployment outcomes.

Figure 3 conveys the unprecedented magnitude of the current TOT boom and the subsequent decline since its peak of 118.5 index-points (third quarter, 2011) to its current value of 85.7 index-points (second quarter, 2015).

Figure 3



Fortunately, so far, the current downward trend in the TOT has not caused any major macroeconomic disruptions. Inflation is slightly below the target level (1.5%, July 2015), unemployment is moderately above most NAIRU estimates (6%, July 2015) and output is growing at close to - though slightly under - trend rates (Trading Economics). Moreover, Minifie (2013) finds that TOT booms followed by slower or negative economic growth occurred in countries with *high* levels of inflation during the boom period, leading to post-boom *stagflation*. Conversely, in Australia, there has been overall macroeconomic stability and anchored inflationary expectations during the growth phase of the TOT - implying a subsequent contraction in economic activity in the 'other-tradable' and 'non-tradable' sectors is less likely.

Despite this, the evidence suggests a strong link between consumer confidence and the TOT such that a marginal decrease in the TOT translates into a fall in consumer confidence of 0.42 units.[1] Moreover, the data implies that up to 56% of the variation in consumer confidence is captured by TOT movements. To the extent that this relationship holds, a fall in the TOT *should* correspond to a decline in consumer confidence. Lower confidence imparts a deflationary impact on the economy,

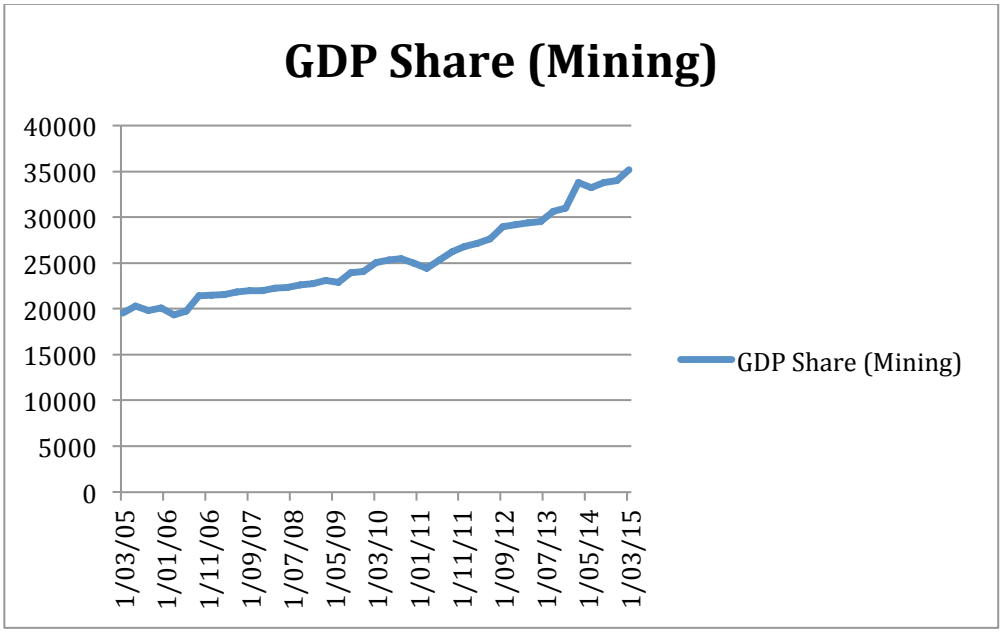
[1] Consumer Confidence$_i$ = $\beta_0 + \beta_1 TOT_i + u_i$, wherein u_i represents a disturbance term that captures any unexplained variation in consumer confidence. Importantly, TOT does not cause lower consumer confidence per se. Nevertheless, the OLS regression implies that the two variables are strongly related and this relationship is statistically valid at a 5% significance level. I do however accept the fact that important explanatory variables have been omitted from the analysis.

depresses spending and *may* encroach negatively on future economic growth in non-resource related sectors.

2. Mining sector

Falling commodity prices will impact negatively on the mining sector by reducing the marginal value of extracting additional deposits. Lower marginal returns are counterbalanced to some extent by increased iron ore and coal exports as the mining sector evolves into the production phase (Bureau of Resources and Energy Economics, 2013). Given output is a function of *both* price and quantity, the net effect on sector-output is theoretically unclear. Empirically however, GDP from mining has steadily been increasing over time and peaked at 35,173m AUD in the first quarter of 2015 (see figure 4).

Figure 4



Source: Trading Economics

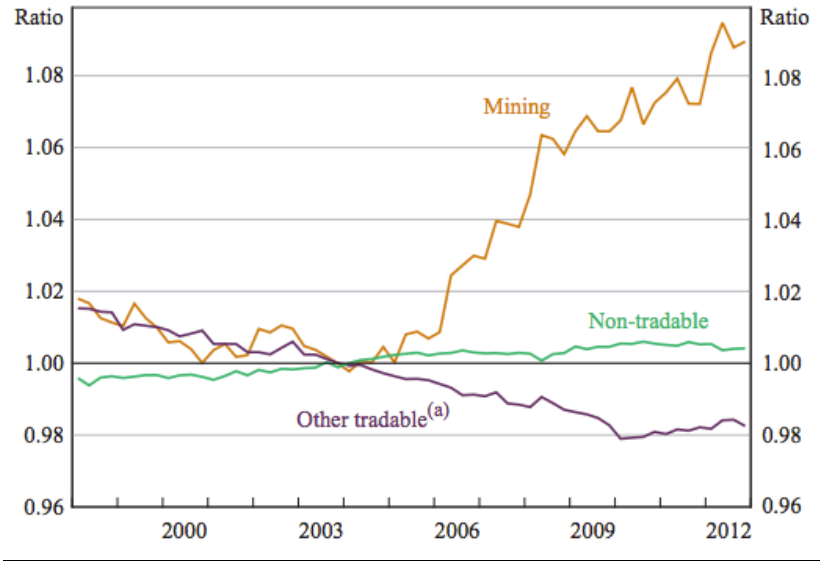
Overall, there is a tension between lower marginal returns derived from falling commodity *prices* and higher corresponding *volumes* of resources supplied as a result of enlarged production capacity. Consistent with the evidence, the growth in GDP contributions from the mining sector suggests that the *volume effect* - at least for now - has outweighed the *price effect;* ensuring that the mining sector will continue to

contribute materially to overall GDP growth. However, diminishing profitability within the sector should eventually lead firms to cut back on production, manifesting in a lower GDP contribution from the resource sector over time.

3. Tradable and non-tradable sectors

The evolution within the mining sector into the production phase should coincide with a reallocation of labour from the resource sector to the 'other-tradables' and 'non-tradable sector' (Banks, 2011). As the capital stock in the resource sector reaches a new equilibrium following the investment phase, the demand for labour will decline in line with a less labour-intensive production process. Furthermore, downward pressure on wage growth in the mining sector alongside a more competitive 'other-tradable' sector due to a depreciating exchange rate should assist in re-allocating labour into the non-resource sector (Plumb et al, 2013). Importantly, higher relative wages in the 'other-tradable' sector alongside lower relative wages in the mining sector – both enabled by flexible and decentralised labour markets – should counteract the asymmetries in relative wages evidenced in figure 5 (ibid, 2013).

Figure 5: Relative Wages



The re-adjustment of the economy in line with changing relative wages is by no means unambiguously positive.

Fortunately, any evidence of the so-called 'Dutch disease'[2] is tenuous. Minifie (2013) and Banks (2011) independently conclude that the mining boom has not caused permanent damage to the manufacturing sector, although it may have accentuated the persistent downward trend in trade-exposed manufacturing. On the contrary, we can expect manufacturing exports to rebound alongside the depreciating exchange rate. Similarly, education and tourism sectors should benefit from the lower AUD. Moreover, manufacturing sub-sectors that are dependent on commodities for intermediate inputs – petroleum, coal, chemical and rubber - should experience lower cost-inflationary pressures (Knop, 2014) - crystallising productivity gains.

Conversely, reduced investment in expanding mining capacity – both as a result of lower commodity prices and the transition of the sector into the production phase – impacts negatively on the construction sub-sector that is involved in augmenting *this* production capacity. Similarly, manufacturing sub-sectors (i.e. non-metallic mineral products) that provide inputs to *this* part of the *construction* industry will also be affected as a result of negative demand spillovers (Knop, 2014).

4. Inflation?

The net effect of the downturn in commodity prices on inflation is *theoretically* uncertain. The depreciating exchange rate should correspond to higher import-based inflationary pressures. Conversely, the mining sector shift into the production phase will moderate inflationary pressures alongside decreasing wage growth as labour moves from the resource sector to the non-resources sector (Plumb et al, 2013). Lower income associated with the downturn in the TOT implies reduced demand for the output of the 'non-tradable sector' and should be coextensive with subdued price growth. Finally, depressed consumer confidence alongside a declining TOT and perceived end to the mining-boom will further exert a deflationary impact on the economy. On balance, predicted lower inflationary pressures are consistent with the evidence – overall inflation has fallen to a low of 1.5% (July, 2015) whilst wage growth has fallen from 3.7% (June, 2012) to 2.3% (January, 2015): (Trading

[2] Put simply, Dutch disease refers to an inflow of foreign currency following (for arguments sake) natural resource discovery. This leads to an appreciation in the exchange rate that makes non-resource exports more expensive and reduces their competitiveness on global markets. This can result in lower growth in non-resource related export sectors (i.e. trade-exposed manufacturing).

Economics). Empirically therefore, declining commodity prices seemingly correspond to lower inflation.

Policy Response

1. Policy minimalism

The importance of a policy response - if and when - hinges crucially on the speed of the economy's self-correcting mechanism. If, as classical theorists posit, the economy self-corrects rapidly then the necessity of external intervention is less apparent. In this case, the economy should rebalance on its own accord as changing relative wages shift labour between the resource sector and the 'other-tradable' and 'non-tradables' sector. In turn, we could expect to see the relative importance of these sectors increase and counteract the relative decline of the mining sector.

The case for inaction is supported by the fact that any macroeconomic output fluctuations caused by this transitory phase will be moderated - in part - by automatic stabilisers. Similarly, the flexible depreciating exchange rate counteracts the deflationary effect of a declining TOT so that less downward adjustment of interest rates is necessary to restore confidence across the economy (Debelle and Plumb, 2006).

2. Policy Interventionist

Conversely (and the more realistic assumption), if wages and prices are sticky and the self-correcting mechanism is slower then the case for intervention is considerably stronger - particularly in the shorter-term horizon as the economy adjusts to the waning influence of the mining boom. Importantly, the reduction in commodity prices and TOT will likely transpire into a reduction in confidence across the economy. As stated previously, a marginal decrease in the TOT translates into a fall in consumer confidence of 0.42 units.

Low confidence constitutes a negative demand shock to the economy, manifesting in lower growth and deflation given time. Critically, inflation has halved in the space of

12 months (3% in July 2014 to 1.5% in July 2015). Accordingly, autonomous easing of monetary policy can be utilised to induce the AD curve back to its initial equilibrium position and restore confidence across the economy via the investment and net export channels. This approach is consistent with the RBA's recent reduction of interest rates to historically low levels of 2%. Importantly, this has the effect of stabilising both output and inflation simultaneously with no corresponding tradeoff i.e. the so-called 'divine coincidence' (Blanchard, 2005). This approach can be supported by a sustained commitment to a nominal anchor in order to preserve inflation within the target range of 2-3%.

Fiscal policies can also be invoked alongside monetary stimulus to further ease the transition away from the resource sector. Minifie (2013) finds that maintaining low trade barriers, decentralised wage determinations and strong pro-competition regulation will assist in driving productivity gains throughout the economy and moderating the effects of a declining TOT. This should smoothen the rebalancing of the economy and minimise the likelihood of a corresponding recession/protracted decline in economic activity.

Future directions

The downturn in commodity price alongside the transition within the mining sector into the production phase is part of a broader re-adjustment as the Australian economy rebalances. Fortunately, current macroeconomic conditions are relatively stable and unlikely to correspond to any protracted post-boom downturn across the ‘other-tradable’ and ‘non-tradable’ sectors. Declining demand for labour in the resource sector and a depreciating exchange rate will assist in re-allocating labour towards non-resource sectors of the economy and should translate into stronger growth - particularly in trade-exposed export sectors. Additionally, increased output within the mining sector implies that mining as a share of GDP is unlikely to decline in the near future despite decreasing profitability in this sector. The optimal policy mix necessitates *both* fiscal and monetary intervention. Monetary policy is *necessary* but *not sufficient*. Interest rates are already at historically low levels and although the suite of monetary policy tools has not been exhausted, fiscal initiatives play an equally vital role in driving productivity gains across the ‘other-tradable’ and ‘non-

tradable' sectors. Importantly, a robust and proactive policy response will moderate the potentially disruptive impact of falling commodity prices on overall macroeconomic stability.

Appendix

Regression - *consumer confidence (CC) on constant and terms of trade (TOT): (2011 – 2015)*

Hypothesis tests conducted at 5% significance level

Dependent Variable: CC
Method: Least Squares
Date: 07/23/15 Time: 15:09
Sample: 1 17
Included observations: 17
White heteroskedasticity-consistent standard errors & covariance

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	56.84939	7.436833	7.644300	0.0000
TOT	0.427576	0.072400	5.905737	0.0000

R-squared	0.569539	Mean dependent var	100.1276
Adjusted R-squared	0.540842	S.D. dependent var	5.486725
S.E. of regression	3.717871	Akaike info criterion	5.574310
Sum squared resid	207.3384	Schwarz criterion	5.672335
Log likelihood	-45.38164	Hannan-Quinn criter.	5.584054
F-statistic	19.84640	Durbin-Watson stat	1.018509
Prob(F-statistic)	0.000463	Wald F-statistic	34.87773
Prob(Wald F-statistic)	0.000029		

Source: Trading Economics

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