



**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:

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

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

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

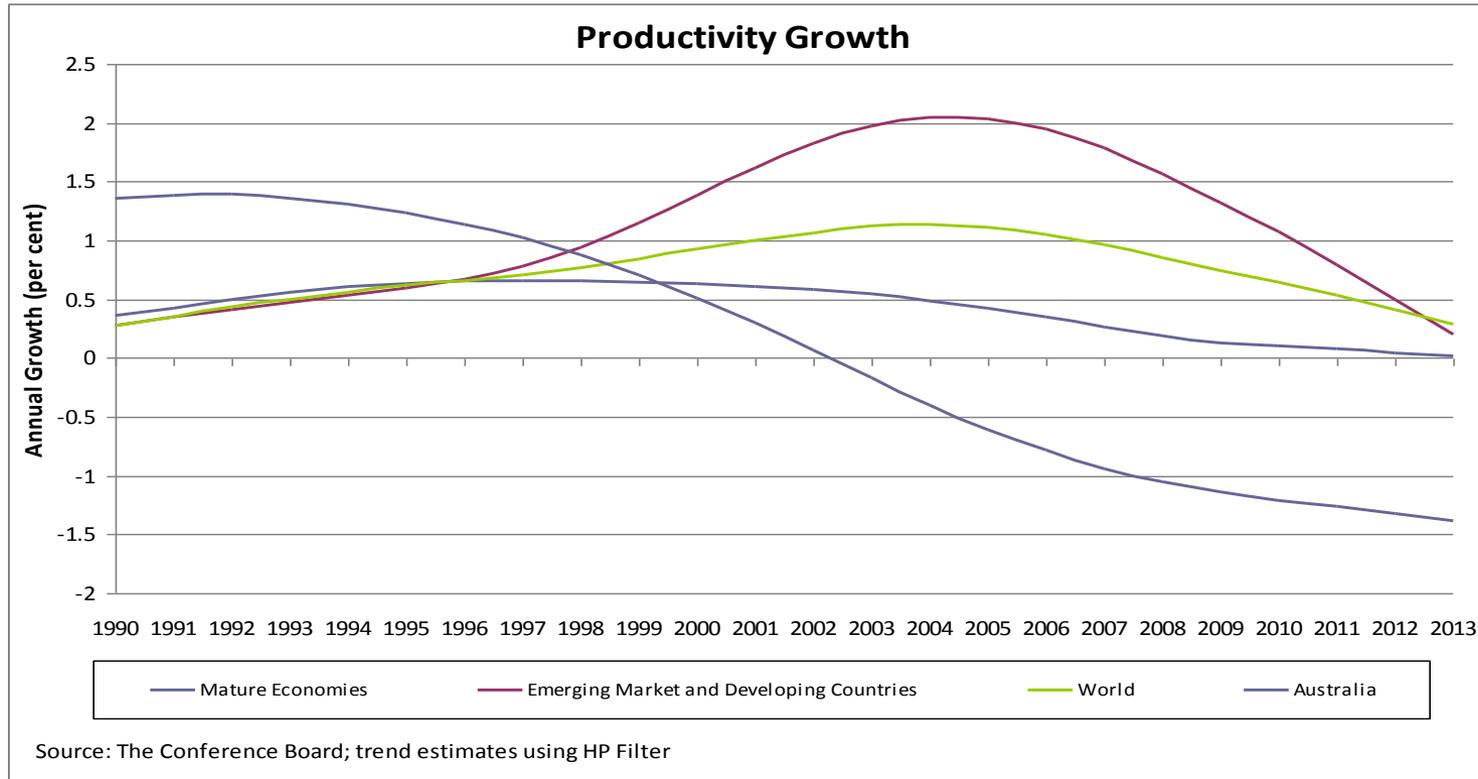
# Productivity

- 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%

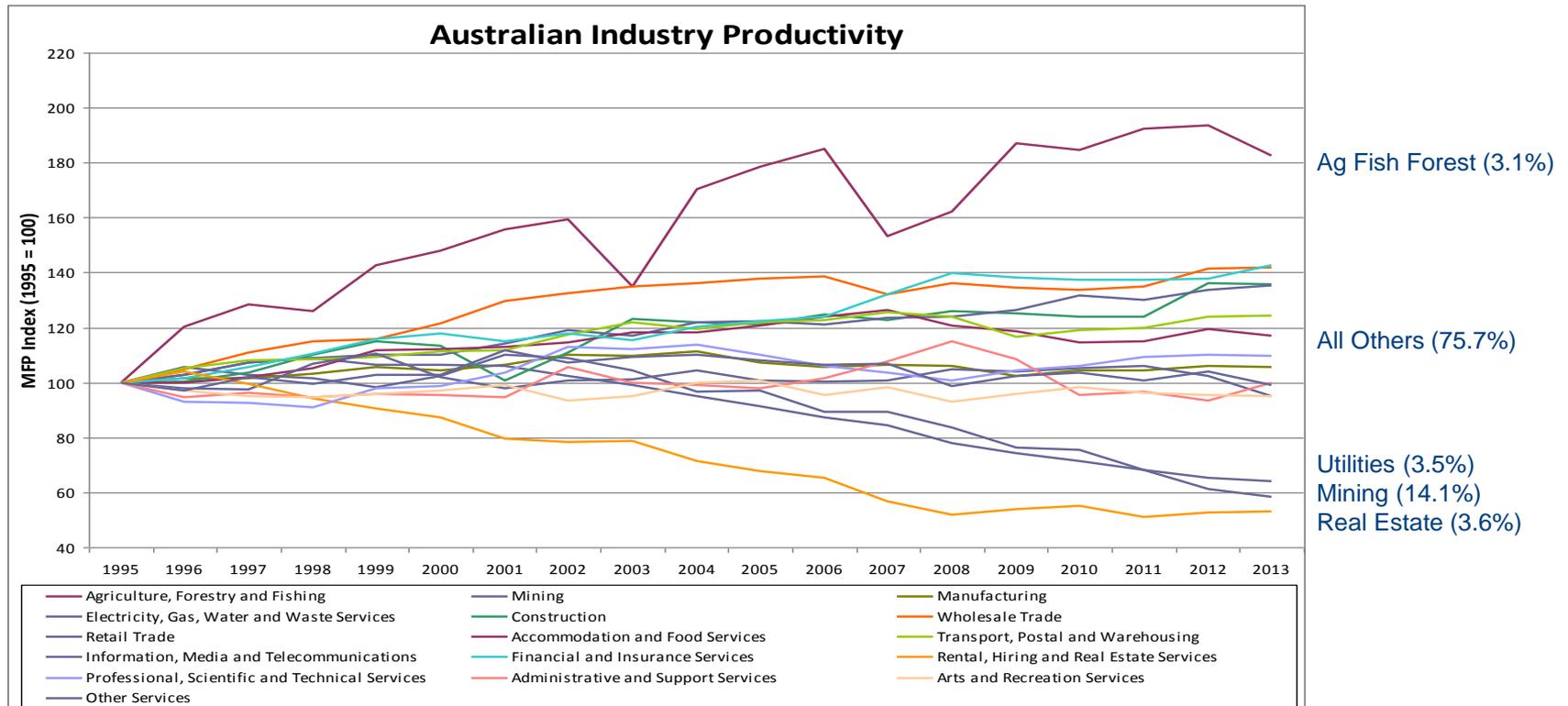
Source: ABS Cat. 5206 and 5220. market sector (16 industries)

# 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



Source: ABS Cat. 5260 Estimates of Industry Multifactor Productivity

- 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).

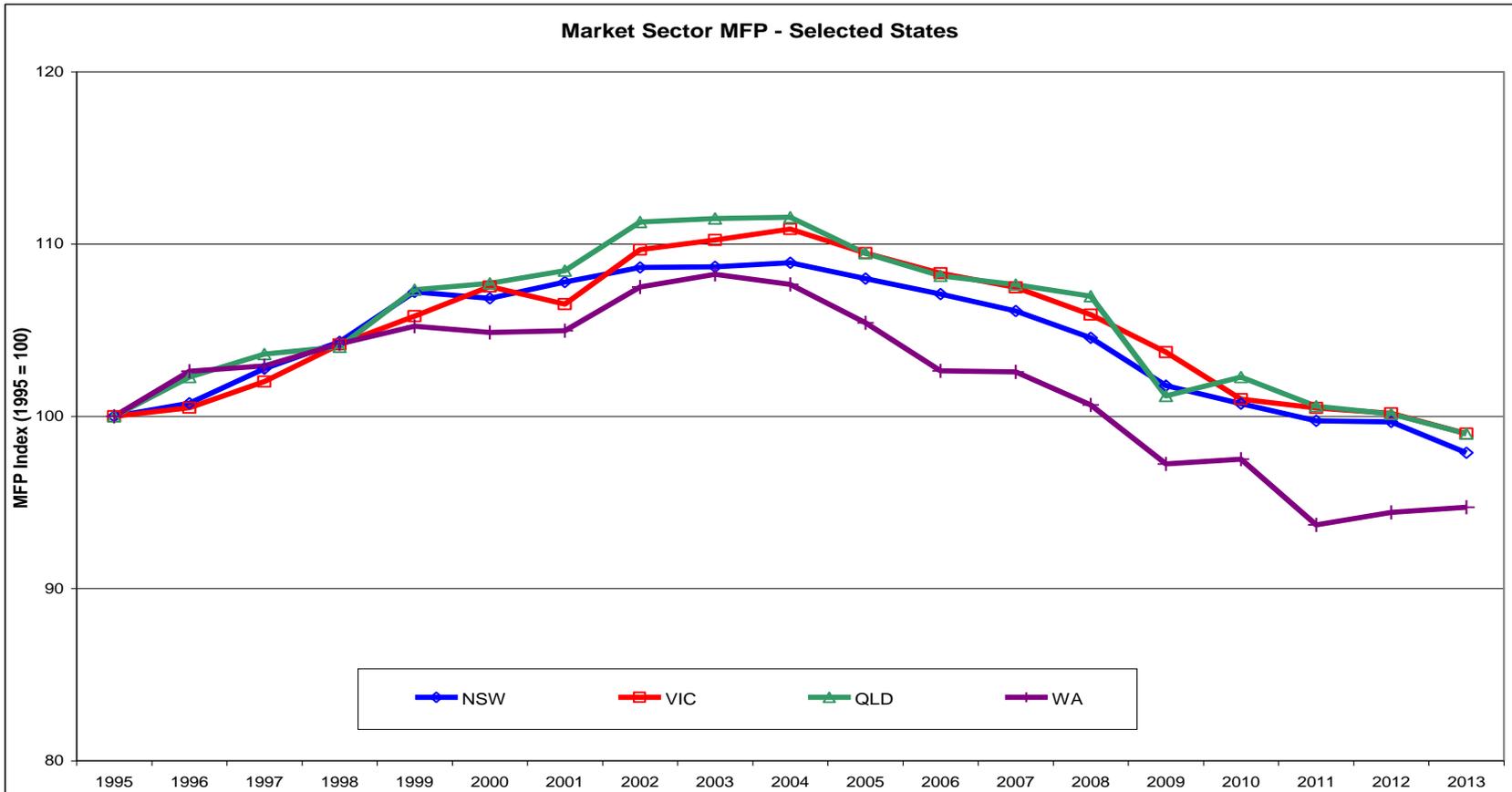
$$MFP_s^i = \frac{IVA_s^i}{I_s^i}$$

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

# Analysis

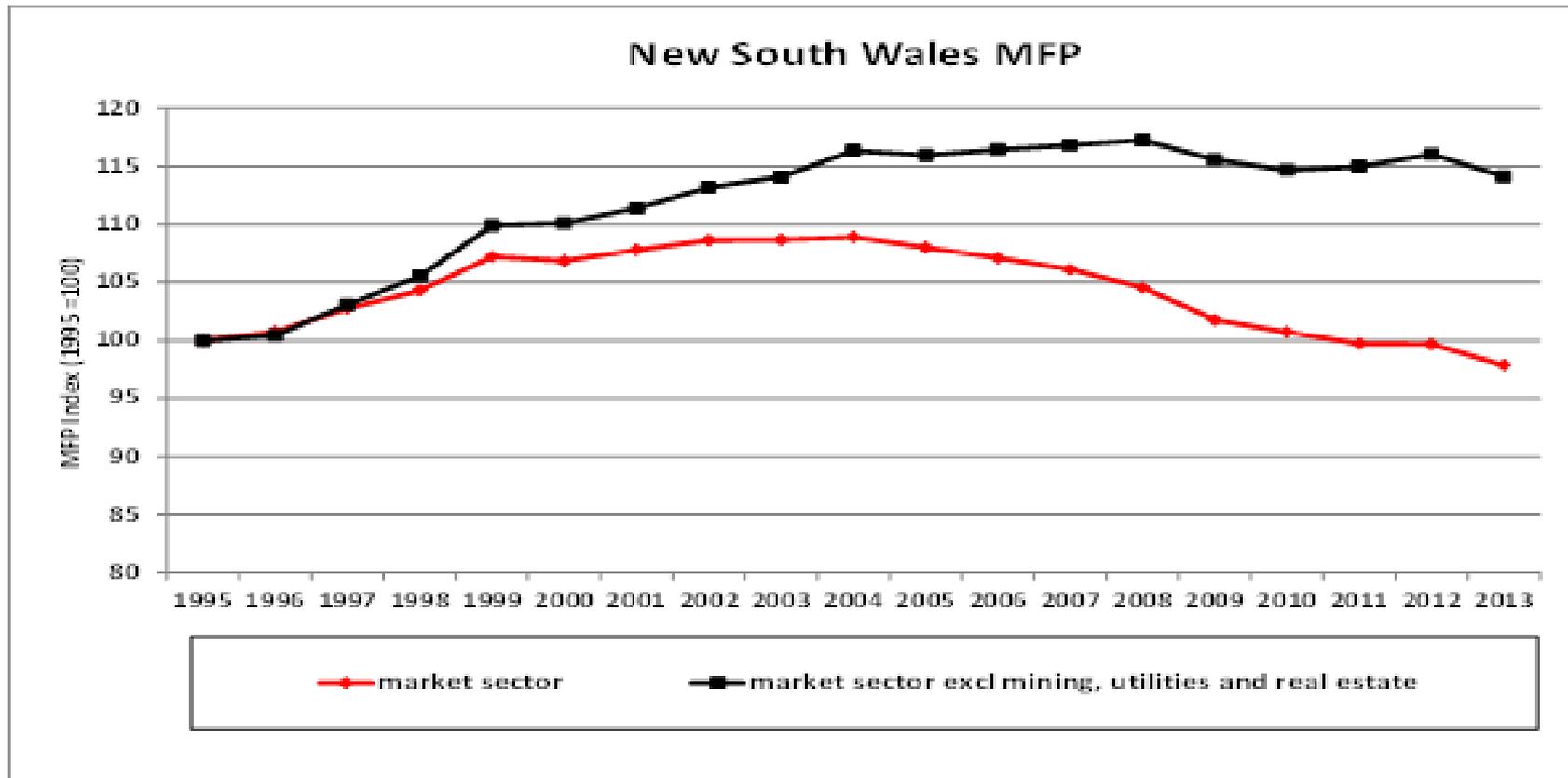
- MFP by State by industry
  - Industry level productivity trends
- Readily repeatable and updatable
  - Continuing demand for updates
- Readily comparable to ABS estimates (Australia)
  - Greater texture (State differences)

# Findings – States



Source: NSW T&I MFP estimates 2014

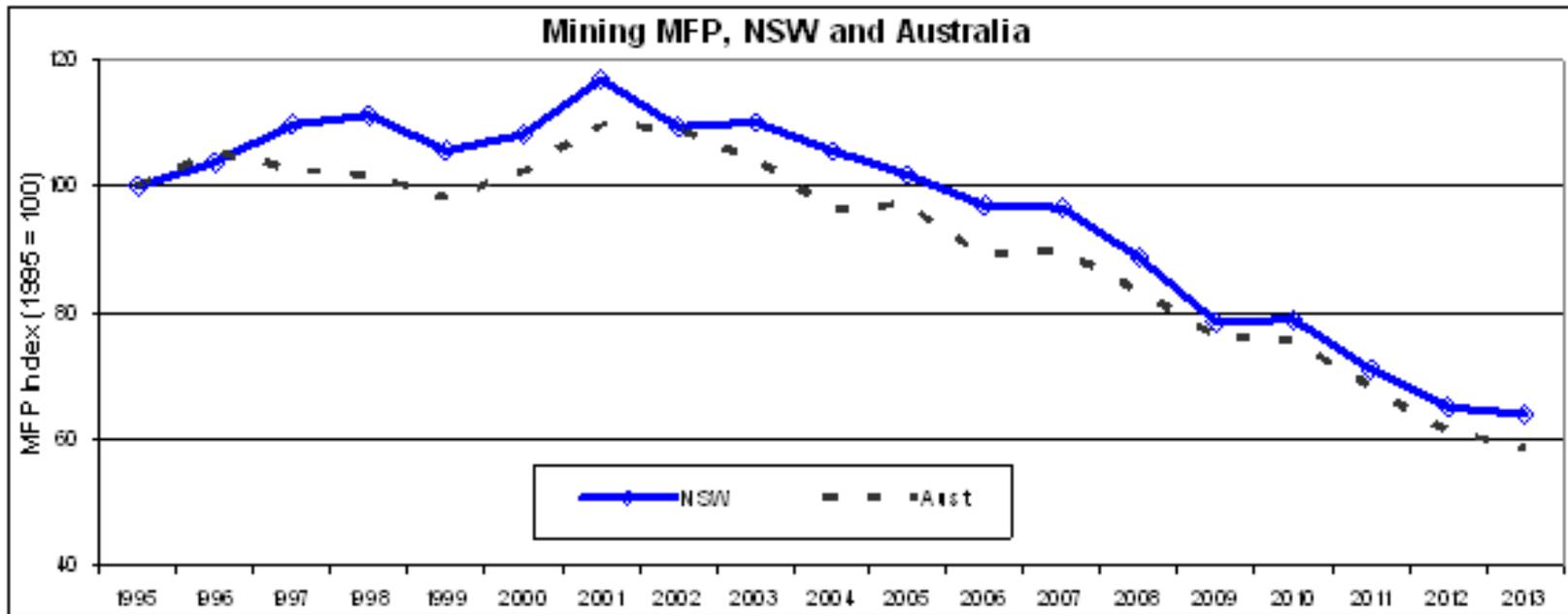
# Findings – market sector



Source: NSW T&I MFP estimates 2014

# Findings – Mining

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

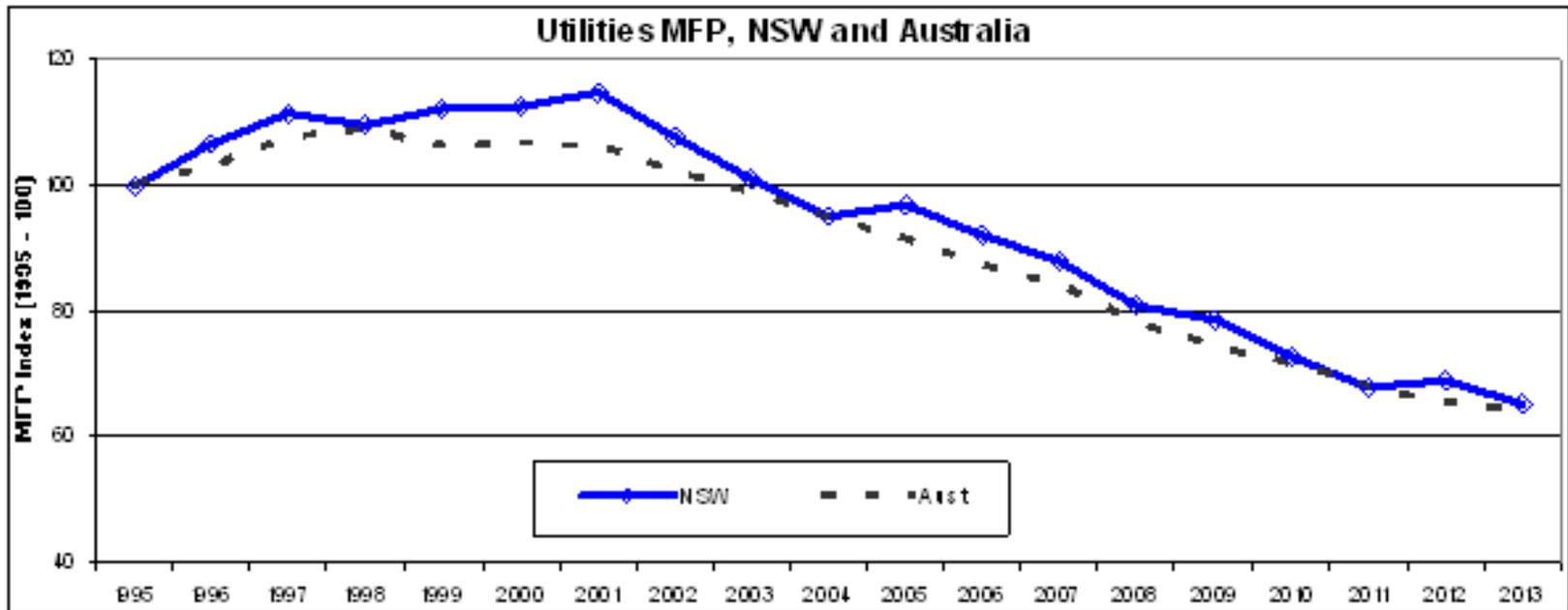


Source: NSW T&I MFP estimates 2014, ABS (Cat. 5260) MFP estimates for Australia

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

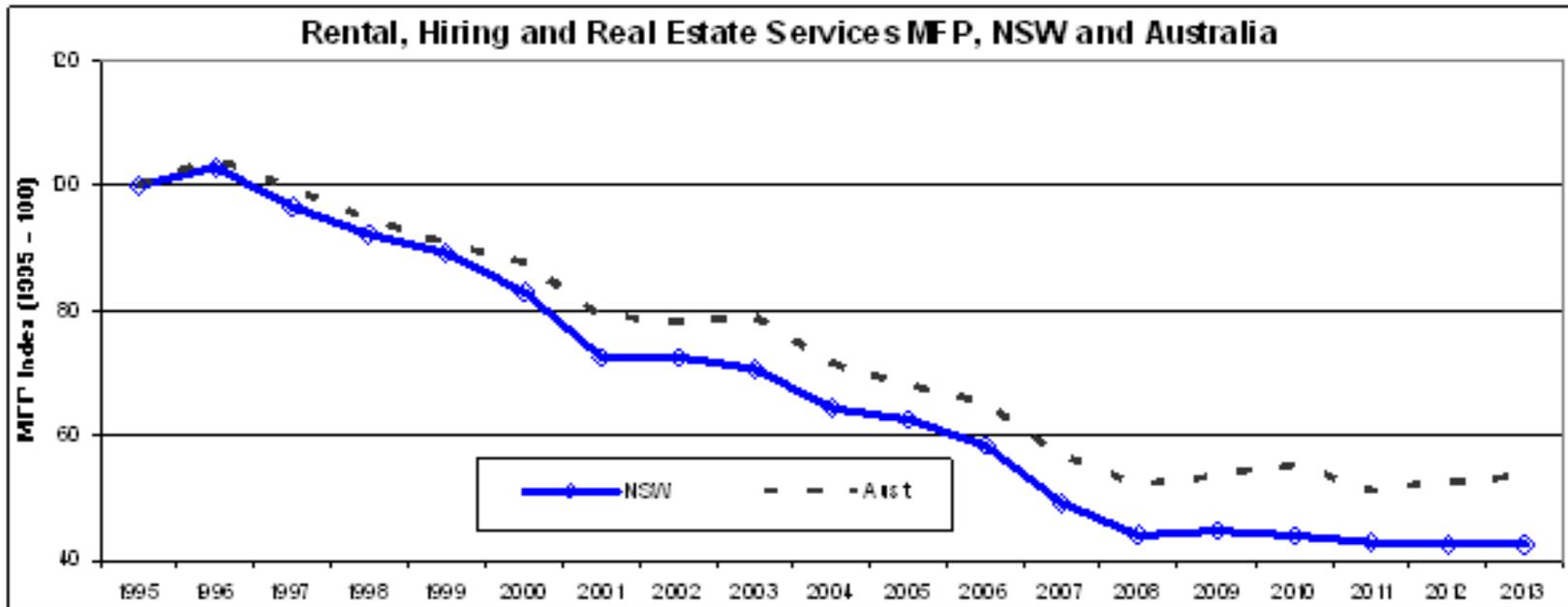


Source: NSW T&I MFP estimates 2014, ABS (Cat. 5260) MFP estimates for Australia

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

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