



**The new state
of business**

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Productivity in NSW

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Overview

- Productivity
- World and Australian trends
- Previous studies
- Analysis
- Findings (NSW trends)
- Discussion

Productivity

- Ratio of outputs to inputs
- Definitions:

$$\text{Labour Productivity} = \frac{\text{Output}}{\text{Labour}}$$

$$\text{Multi-factor Productivity} = \frac{\text{Output}}{\text{Labour} + \text{Capital}}$$

$$\text{Total Factor Productivity} = \frac{\text{Output}}{\text{All Measurable Inputs}}$$

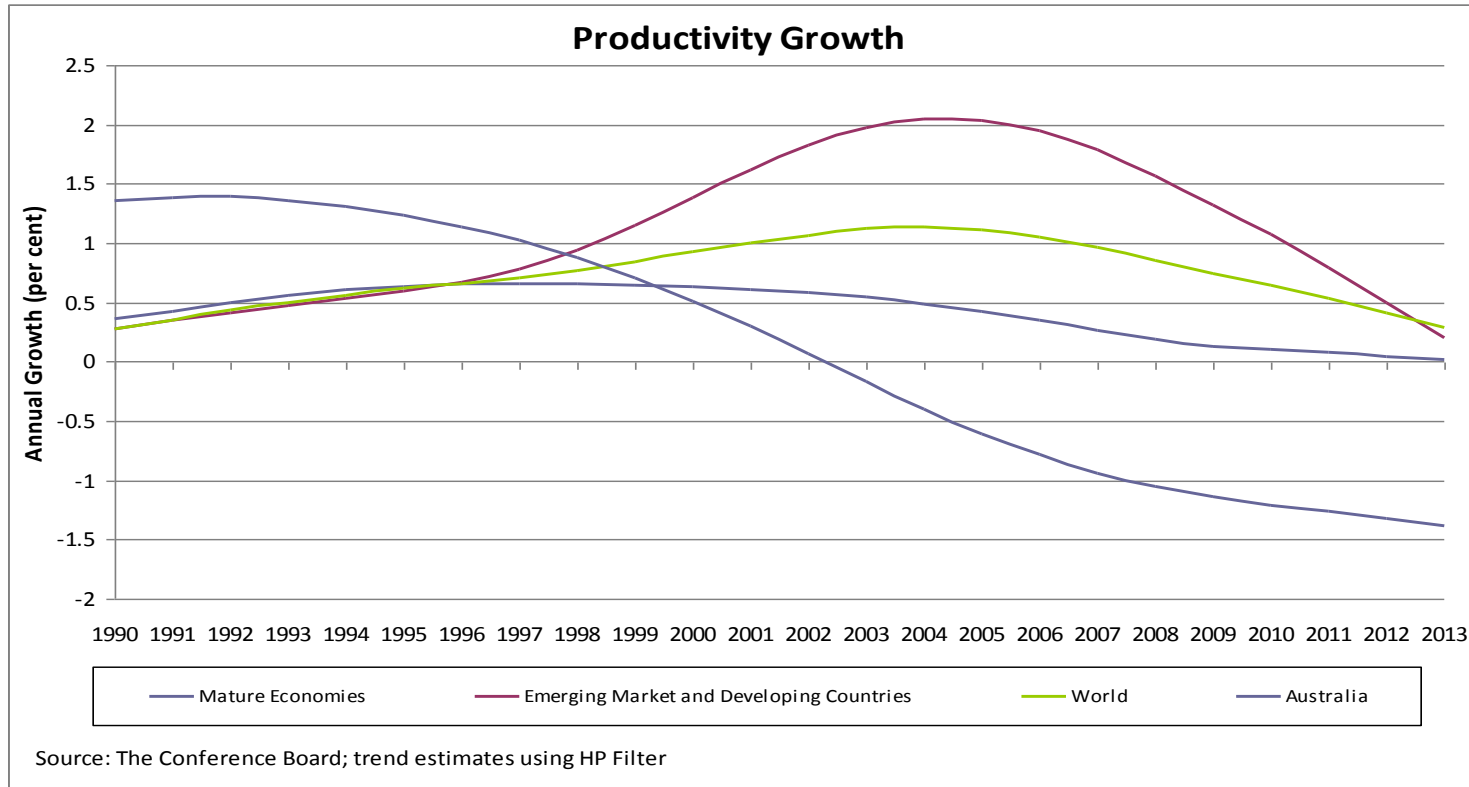
Productivity

- Productivity growth improves living standards
 - Via income, wages, leisure or prices
- NSW specific productivity measures unavailable
 - Gap in knowledge
- NSW economy different to national economy
 - Less mining, more finance, more services

| | NSW | Australia |
|-----------------------|-------|-----------|
| Mining | 4.6% | 14.1% |
| Finance and Insurance | 17.0% | 11.4% |
| 6 service industries | 41.6% | 32.2% |

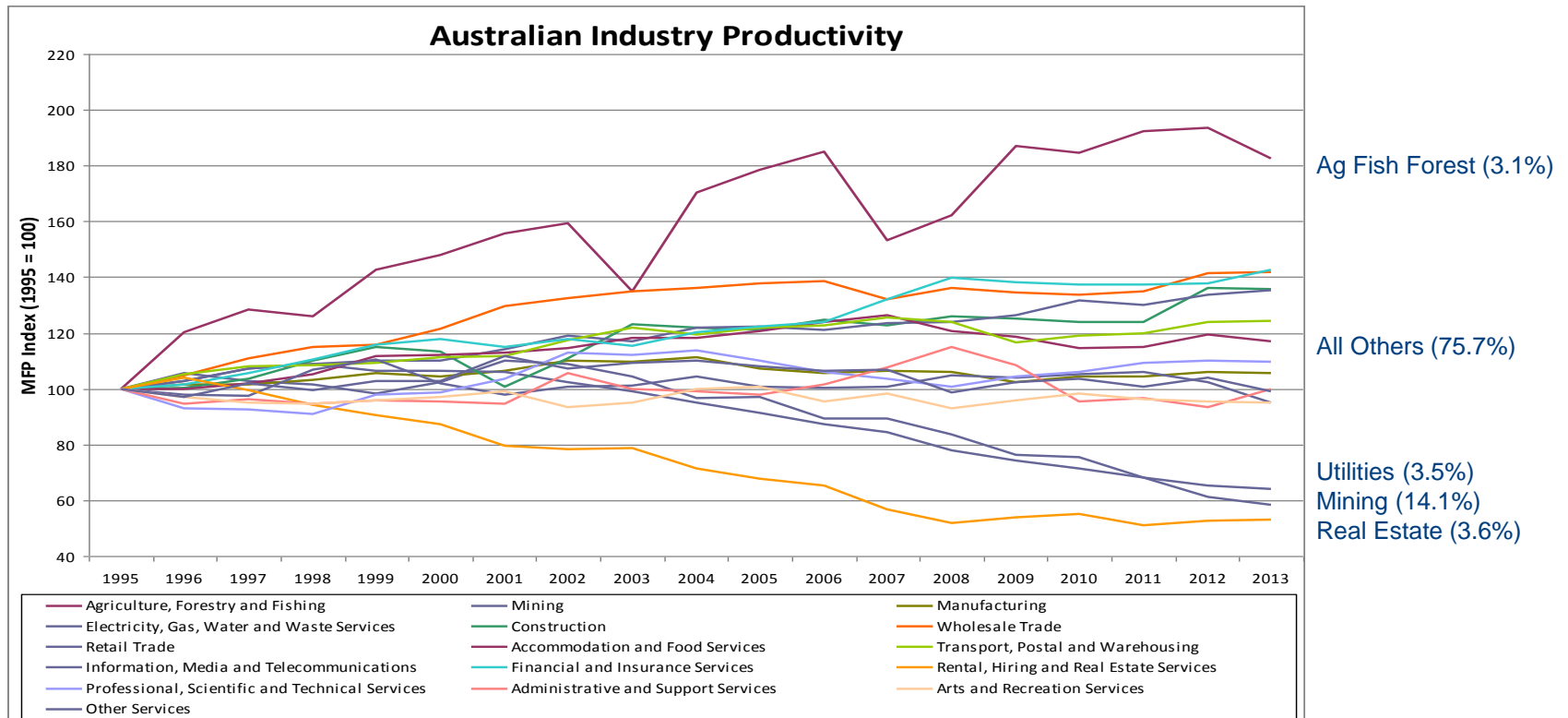
Source: ABS Cat. 5206 and 5220. market sector (16 industries)

World Trends



- Mature economies experiencing a fall in productivity growth
- Reasons: slowing innovation, fading impact of breakthrough ICT and economic reforms (Carmody, 2013)

Australian Trends



- Australia experiencing an overall fall in productivity growth
- Reasons:
 - Utilities: quality benefits (environment, amenity, and reliability of supply) not measured in utilities output (PC, 2013), and
 - Mining: disproportional growth in inputs in mining (Parham, 2012),
 - Real Estate Services: measurement issues (ABS, 2014 pers comm).

Previous studies

- **Queensland Treasury (2011)**
 - Multifactor productivity estimates for QLD and for the Rest of Australia.
 - Capital estimates based on apportioned ABS capital stock, scaled using ABS scaling factors.
- Not by industry
- Not readily repeatable

Previous studies

- **Cunningham & Harb (2012)**
 - Multifactor productivity estimates by state by industry.
 - Capital estimates based on independent capital stock estimates decomposed to industry using ABS scaling factors.
- Capital inputs proportional capital stock
- Not readily repeatable
- Results to 2011

Previous studies

- **Syed, Grafton & Kalirajan (2013)**
 - Multifactor productivity estimates for mining by state.
 - Capital estimates based on apportioned ABS capital.
 - Adjustments for depletion of resources
- Only mining

Analysis

- Estimate industry multifactor productivity (MFP) at state level using published ABS data (various).
- Ratio of an index of industry value added (IVA) to an index of the combined inputs of labour and capital (I).

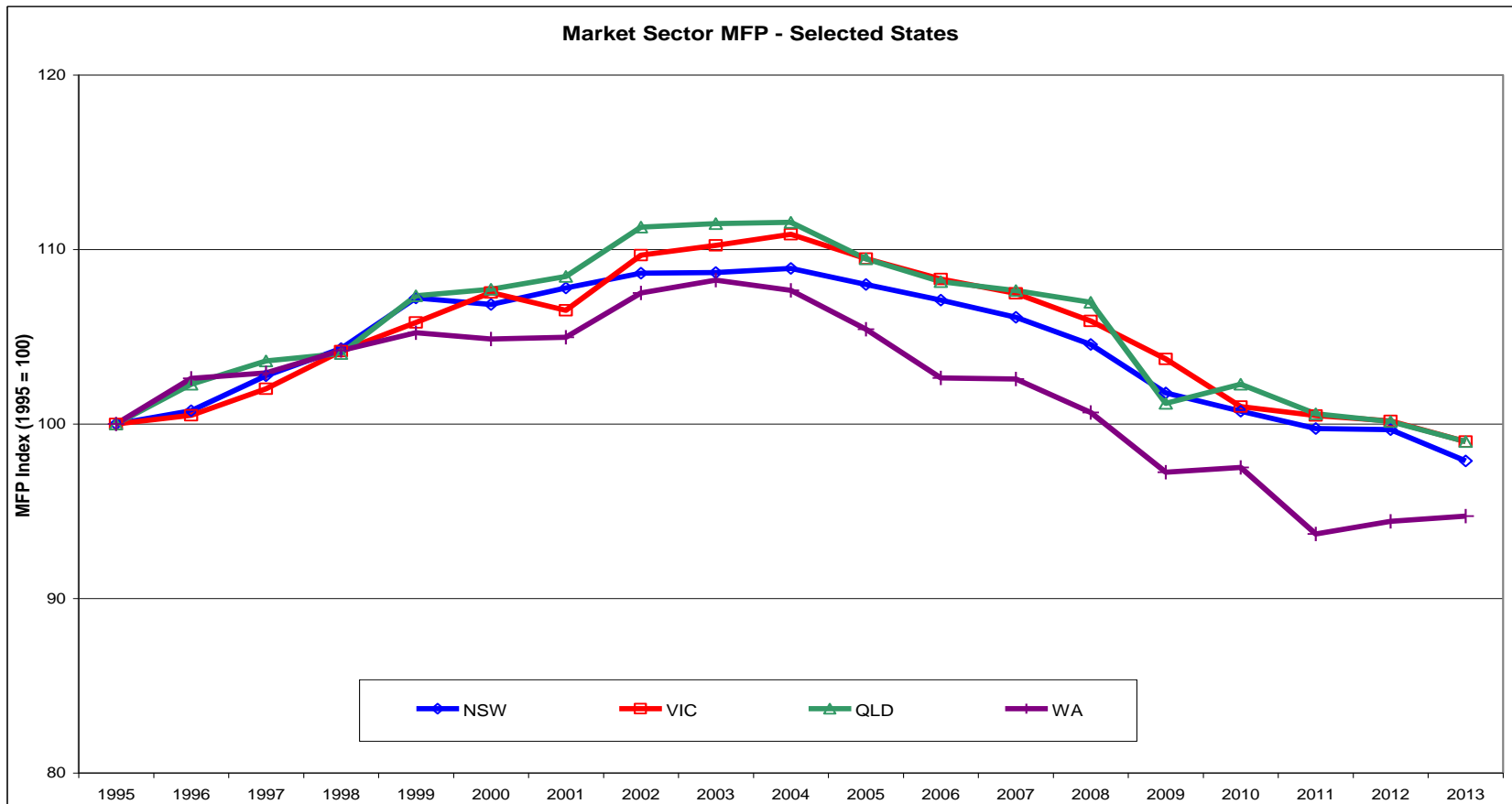
$$MFP_s^i = \frac{IVA_s^i}{I_s^i}$$

- Capital apportioned from ABS index of capital services used for ABS MFP estimates.

Analysis

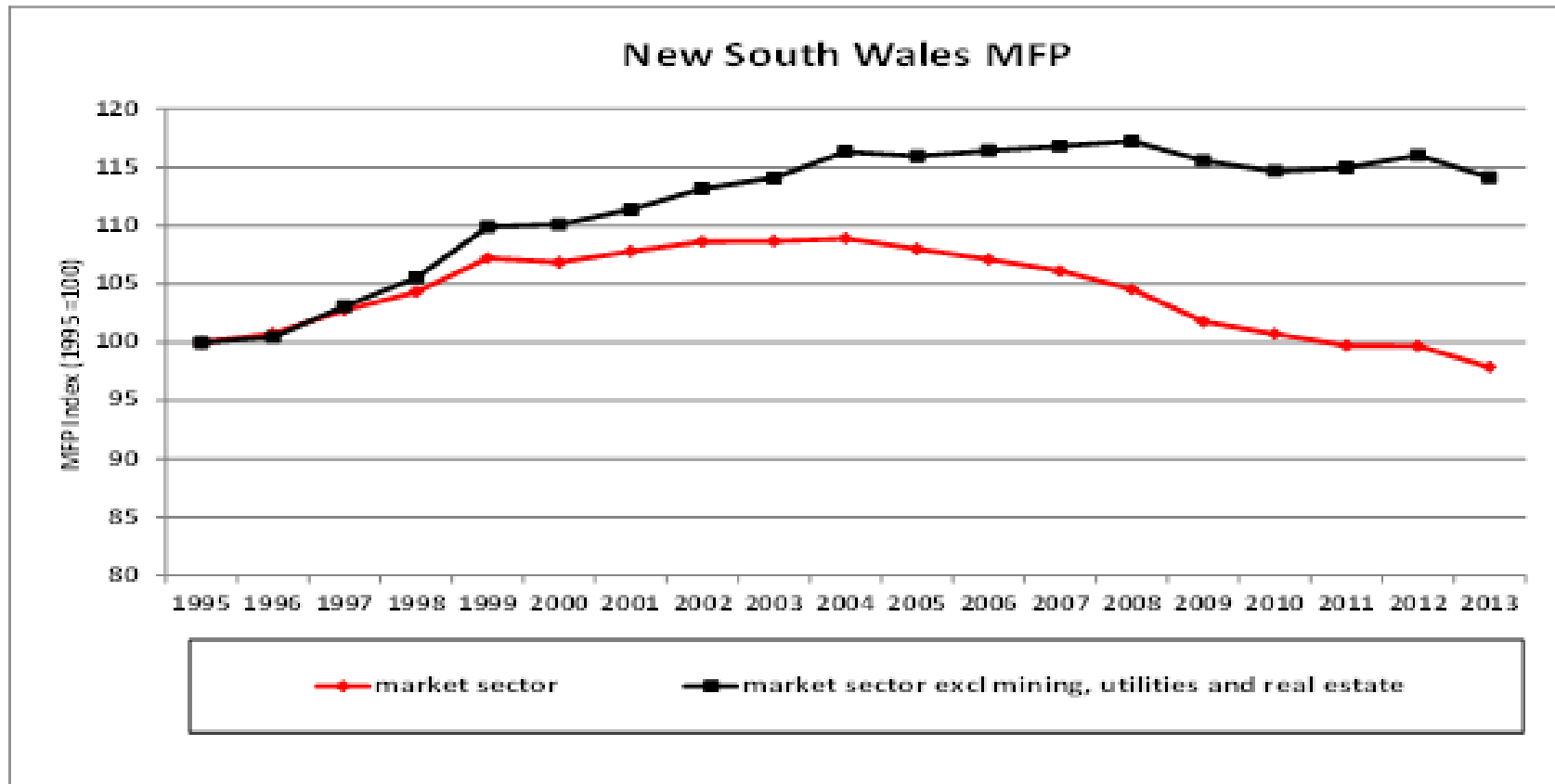
- MFP by State by industry
 - Industry level productivity trends
- Readily repeatable and updatable
 - Continuing demand for updates
- Readily comparable to ABS estimates (Australia)
 - Greater texture (State differences)

Findings – States



Source: NSW T&I MFP estimates 2014

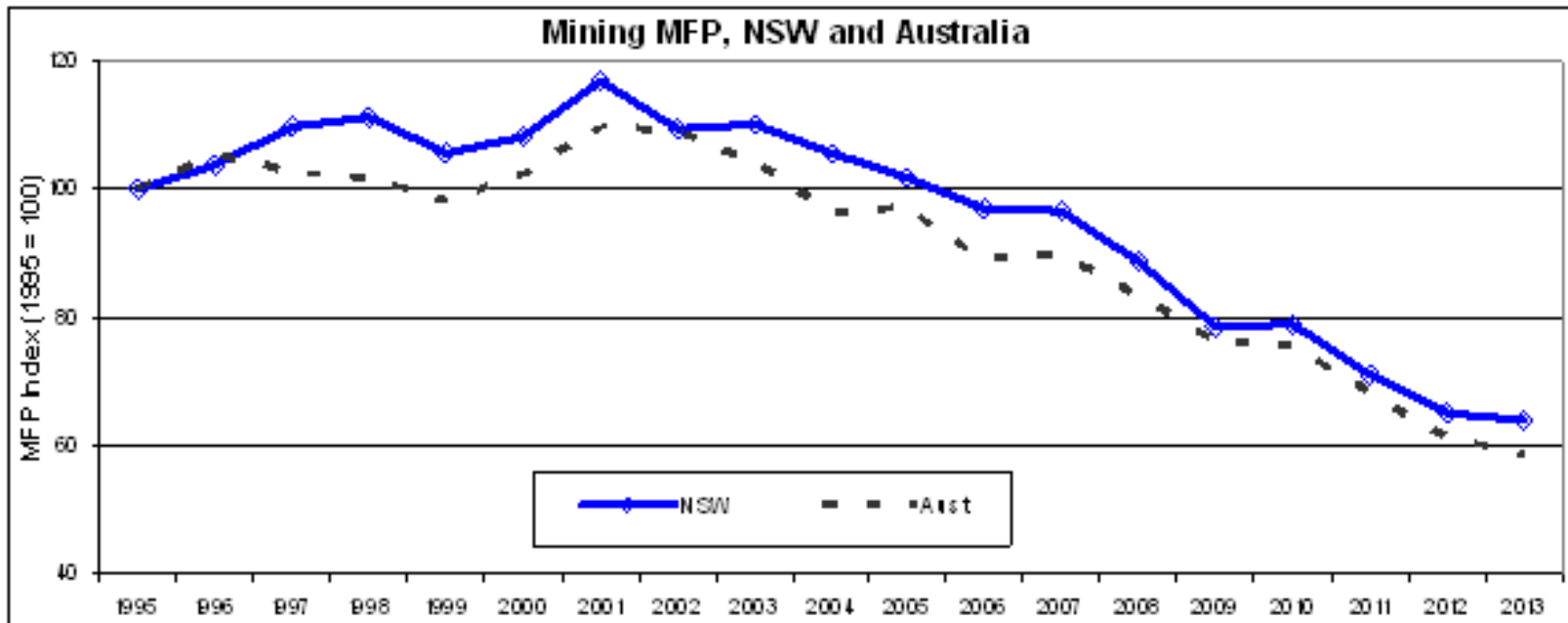
Findings – market sector



Source: NSW T&I MFP estimates 2014

Findings – Mining

- Correlated to Commodity Prices
 - Capacity utilisation lags, digging deeper, digging faster

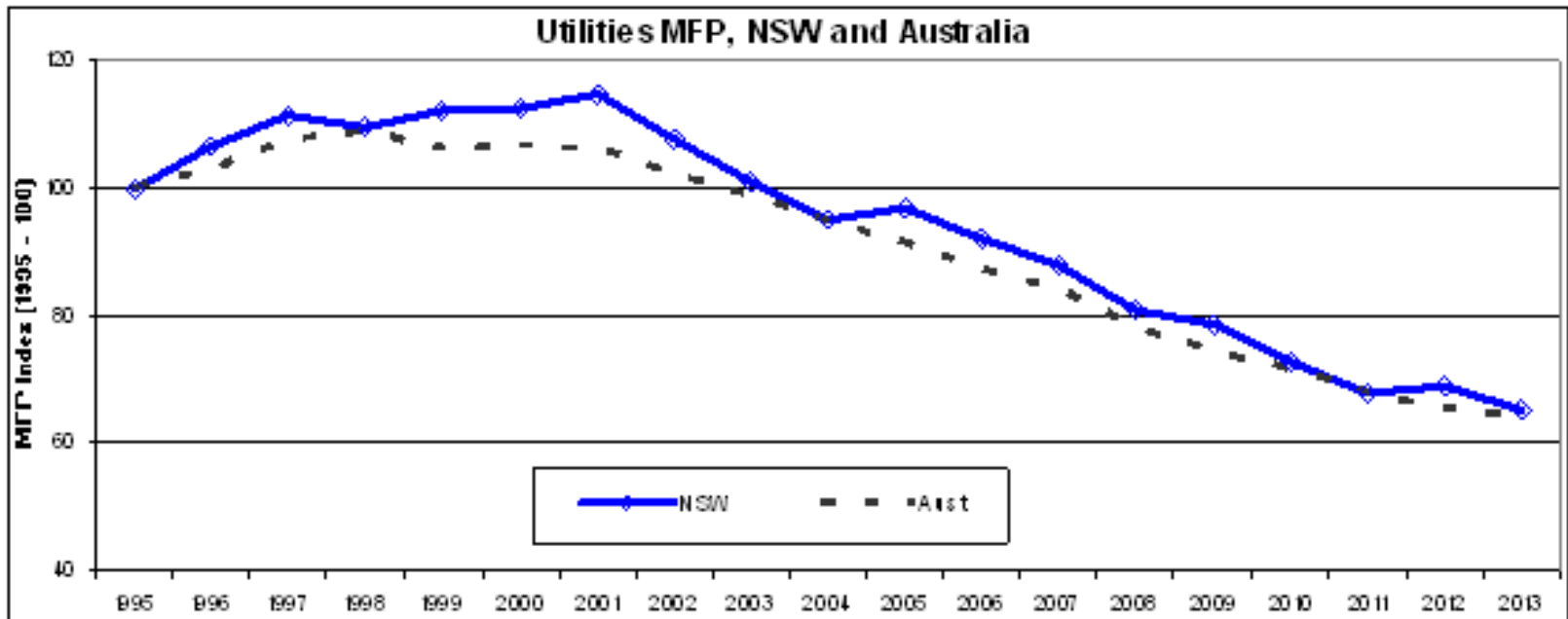


Source: NSW T&I MFP estimates 2014, ABS (Cat. 5260) MFP estimates for Australia

14.1% of Australian market sector
4.6% of NSW market sector

Findings – Utilities

- Capital inputs increasing much faster than output
 - Asset upgrades, increased efficiency of use



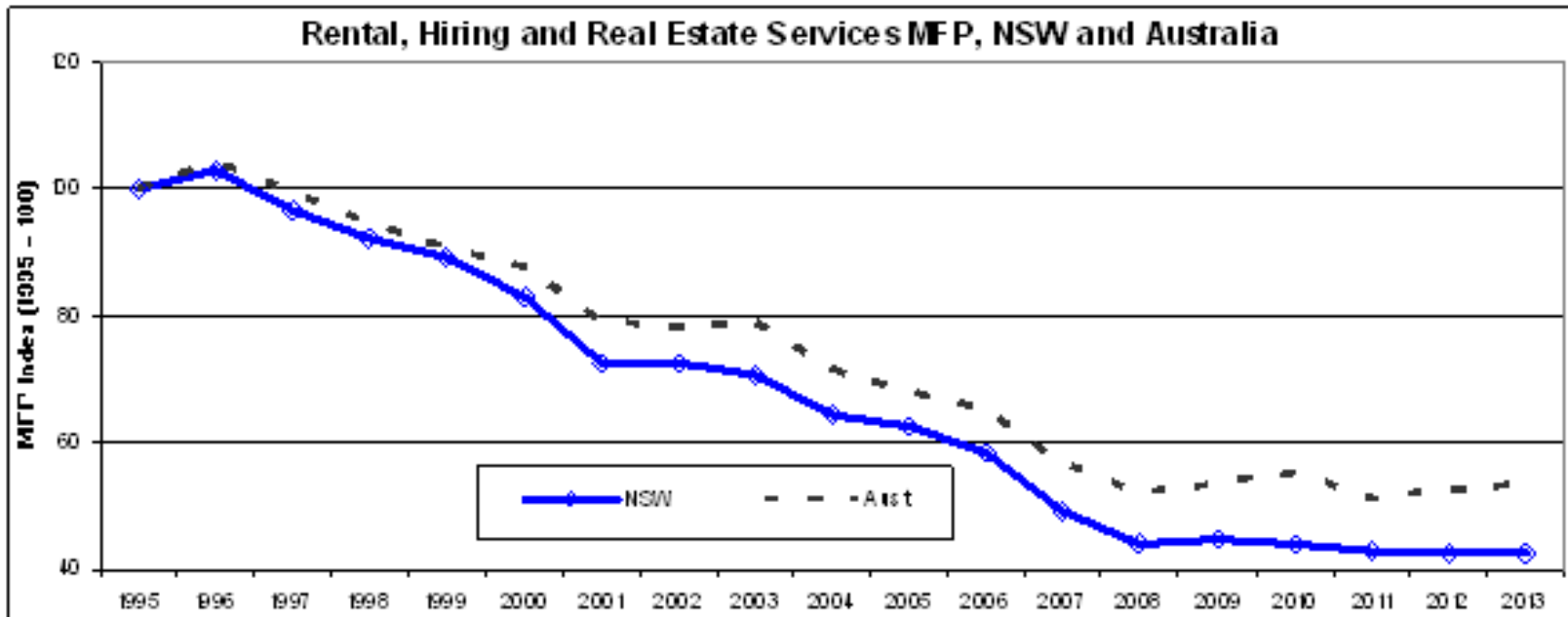
Source: NSW T&I MFP estimates 2014, ABS (Cat. 5260) MFP estimates for Australia

3.5% of Australian market sector

3.8% of NSW market sector

Findings – Real Estate Services

- Measurement issues corrected around 2008
 - Disproportional price deflation of outputs and inputs



Source: NSW T&I MFP estimates 2014, ABS (Cat. 5260) MFP estimates for Australia

3.6% of Australian market sector

4.2% of NSW market sector

Discussion

- Primarily market drivers
- Limited ability for government to influence these
- Focus should be on broader policy initiatives
 - Enabling innovation
 - Reducing impediments
- Recommendations at the national level also apply to NSW

Discussion

- Australian policy recommendations:
 - Reduce barriers to trade (OECD, 2014)
 - Improve efficiency of tax system (Banks, 2012)
 - Greater workforce participation (OECD, 2014)
 - More flexible regulation (Banks, 2012)
 - Infrastructure pricing (Banks, 2012)
- No industry-specific responses recommended

End

References

- Parham,D (2012) Australia's productivity growth slump: Signs of crisis, adjustment or both.
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- Cunningham,M & Harb,D (2012) Multifactor productivity at the sub-national level in Australia.
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- Banks,G (2012) Productivity policies: the “to do” list. Speech at the Economic and Social Outlook Conference, ‘Securing the Future’.