BIS OXFORD ECONOMICS

LONG TERM MACROECONOMIC FORECASTS

FOR AUSTRALIAN ENERGY MARKET OPERATOR

Presented by Sarah Hunter, Chief Australia Economist

24th February 2021

BIS OXFORD ECONOMICS

OUTLINE

- **Scenario Assumptions**
- **Modelling methodology**
- **Short Run & COVID-19 assumptions**
- **Central scenario results: Short to medium term outlook**
- **Alternative scenario results: Short to medium term outlook**

INTRODUCTION

- BIS Oxford Economics has been re-engaged by AEMO to produce the macroeconomic forecasts that are used as input into AEMO's FY22 suite of gas and electricity forecasting and planning publications.
- The core indicators produced by BIS Oxford Economics are:
  - *Population forecasts*
  - *Gross State Product & Gross Domestic Product*
  - *State Final Demand*
  - *Household Disposable Income*
  - *Consumer Price Inflation (Australia only)*
  - *USD/AUD*
  - *Industrial Sector forecasts (at ANZSIC Division level by state)*
  - *New Dwelling Forecasts by dwelling type*

This slide deck has been developed to provide further context on the key trends in the forecasts. This deck focusses on key changes to our past projections, where applicable.

BIS OXFORD ECONOMICS

KEY SCENARIO ASSUMPTIONS

- BIS OE have produced forecasts for the three core scenarios: Central, Slow Growth and High Growth (similar to last year). The key assumptions underpinning the three core scenarios are as follows:

Scenario	High Growth	Central	Slow Growth
Population Growth	Higher than Central: Apply ABS Series A NOM dispersion to BIS OE central	BISE OE baseline	Lower than Central: Apply ABS Series C NOM dispersion to BIS OE central
Investment	Higher than baseline	BIS OE Baseline	Lower than baseline
Global Demand	Higher demand than central	BISE OE Baseline	Lower than central
Climate Warming settings	~1.8°C by 2050 from pre-industrial levels	~2.6°C by 2050 from pre-industrial levels	~4°C by 2050 from pre-industrial levels
Resource Productivity Gains	Higher than central	BIS OE baseline	Lower than central
Commodity Intensity Improvements	Lower than central	BIS OE baseline	Higher than central
COVID-19 Recovery	Faster pace of recovery and international border reopening is fast tracked	BIS OE baseline	Slower pace of recovery and international border reopening is delayed

- In addition, this year BIS OE have produced a fourth new scenario, *High Growth + H2*, detailed in the following slide.

KEY SCENARIO ASSUMPTIONS

- The additional *High Growth + H2 scenario* is characterised as follows:
  - Global transition to a greener pathway is accelerated with Australia being a relative leader, including leading production and export of hydrogen, and reaching net zero emissions by 2050.
  - Significant global and domestic electrification arises from greener investment by businesses and households.
  - Australia's strong economic fundamentals attract migrants, increasing population relative to *both* central and high growth scenario.

METHODOLOGY

- The forecasts are produced using our proprietary *Global Economic Model* and *Global Industry Model* which covers 80 countries. At the country level, the model's structure is Keynesian in the short run, with output driven by shifts in demand, but in the long run the model is neoclassical, and GDP is determined by the economy's supply side potential.
- **Climate Change enhancements:** We have recently enhanced our models to accommodate the economic impact of climate change. This is done through three main channels:
  - Global Temperature impact on **depreciation of capital stock** and productive potential;
  - Degree of **investment in energy efficiency** improvements leading to productivity gains; and
  - The impact of increased renewable penetration and pace of electrification on global demand for traditional emissions intensive materials (coal, gas and oil) and the flow on impact on trade.

For more information on our previous work for AEMO and modelling details please see: https://aemo.com.au/-/media/files/electricity/nem/planning_and_forecasting/inputs-assumptions-methodologies/2020/bis-oxford-economics-macroeconomic-projections.pdf?la=en

BIS OXFORD ECONOMICS

SHORT RUN ASSUMPTIONS

Health Outcomes

- **High Growth:** Globally cases are brought under control; vaccine is available and mass administered quicker than baseline.
- **Slow Growth:** Globally cases continue to rise; domestically cases re-erupt and managed through repeated partial lockdowns.

Policy Response

- **High Growth:** Faster unwinding of state and international borders restrictions.
- **Slow Growth:** Delayed unwinding of state and international border restrictions.

Demographic Shock

- **High Growth:** Faster rebound in net overseas migration and normalisation of interstate migration patterns. Higher levels of permanent overseas migration.
- **Slow Growth:** Slower normalisation of migration patterns. Lower levels of permanent overseas migration

Economics Outcomes

- **High Growth:** Higher population growth and limited hysteresis effects drive higher output and higher income growth than baseline.
- **Slow Growth:** Lower population growth and more profound and longer lasting hysteresis effects driver lower output and income growth than baseline.

SHORT RUN ASSUMPTIONS – COVID-19

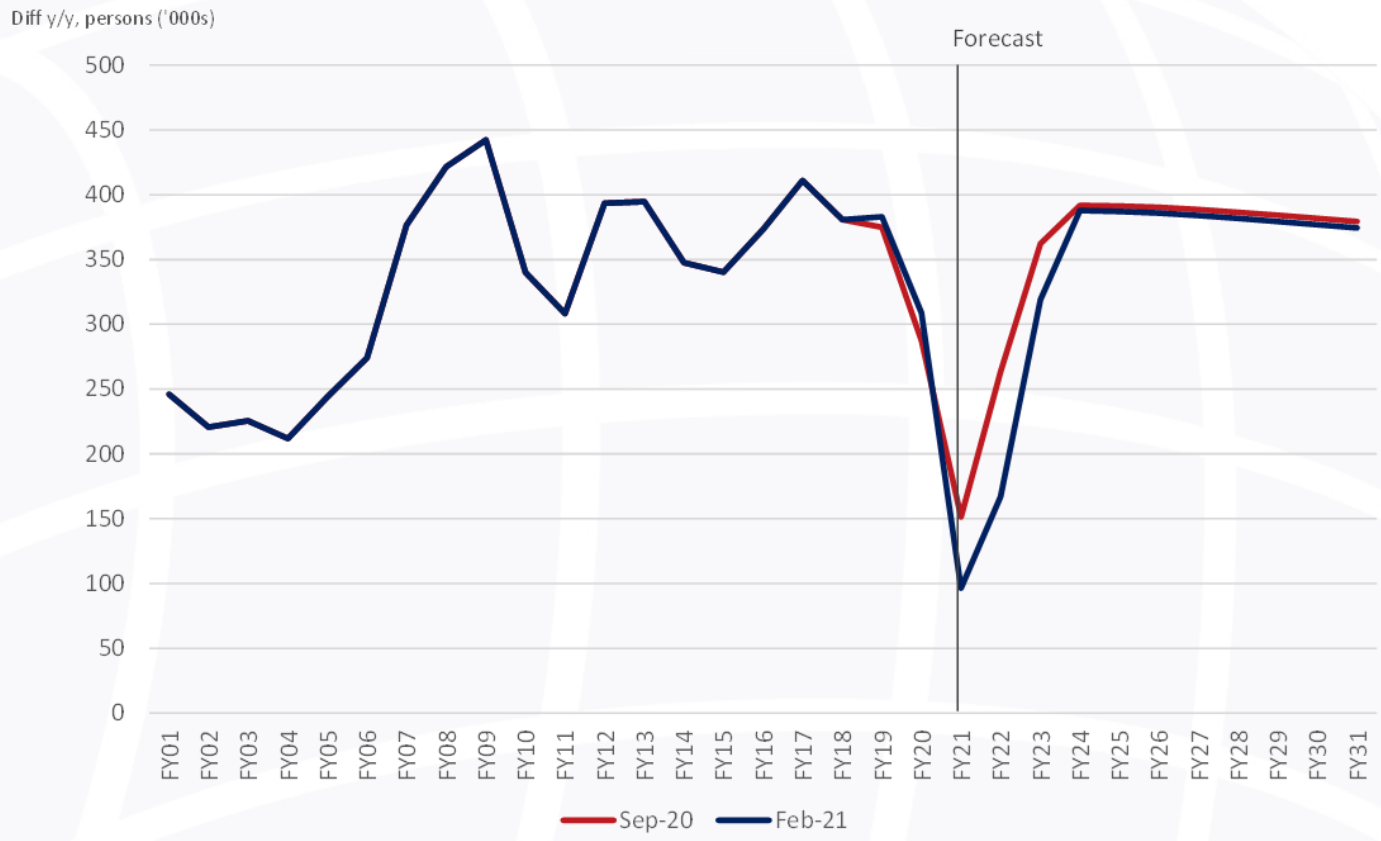
- Near term assumptions remain underpinned by COVID-19 recovery.
- Vaccine roll out offers some certainty to the recovery outlook, supporting investor and consumer confidence, while new and more virulent strains of the virus present downside risk.
- With restrictions on domestic activity largely unwound nationally (notwithstanding the third VIC lockdown), further economic gains from *domestic activity* is limited in the very near term.
- We are not assuming that the vaccine roll out will automatically enable the re-opening of the international border. This will require a reduction in COVID cases globally and clear evidence that the vaccines reduce transmission as well as hospitalisations and deaths. We expect the border to re-open gradually, through travel bubbles and other reductions in restrictions, in 2022.

BIS OXFORD ECONOMICS

CENTRAL FORECASTS

CENTRAL CASE: DEMOGRAPHICS

Fig 1. Population Change, Australia (FY01-51)



Source: BIS Oxford Economics/ ABS

CENTRAL CASE: DEMOGRAPHICS

Fig 2. Population Level – NSW, VIC, QLD & WA

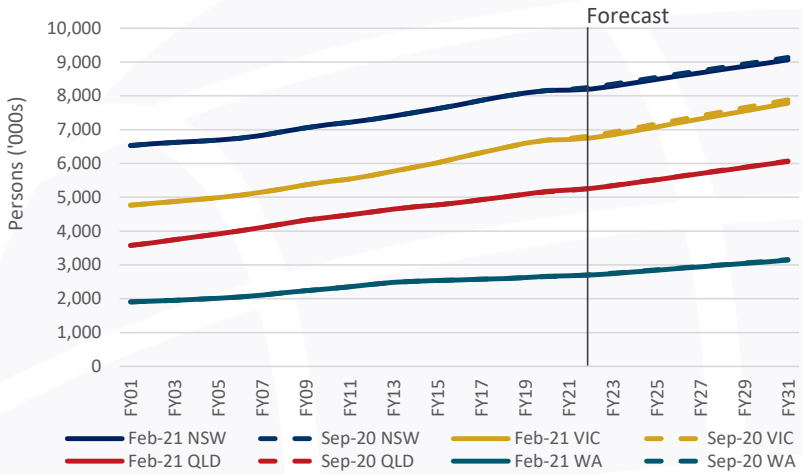
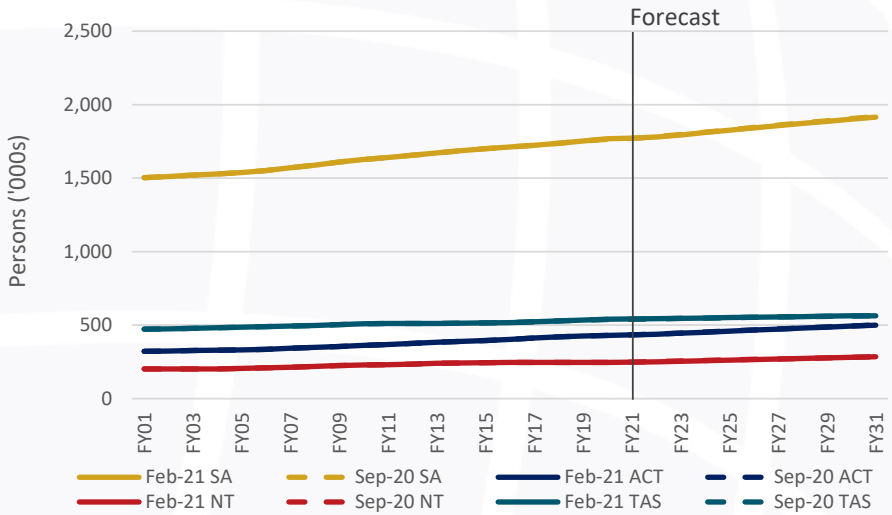


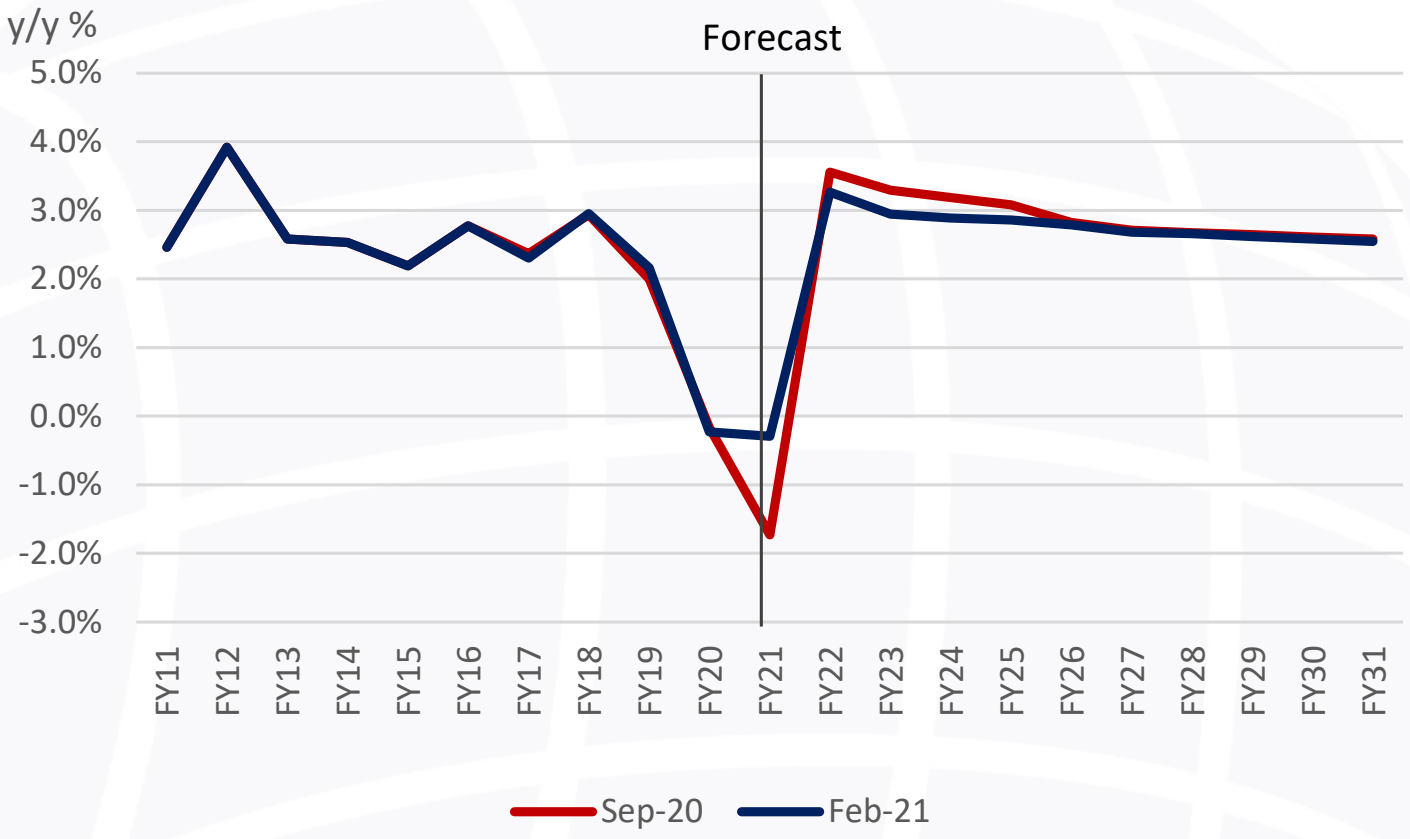
Fig 3. Population Level – SA, TAS, NT & ACT



Source: BIS Oxford Economics/ ABS

CENTRAL CASE: SHORT RUN

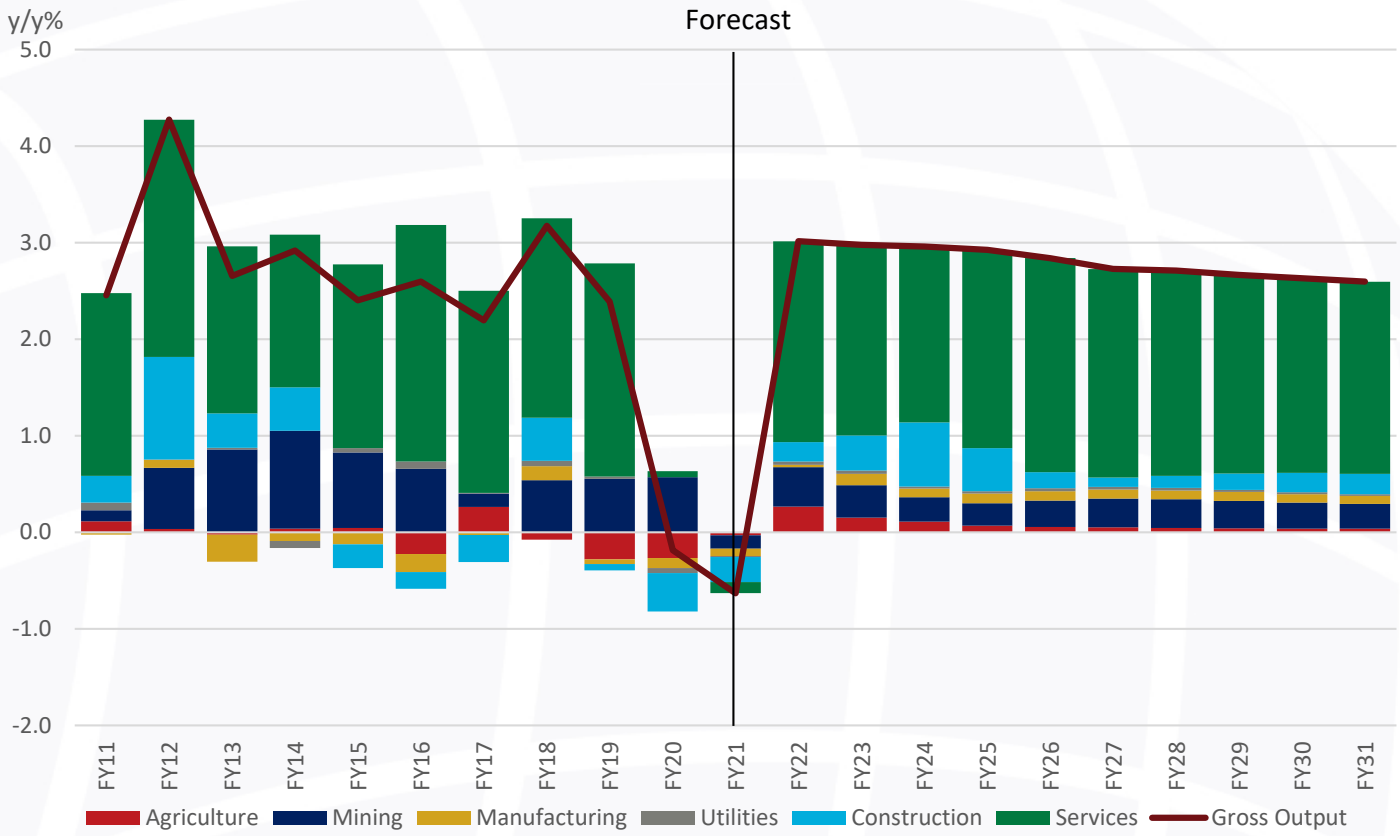
Fig 4. YoY% Change in GDP



Source: BIS Oxford Economics/ Haver Analytics

CENTRAL CASE: INDUSTRIAL BREAKDOWN

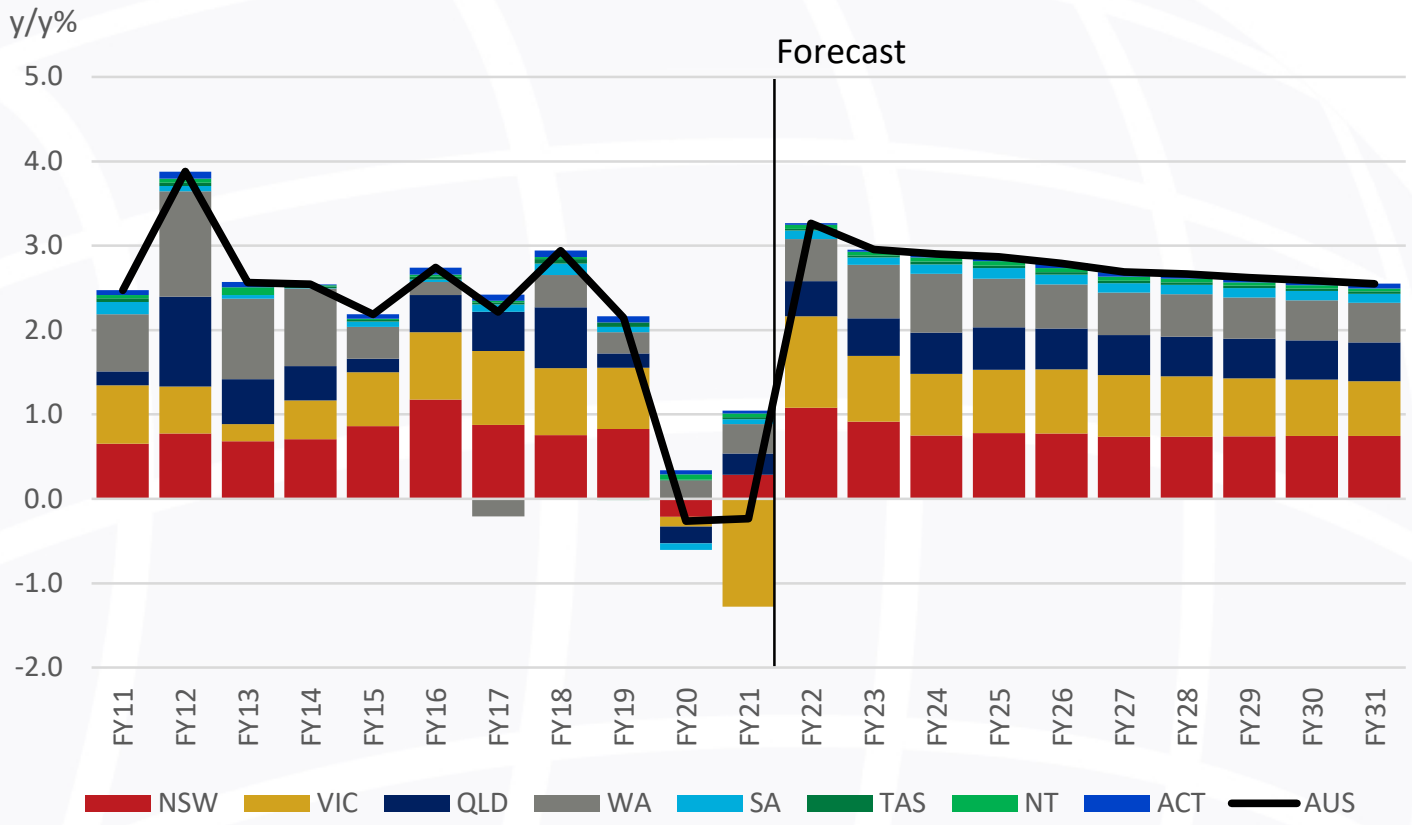
Fig 5. Industrial Sector Contribution to YoY% change in Gross Output



Source: BIS Oxford Economics/ Haver Analytics

CENTRAL CASE: STATE BREAKDOWN

Fig 6. State Contribution to YoY% change in Gross Domestic Product



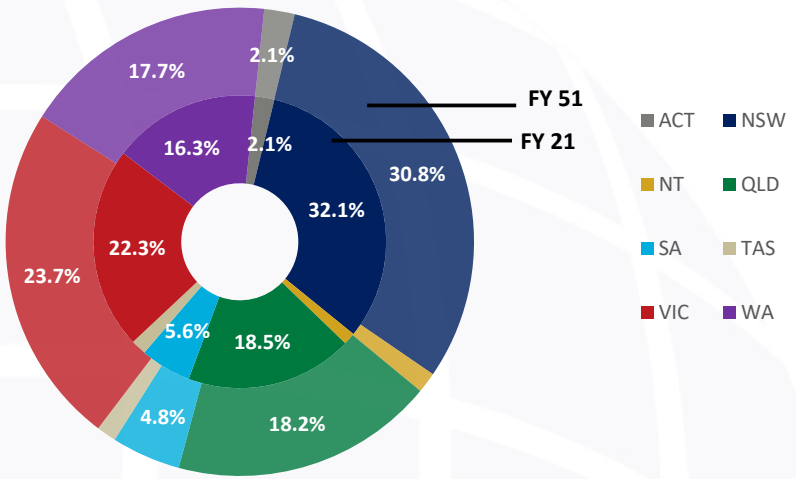
Source: BIS Oxford Economics/ Haver Analytics

CENTRAL CASE: LONG RUN

Table 1. Gross Domestic Product & Gross State Product, Compounded Annual Growth Rate (CAGR)

	FY21-26		FY26-51	
	Sep-20	Feb-21	Sep-20	Feb-21
AUS	3.2%	2.9%	2.2%	2.1%
NSW	2.8%	2.7%	2.1%	2.0%
VIC	4.2%	3.6%	2.3%	2.2%
QLD	3.0%	2.6%	2.3%	2.1%
WA	3.3%	3.6%	2.2%	2.3%
SA	2.0%	2.0%	1.7%	1.6%
TAS	2.7%	1.7%	1.5%	1.5%
ACT	2.6%	1.9%	2.6%	2.3%

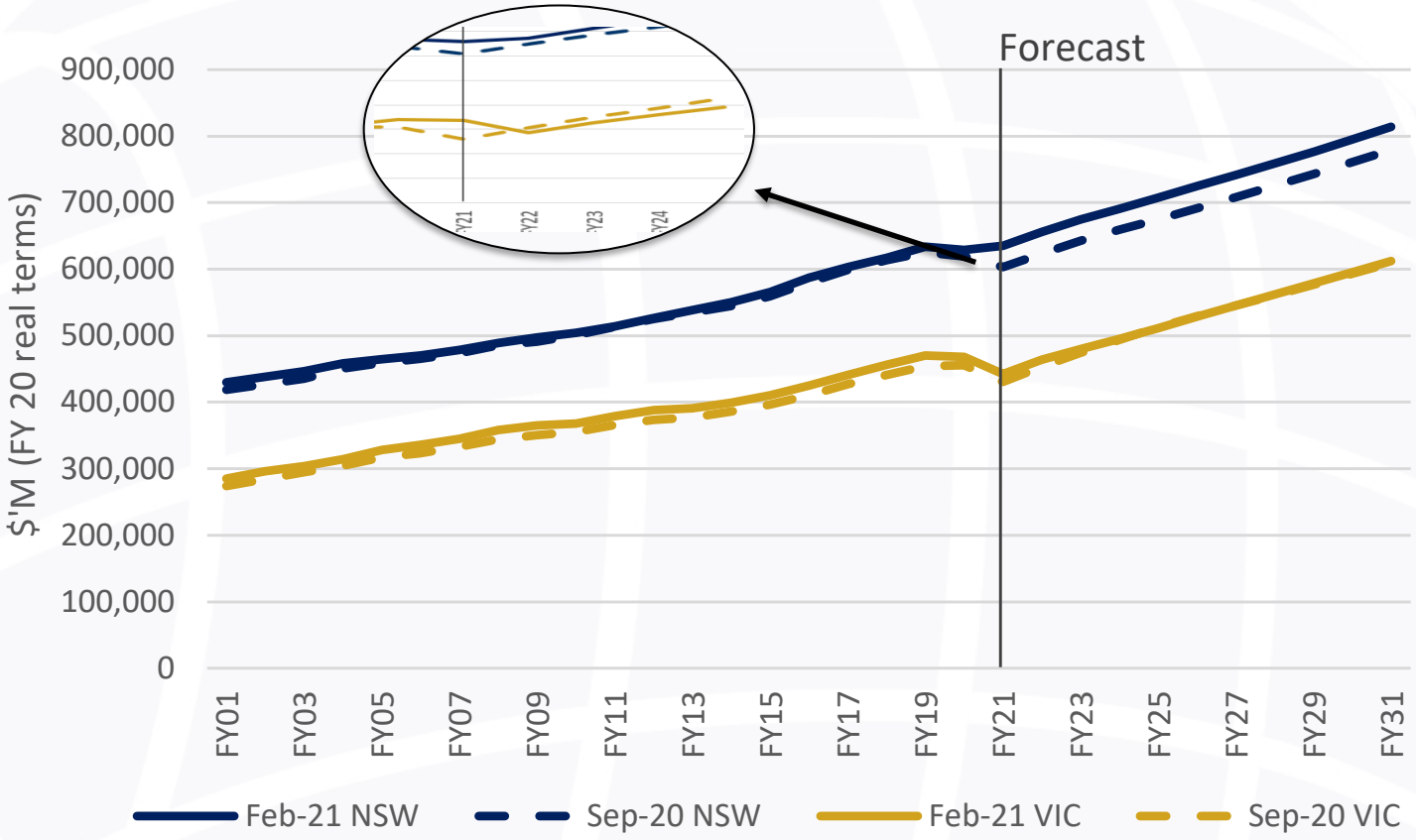
Fig 7. State Breakdown of GDP: FY21 vs. FY51



GDP in FY21: $2.0 trillion
GDP by FY51: $3.8 trillion

CENTRAL CASE: NSW & VIC

Fig 8. Gross State Product, NSW & VIC, FY01-31

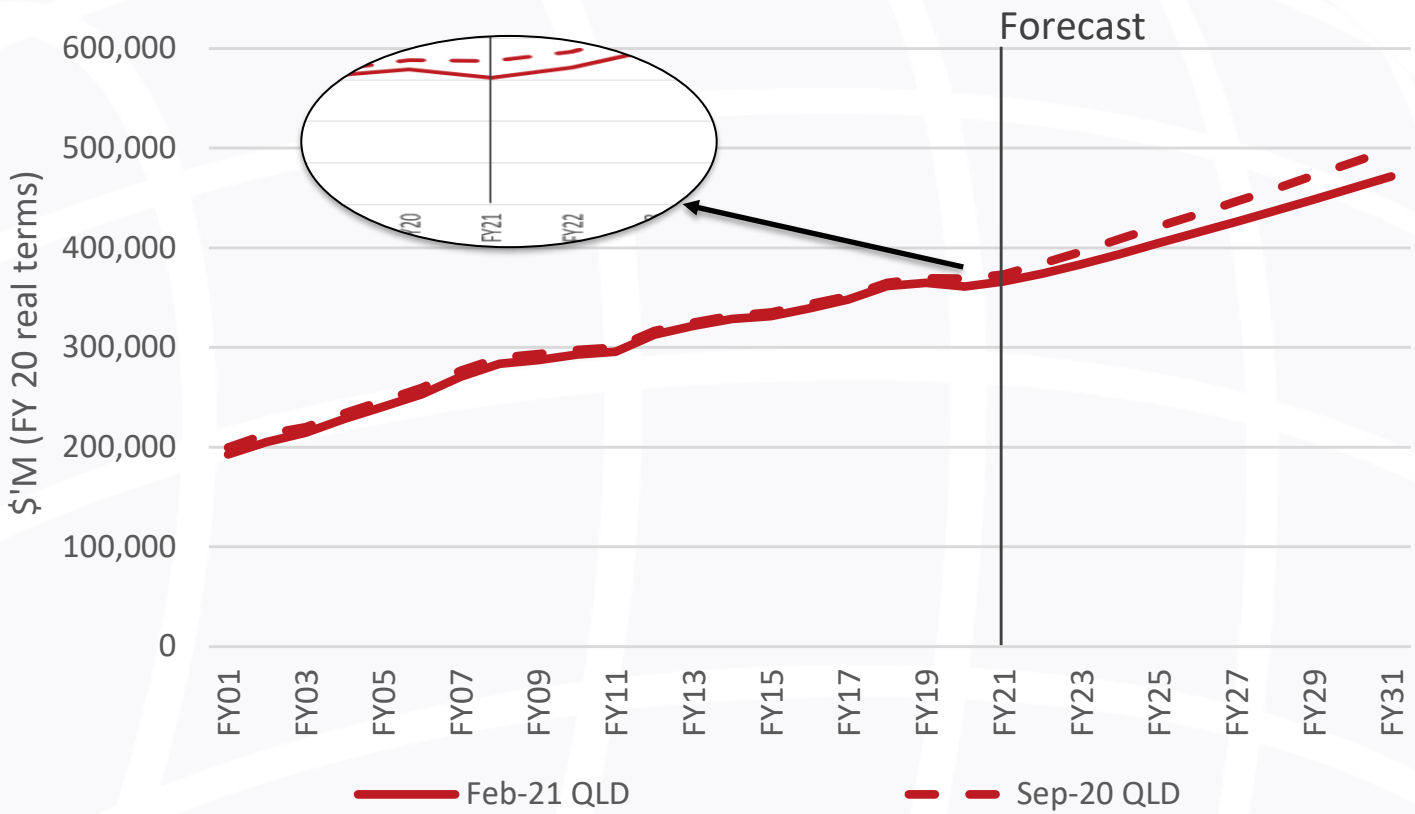


Source: BIS Oxford Economics/ Haver Analytics

**Historical data has been rebased to FY19-20 terms*

CENTRAL CASE: QLD

Fig 9. Gross State Product, QLD, FY01-31

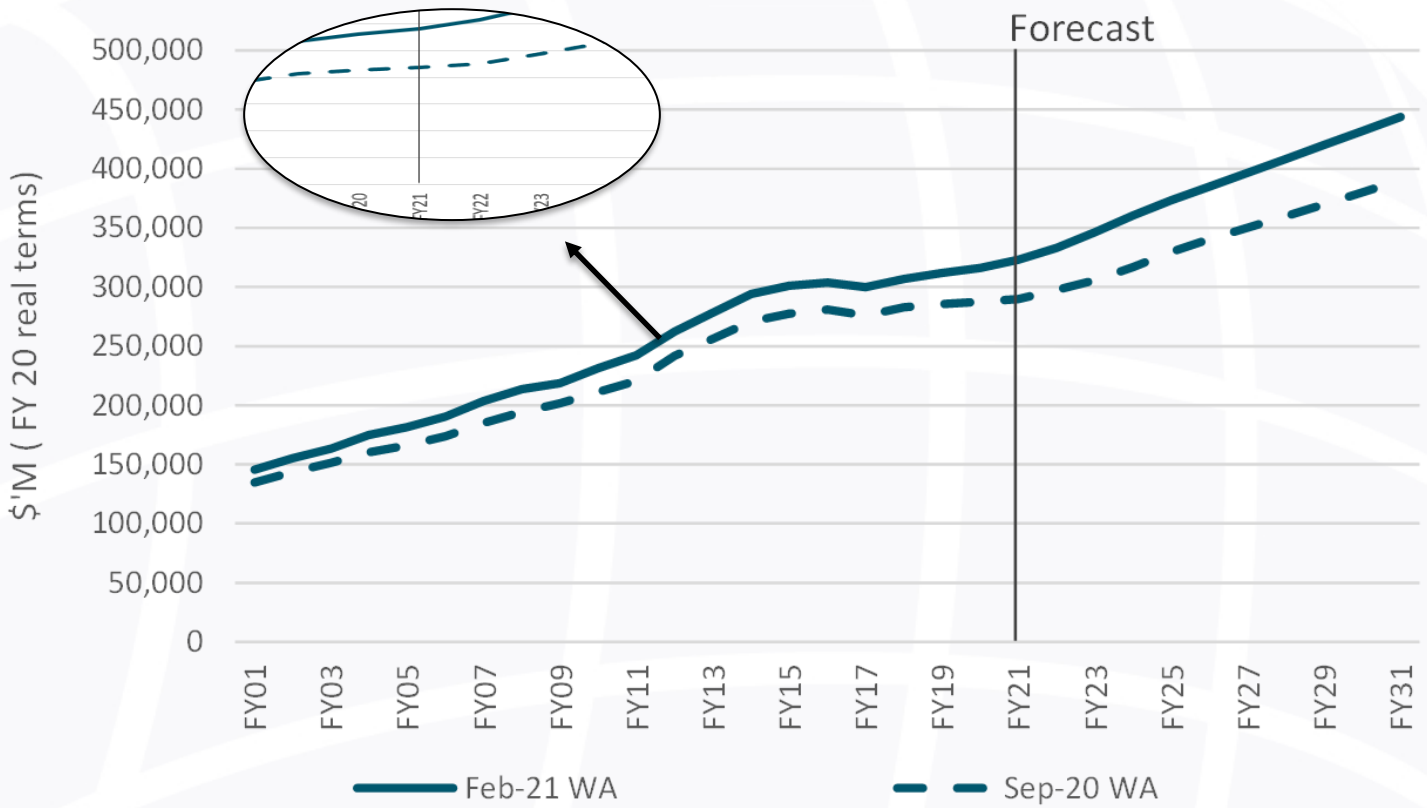


Source: BIS Oxford Economics/ Haver Analytics

**Historical data has been rebased to FY19-20 terms*

CENTRAL CASE: WA

Fig 10. Gross State Product, WA, FY01-31

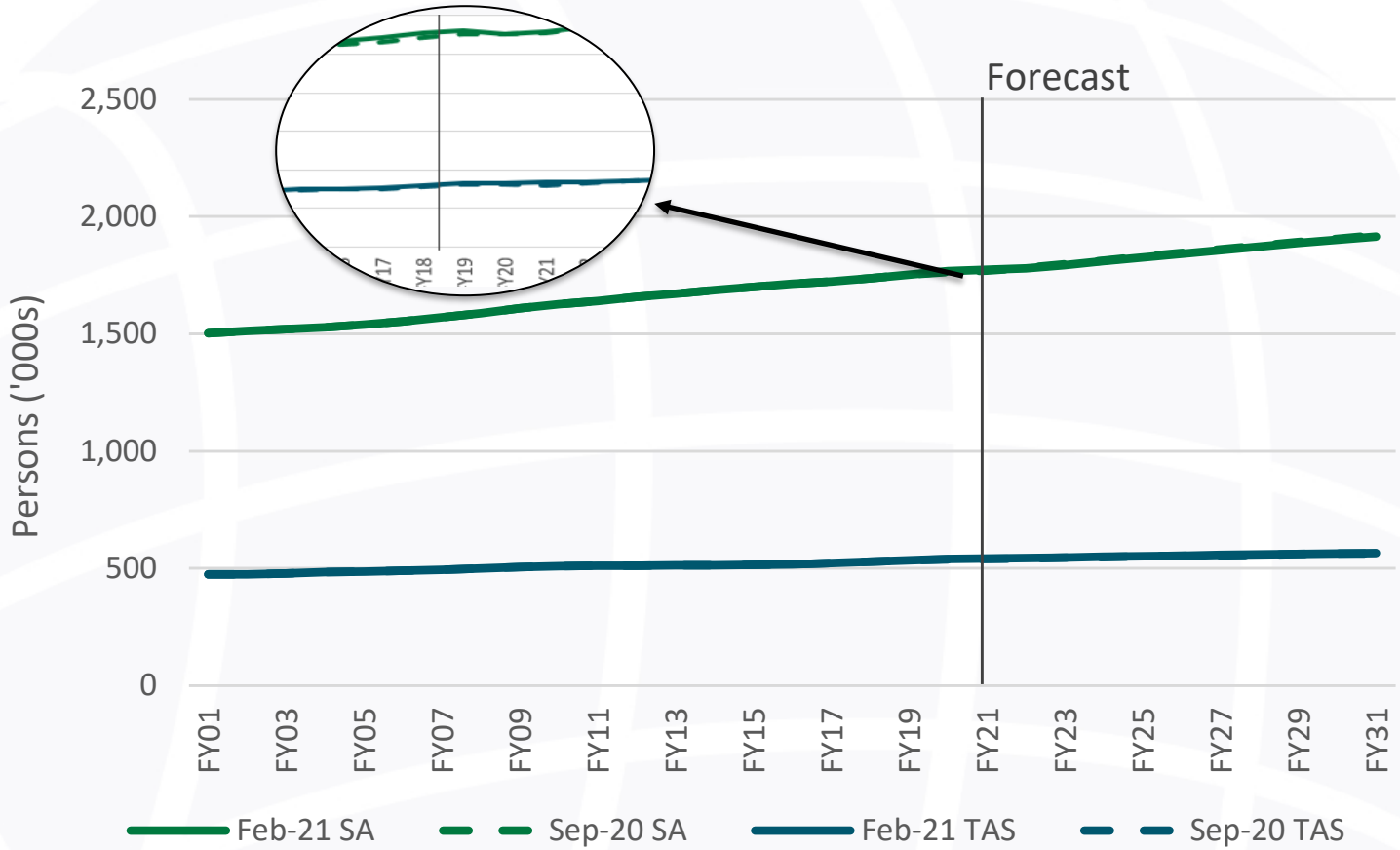


Source: BIS Oxford Economics/ Haver Analytics

**Historical data has been rebased to FY19-20 terms*

CENTRAL CASE: SA & TAS

Fig 11. Gross State Product, SA & TAS FY01-31



Source: BIS Oxford Economics/ Haver Analytics

**Historical data has been rebased to FY19-20 terms*

BIS OXFORD ECONOMICS

ALTERNATIVE SCENARIO FORECASTS

ALTERNATIVE SCENARIOS: DEMOGRAPHICS

Fig 12. Natural Increase, Australia – core scenarios

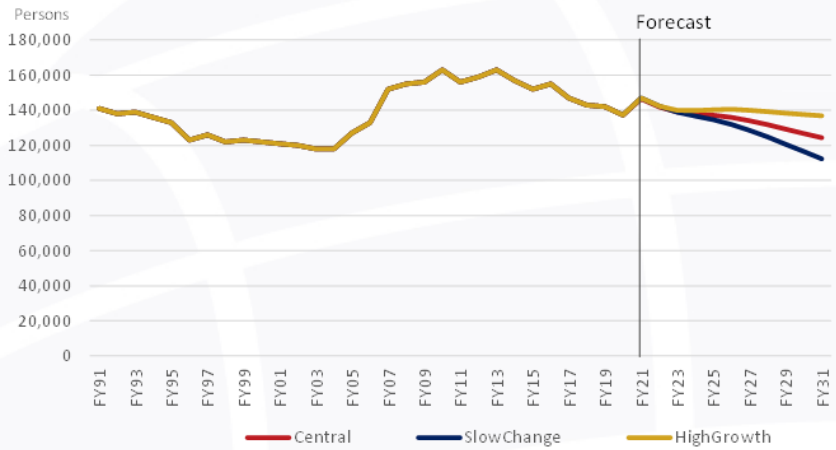
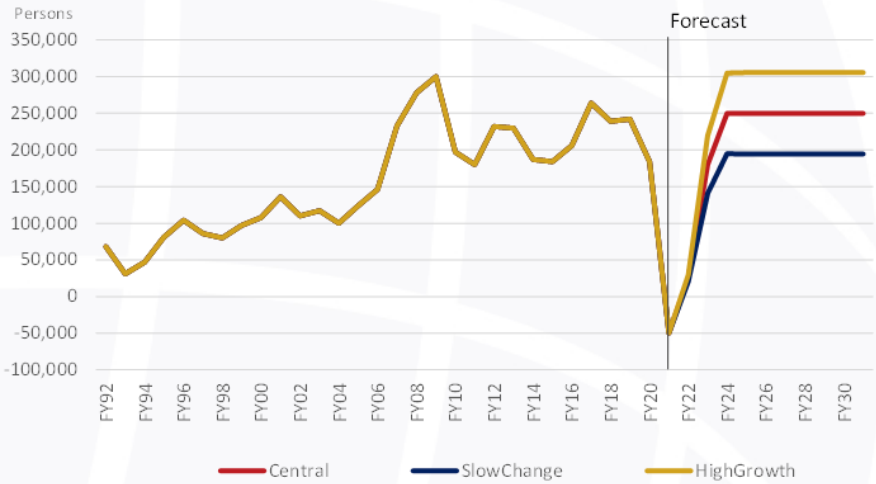


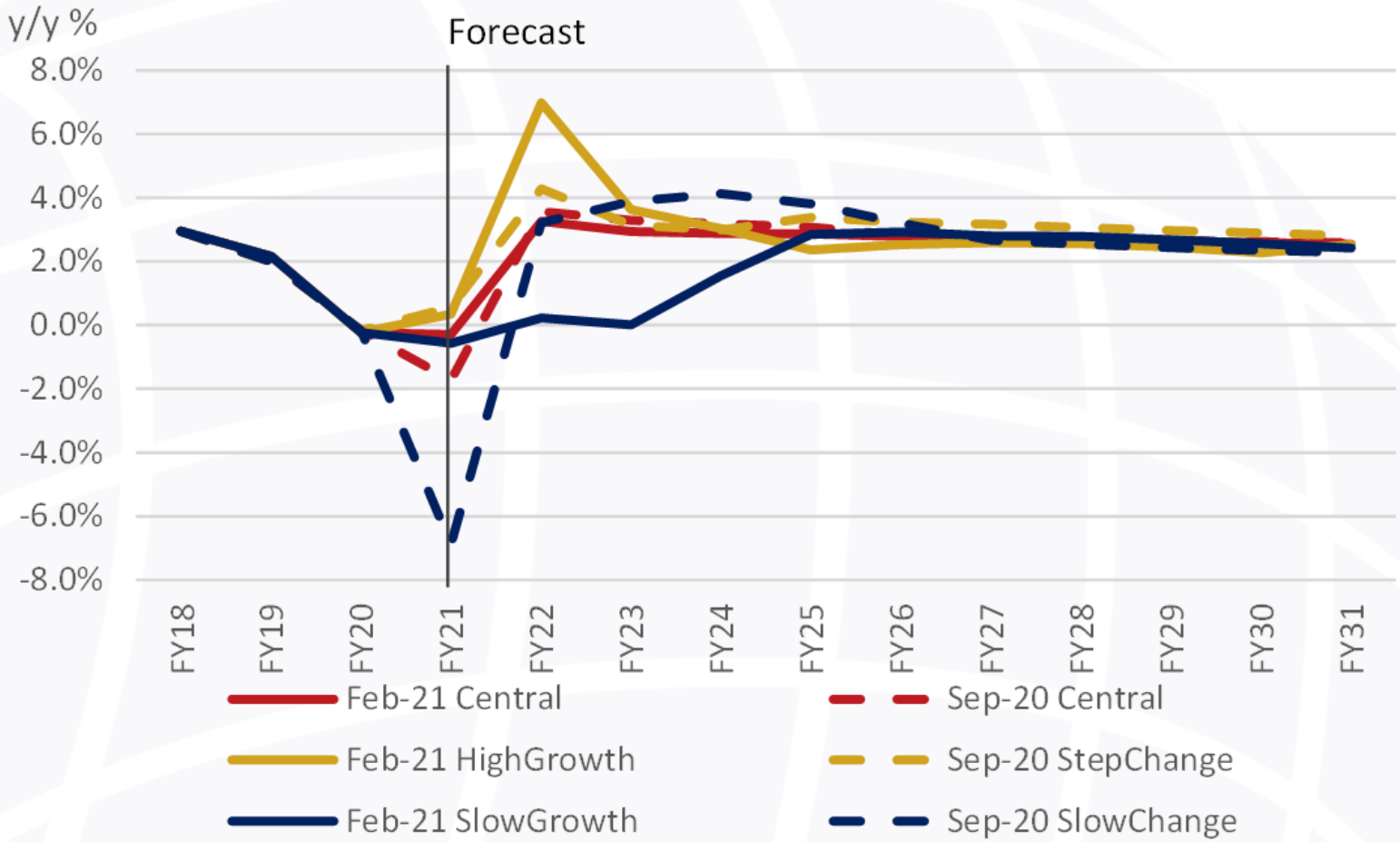
Fig 13. Net Overseas Migration, Australia – core scenarios



Source: BIS Oxford Economics/ ABS

ALTERNATIVE SCENARIOS: SHORT RUN

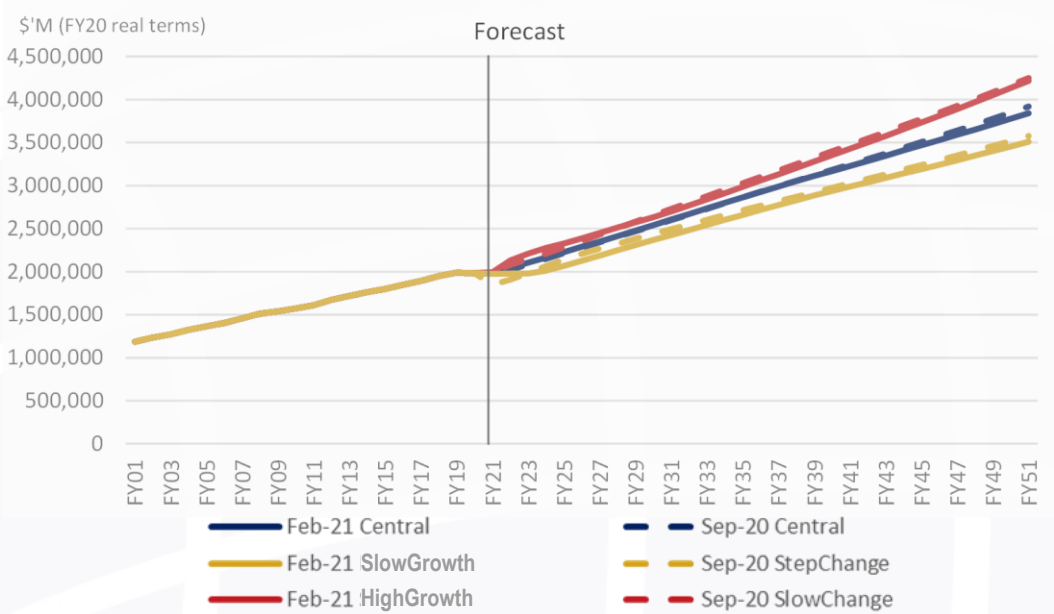
Fig 14. YoY% Change in GDP by scenario (FY18-31)



Source: BIS Oxford Economics/ Haver Analytics

ALTERNATIVE SCENARIOS: LONG RUN

Fig 15. GDP projections by scenario (FY01-31)



Source: BIS Oxford Economics/ Haver Analytics

Table 2. Cumulative GDP from FY21: Sep-20 vs. Feb-21

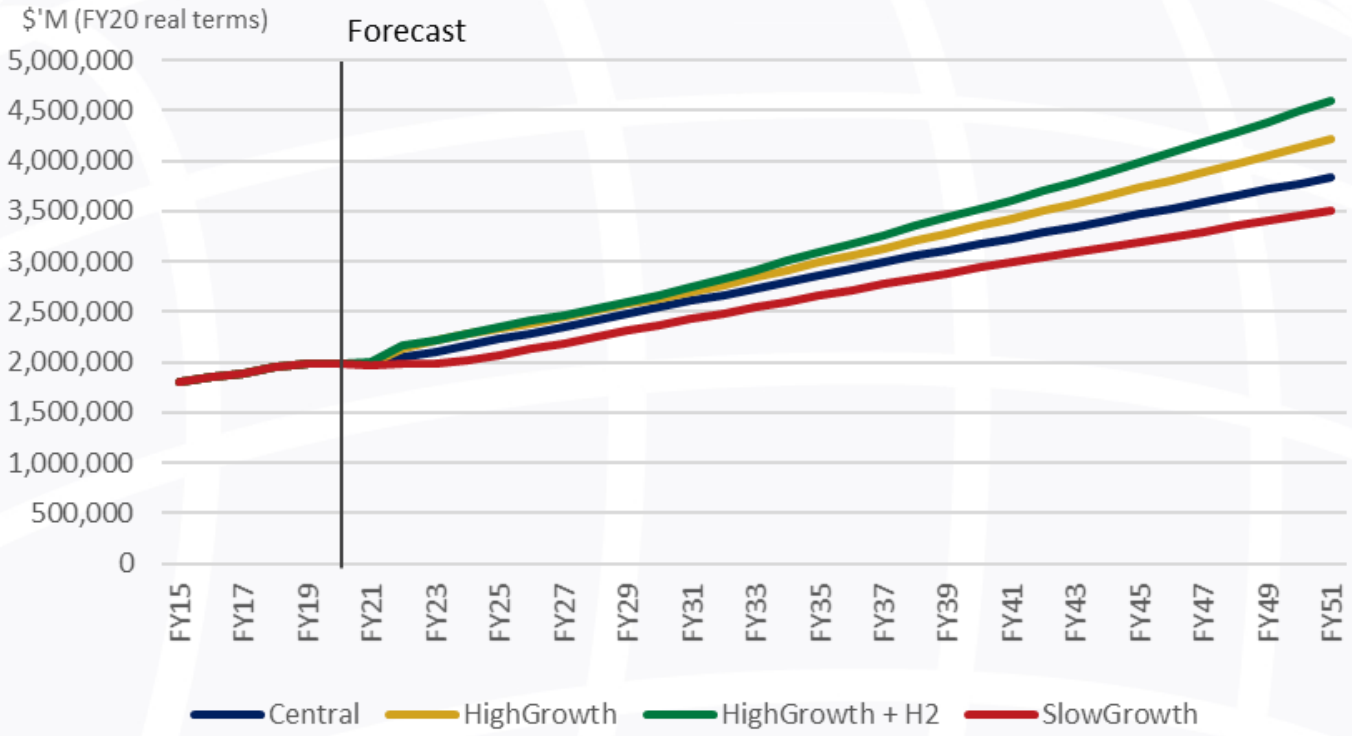
		FY21 $'M	FY26 $'M	FY51 $'M
Sep-20	Central	1,948,726	12,699,707	90,719,204
	Slow Change	1,846,703	12,144,179	85,201,099
	Step Change	1,994,033	13,066,953	96,290,540
Feb-21	Central	1,979,822	12,810,594	90,368,840
	Slow Growth	1,974,519	12,137,904	83,819,770
	High Growth	1,992,473	13,325,495	95,706,598

BIS OXFORD ECONOMICS

HIGH GROWTH WITH HYDROGEN FORECAST

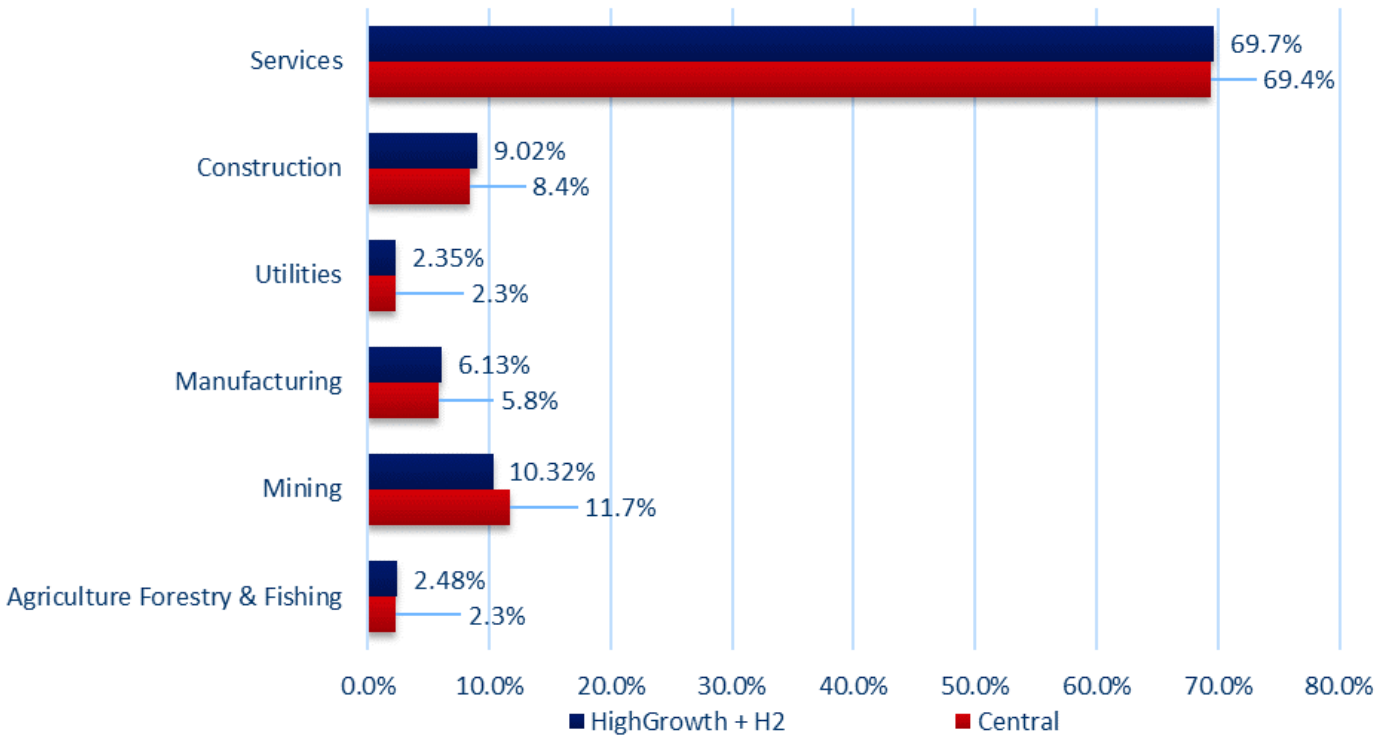
NEW SCENARIOS: LONG-RUN

Fig 16. Level of GDP by Scenario (FY15-51): High Growth + H2



CENTRAL VS. EXPORT SUPER POWER INDUSTRY SHARES

Fig 17. Industry Composition by Scenario: High Growth + H2 vs. Central Scenario (FY31)



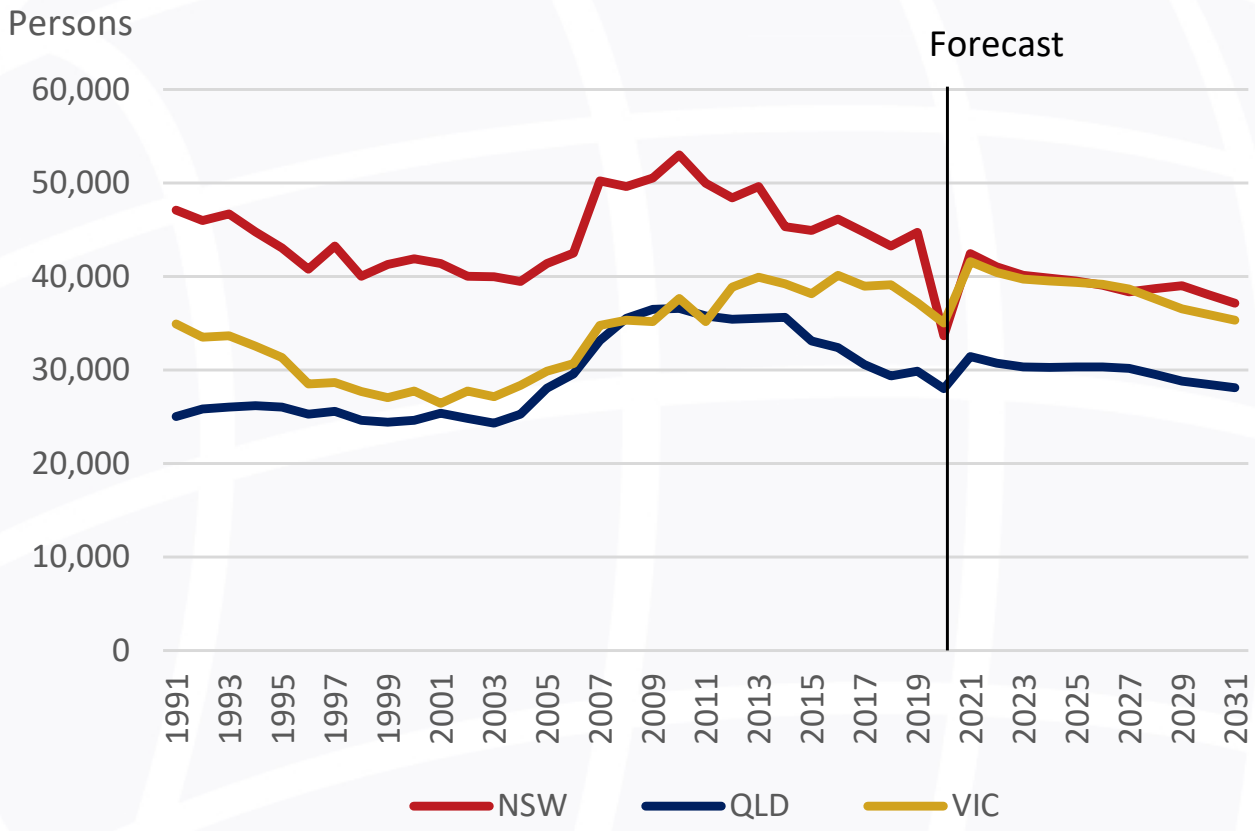
Questions

BIS OXFORD ECONOMICS

APPENDIX OF CHARTS

CENTRAL CASE: DEMOGRAPHICS

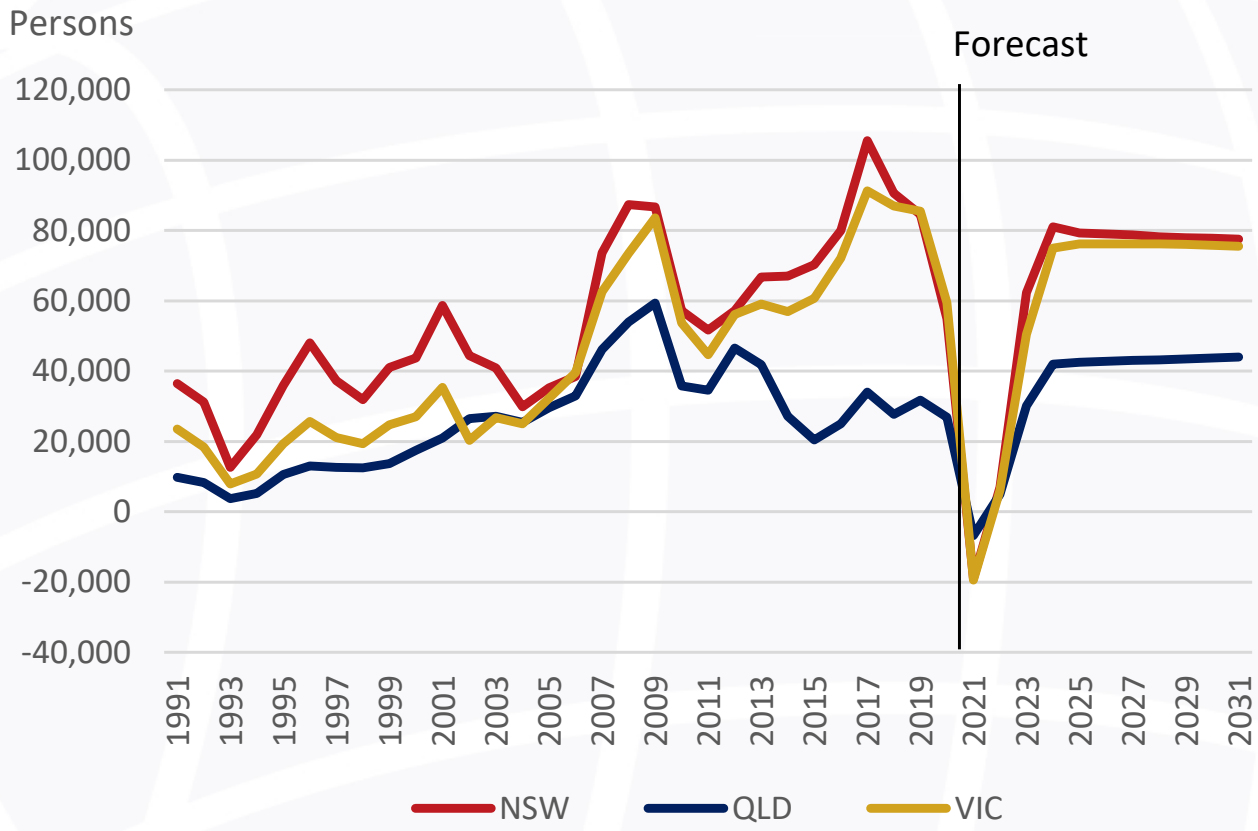
Fig 18. Natural Increase, NSW, QLD & VIC



Source: BIS Oxford Economics/ ABS

CENTRAL CASE: DEMOGRAPHICS

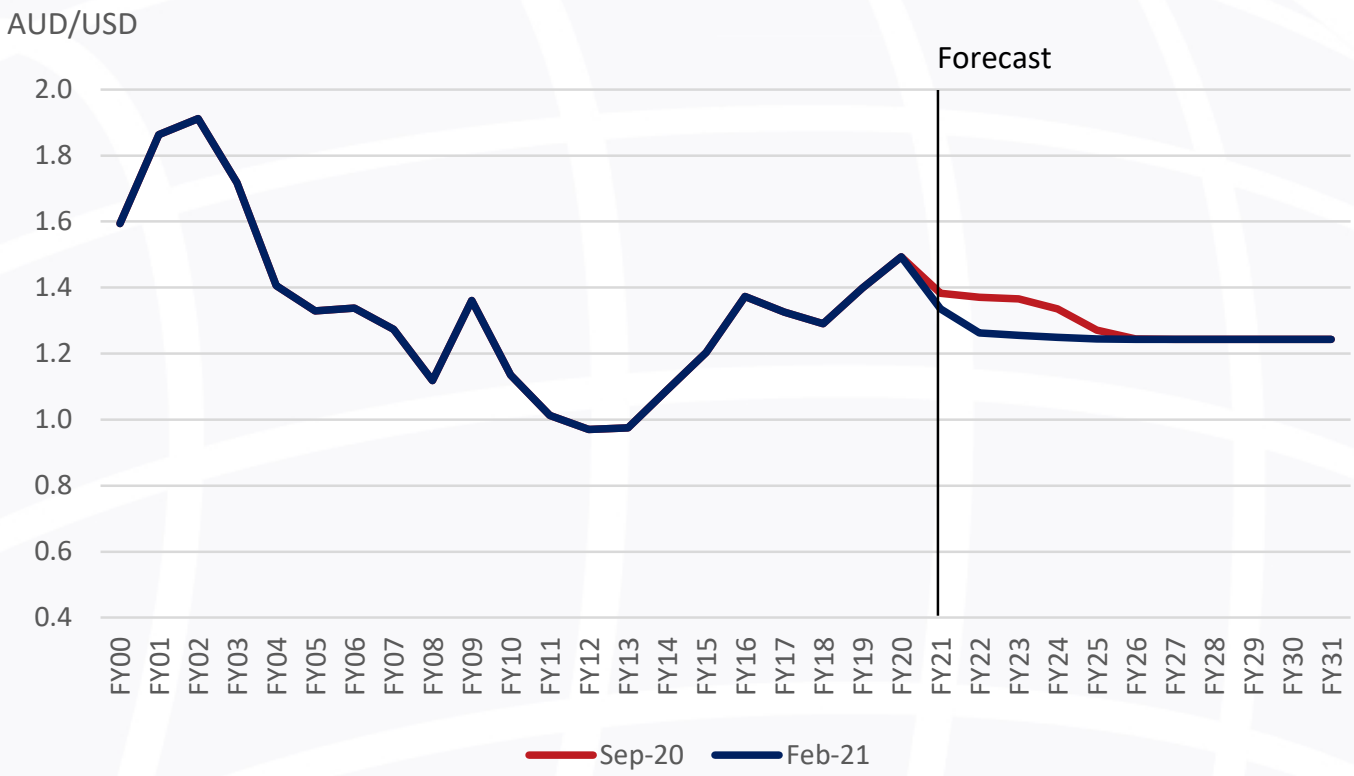
Fig 19. Net Overseas Migration (NOM), NSW, QLD & VIC



Source: BIS Oxford Economics/ ABS

CENTRAL CASE: AUD

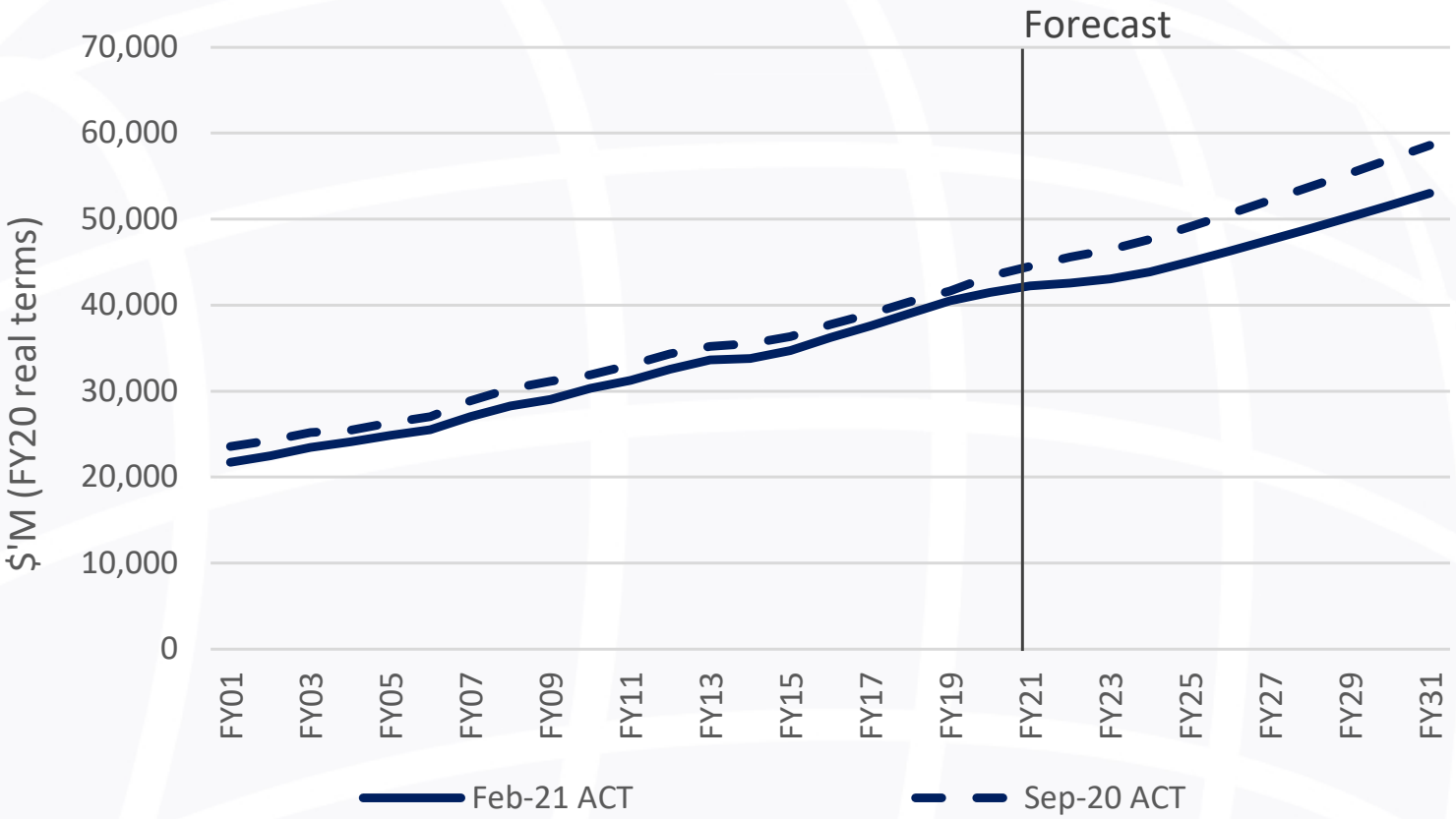
Fig 20. Exchange Rate Forecast



Source: BIS Oxford Economics/ Haver Analytics

CENTRAL CASE: ACT

Fig 21. Gross State Product, ACT FY01-31

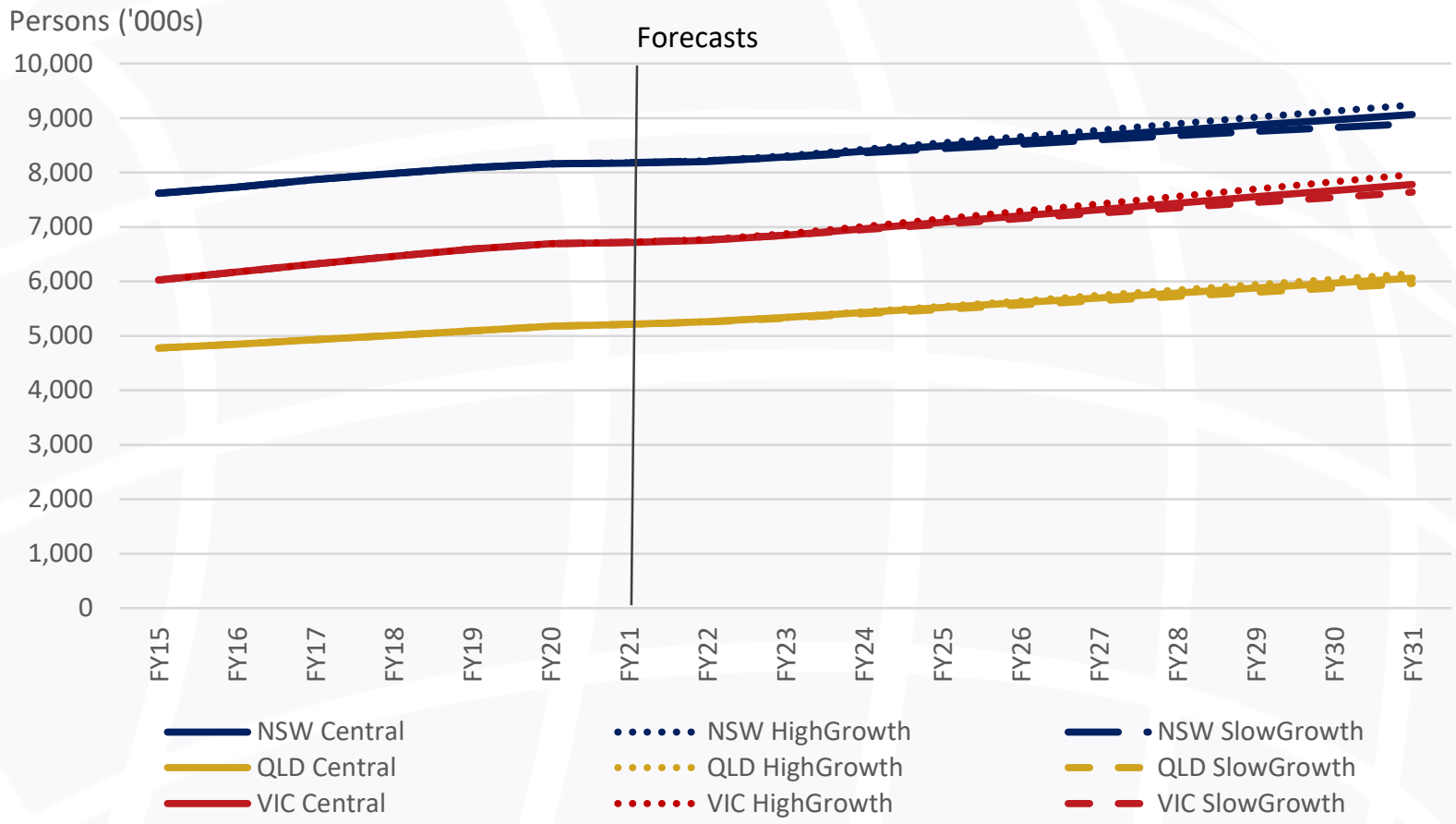


Source: BIS Oxford Economics/ Haver Analytics

**Historical data has been rebased to FY19-20 terms*

ALTERNATIVE SCENARIOS: DEMOGRAPHICS

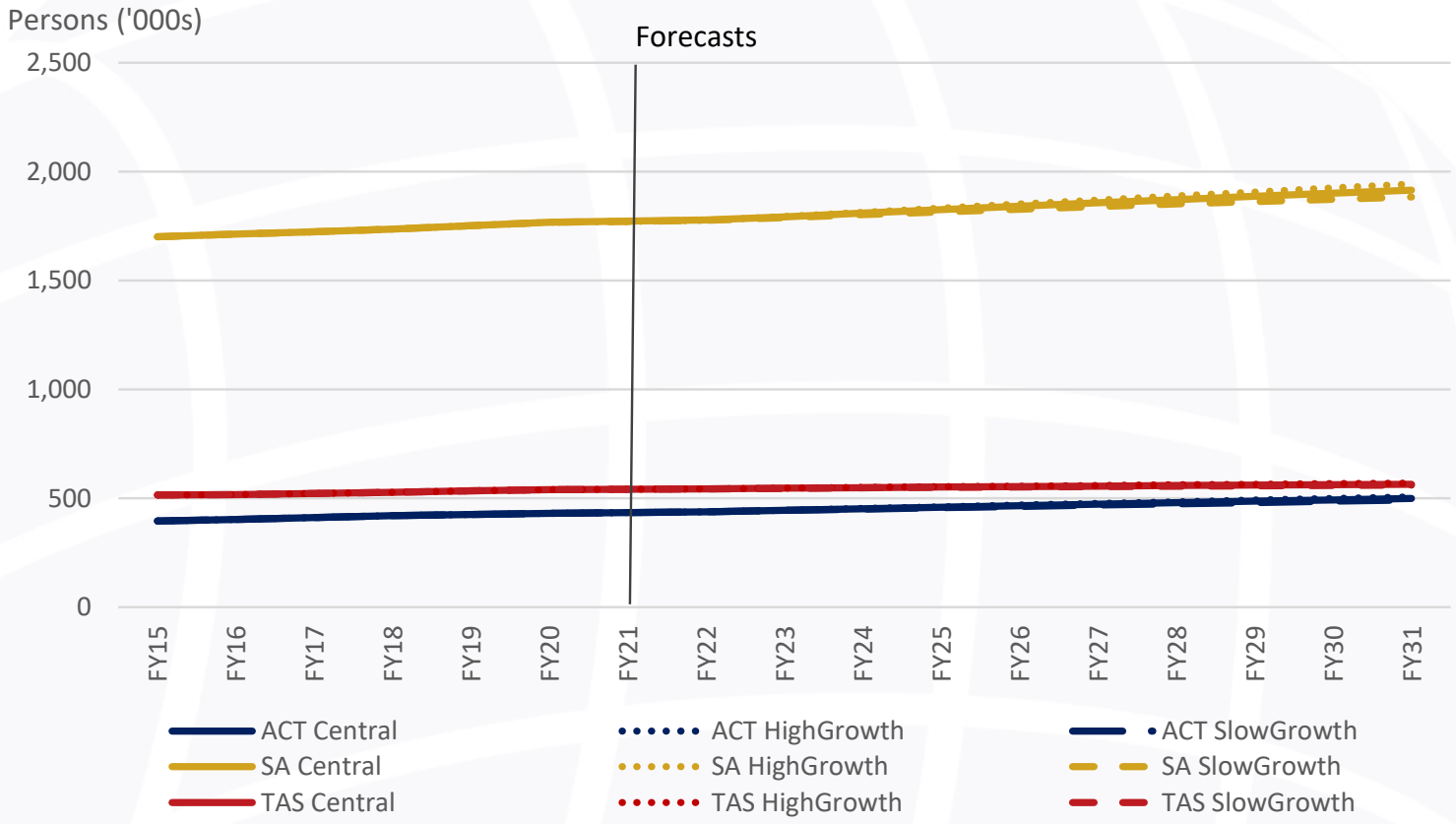
Fig 22. Population Projections, NSW, VIC & QLD, FY15-31



Source: BIS Oxford Economics/ ABS

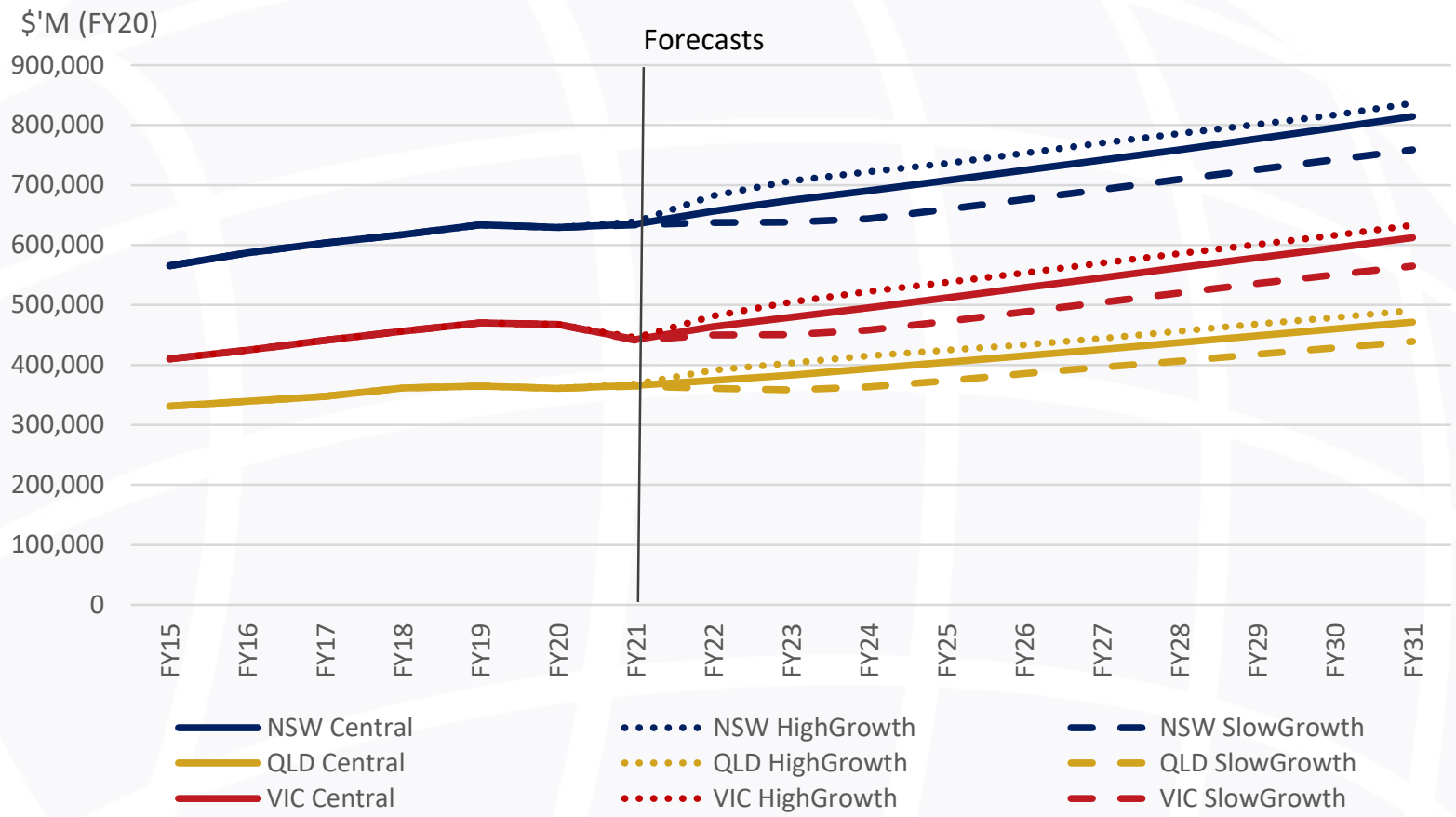
ALTERNATIVE SCENARIOS: DEMOGRAPHICS

Fig 23. Population Projections, SA, TAS & ACT, FY15-31



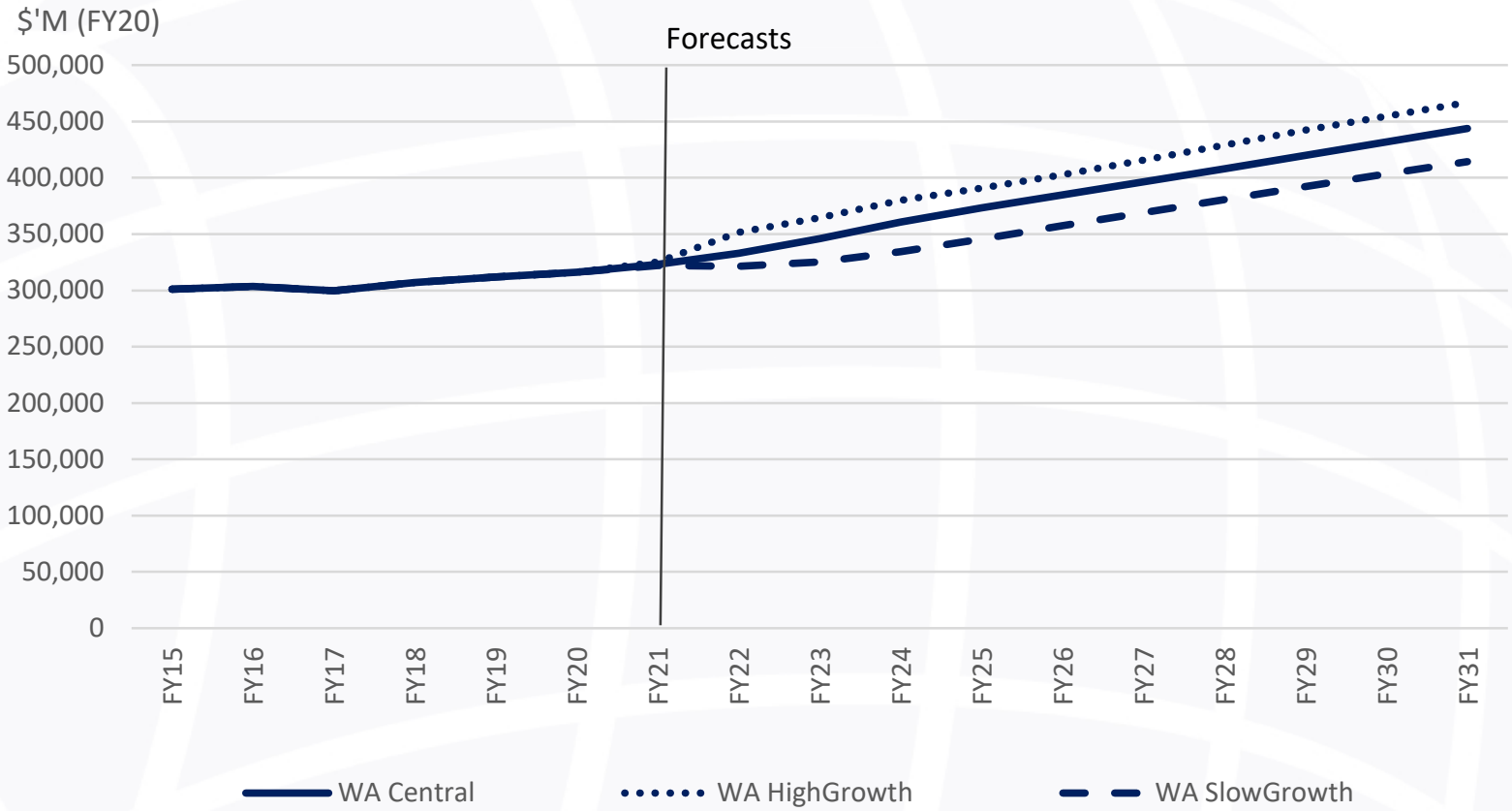
Source: BIS Oxford Economics/ ABS

Fig 24. Gross State Product, NSW, VIC & QLD, FY15-31



Source: BIS Oxford Economics/ Haver Analytics

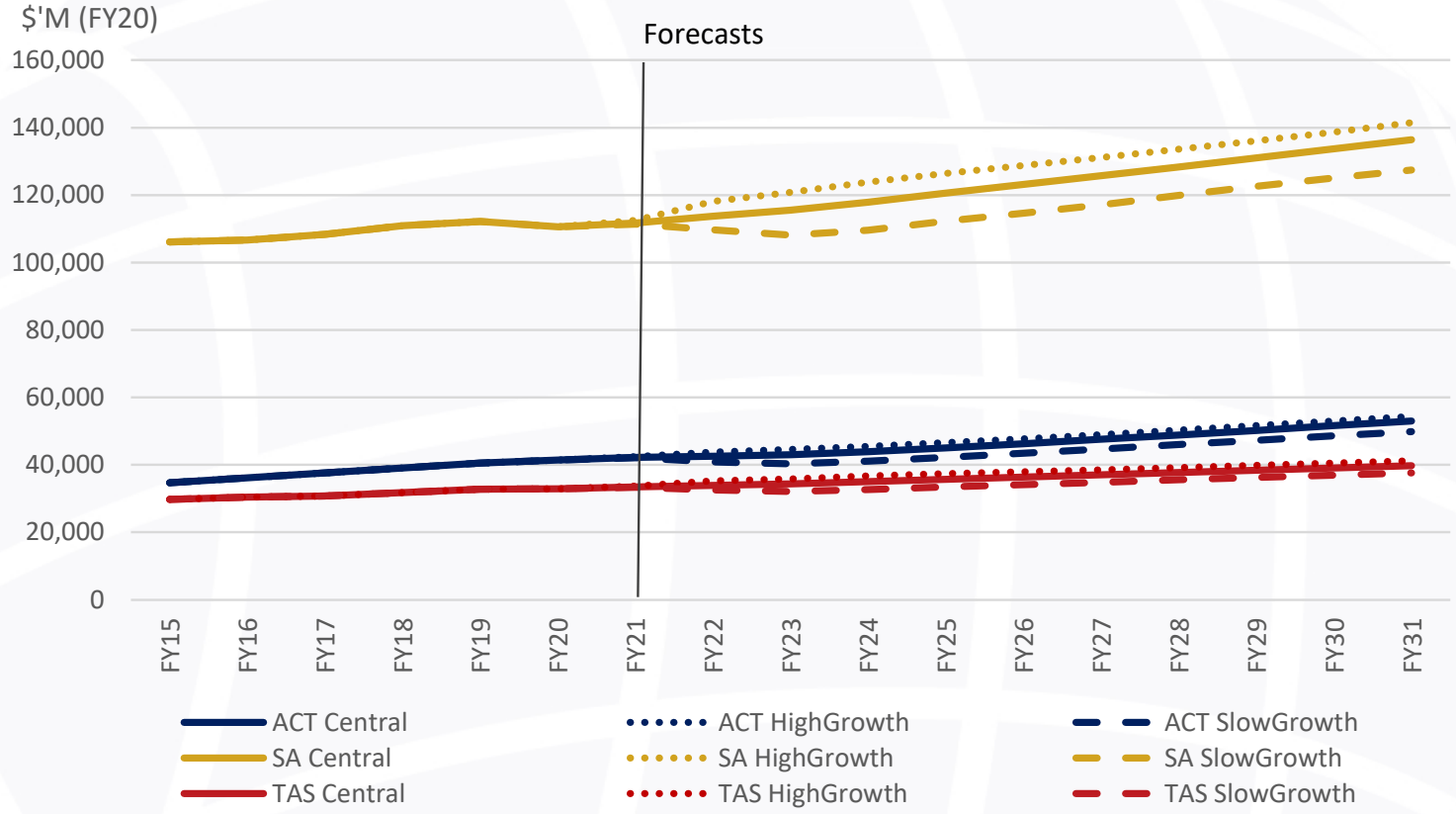
Fig 25. Gross State Product, WA, FY15-31



Source: BIS Oxford Economics/ Haver Analytics

ALTERNATIVE SCENARIOS: SMALLER STATES

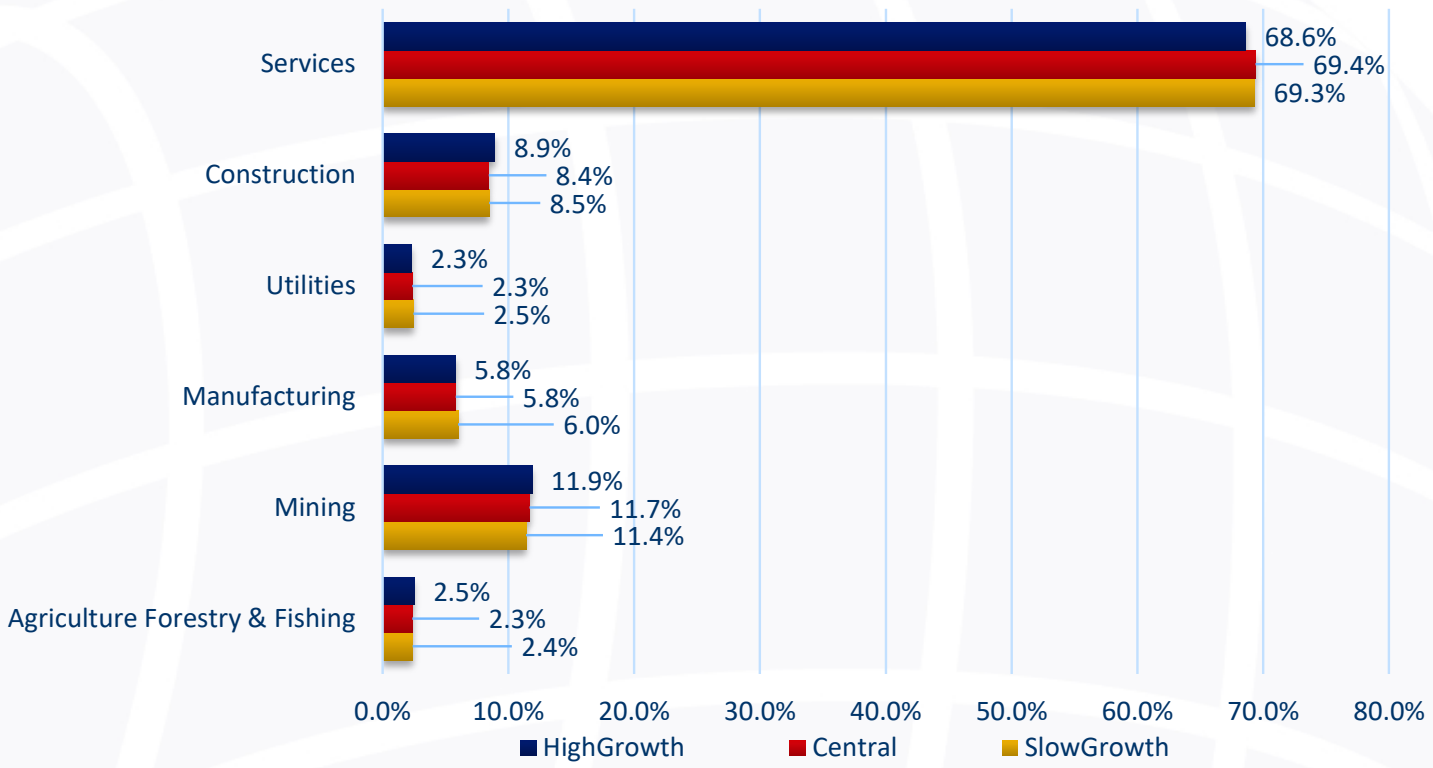
Fig 26. Gross State Product, SA, TAS & ACT, FY15-31



Source: BIS Oxford Economics/ Haver Analytics

ALTERNATIVE SCENARIOS: INDUSTRY COMPOSITION

Fig 27. Industrial Composition of GDP by Scenario – core scenarios (FY31)



OXFORD ECONOMICS

BIS OXFORD ECONOMICS

Global headquarters
Oxford Economics Ltd
Abbey House
121 St Aldates
Oxford, OX1 1HB
UK
Tel: +44 (0)1865 268900

London
Broadwall House
21 Broadwall
London, SE1 9PL
UK
Tel: +44 (0)203 910 8000

New York
5 Hanover Square, 8th Floor
New York, NY 10004
USA
Tel: +1 (646) 786 1879

Sydney
Level 8, 99 Walker Street
North Sydney NSW 2060
Australia
Tel: +61 2 8458 4200

Belfast
Tel: + 44 (0)2892 635400

Paarl
Tel: +27(0)21 863-6200

Frankfurt
Tel: +49 69 95 925 280

Paris
Tel: +33 (0)1 78 91 50 52

Milan
Tel: +39 02 9406 1054

Dubai
Tel: +971 56 396 7998

Philadelphia
Tel: +1 (610) 995 9600

Mexico City
Tel: +52 (55) 52503252

Boston
Tel: +1 (617) 206 6112

Chicago
Tel: +1 (773) 372-5762

Los Angeles
Tel: +1 (424) 238-4331

Florida
Tel: +1 (954) 916 5373

Toronto
Tel: +1 (905) 361 6573

Hong Kong
Tel: +852 3103 1096

Tokyo
Tel: +81 3 6870 7175

Singapore
Tel: +65 6850 0110

Melbourne
Tel: +61 (0)3 8679 7300

Email:
mailbox@oxfordeconomics.com

Website:
www.oxfordeconomics.com

Email:
info@bisoxfordeconomics.com.au

Website:
www.bisoxfordeconomics.com.au