

F. ECONOMIC SCENARIO ANALYSIS

The 2019-20 Budget relies on forecasts and judgements about the future of the economy, based on information available at the time of preparation. These forecasts are subject to some inherent uncertainties such as changes in behaviours, evolving relationships between variables and unexpected events or shocks.

This appendix explores the impact of variations in some key economic parameters on other areas of the economy, the overall macroeconomic outlook and general government tax revenues. This is intended to provide a greater insight into the interdependencies within our complex economy, that a partial sensitivity analysis does not capture.

These scenarios were selected to cover plausible economic events that could affect New South Wales over the forecast horizon. The modelling takes account of linkages between key international, Australian and New South Wales economic aggregates, but does not account for any monetary policy or fiscal policy response.

The summary of the results should be interpreted with care as economic events tend to be unique in nature, with the scenarios presented in this appendix unlikely to completely reflect any future shock on the State economy. Any departures from the specified scenario would result in different impacts on the economic and revenue outlook.

F.1 Impact of variations in key forecast assumptions

This scenario analysis is intended to compliment the central economic outlook as presented in Chapter 2 by quantifying some of the key risks to the overall narrative. Two scenarios were considered: a positive shock to the NSW workforce participation rate; and a negative shock to house prices, where NSW prices fall slightly more than the rest of Australia.

The economic and revenue impact of these scenarios was modelled using the Centre of Policy Studies (CoPS) Victoria University Regional Model Tax (VURMTAX)¹ and presented as a deviation from baseline.

Higher workforce participation rate

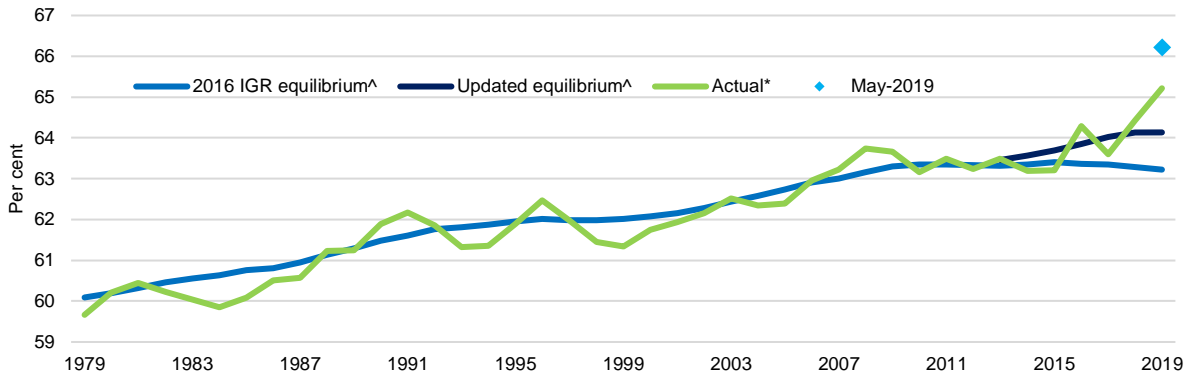
The New South Wales workforce participation rate has outperformed expectations over the last few years. It has surpassed the long run equilibrium participation rate modelled in the 2016 Intergenerational Report (IGR), reaching a new record high of 66.2 per cent in May 2019 (see Chart F.1).

Much of this increase can be put down to strong labour market conditions encouraging new entrants into the labour force, especially women. Although the rise in the participation rate has been greater than cyclical drivers and higher migration would suggest. This means there has likely been a change to underlying long-run structural drivers of workforce participation. It is unclear, however, what has driven this and how much is structural and long lasting.

Nevertheless, current forecasts assume that much of the recent increase in the participation rate is cyclical in nature and will partially diminish over the forecast horizon. It is possible, however, that this assumption of cyclicity is incorrect and a larger share of the recent increase in the participation rate is structural and therefore more persistent.

¹ VURMTAX is a dynamic computable general equilibrium model of Australia's six states and two territories, with each region modelled as an economy in its own right. See Adams, Philip, Dixon, Janine and Horridge, Mark (2015), 'The Victoria University Regional Model (VURM): Technical Documentation, Version 1.0', CoPS/IMPACT Working Paper Number G-254 for more detail on the model.

Chart F.1: The NSW equilibrium participation rate has shifted up since the 2016 IGR, with actuals continuing to exceed expectations



*Actual for 2018-19 is a year to date average.

^Driven by both changes in age composition (impacted by migration, births and deaths) and underlying participation rate trends by age & sex (structural trends).

Source: ABS 6202.0, 6291.0.55.001 and NSW Treasury

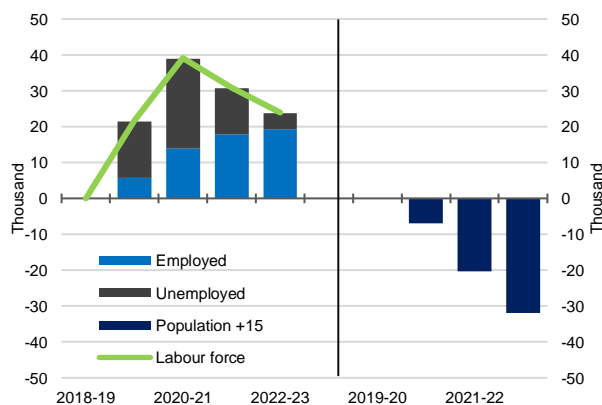
This scenario assumes that the participation rate holds up at around its current annual highs over the forecast period. This is comparable to the participation rate being 0.5 percentage points higher in the Budget year and 1.0 percentage point higher in each year thereafter. In this case, the shock to the participation rate is not the result of higher demand for workers and is treated as an exogenous increase in supply of additional workers. A demand driven shock, where workers have been encouraged to participate by businesses, would yield different results.

Macroeconomic impact over the Budget and forward estimates

The higher participation rate has the immediate effect of increasing the supply of labour within New South Wales. The increase in supply is accommodated by a rise in both New South Wales employment and a temporary rise in unemployment (see Chart F.2). Unemployment increases because the local economy is not able to fully absorb the additional workers until economic growth expands to meet this new supply of workers.

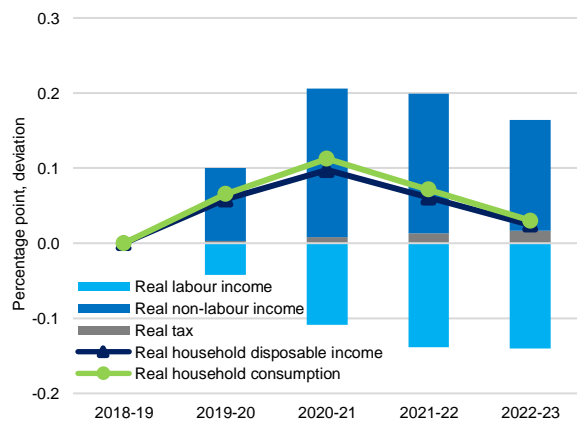
The higher local unemployment rate flows through to lower real wages growth in New South Wales relative to the rest of Australia. With more participants in the labour market, businesses have more applicants to choose from, allowing them to reduce wages relative to the base case. Lower wages make labour relatively cheaper for businesses and lifts employment and business profits.

Chart F.2: Higher participation rate lifts jobs and lowers population



Source: CoPS, Victoria University and NSW Treasury

Chart F.3: Household consumption lifts in line with higher real household income



Source: CoPS, Victoria University and NSW Treasury

In a delayed response to higher relative wages in the rest of Australia, New South Wales workers move interstate to chase higher relative wages. This increased outflow of population helps to reduce the local unemployment rate and soften the fall in wages within New South Wales. It is this rebalancing of the labour market that helps relative real wages return to the base line in the longer term. The stickiness of wages, makes this adjustment only gradual.

Overall, the impact on the NSW economy is positive, albeit with some short-term trade-offs. Higher employment and real household income results in increased household consumption (see Chart F.3). Additionally, higher business profits results in increased business investment. Ultimately, gross state product (GSP) is around a ¼ percentage point higher than under the baseline after four years (see Table F.1).

Table F.1: The effect of higher participation on major economic parameters

Financial year estimate ^(a)	2019-20	2020-21	2021-22	2022-23
State final demand	0.1	0.2	0.1	0.1
Gross state product	0.1	0.2	0.3	0.3
Employment	0.1	0.3	0.4	0.5
Unemployment rate	0.3	0.5	0.3	0.1
Consumer price index	0.0	(0.1)	(0.3)	(0.3)
Nominal wages	(0.2)	(0.7)	(0.9)	(1.0)
Working age population	0.0	(0.1)	(0.3)	(0.5)

(a) Figures reported are the per cent change in the level of each parameter relative to the baseline.

Source: CoPS, Victoria University and NSW Treasury

This scenario does not fully reflect actual outcomes over recent years because it is an entirely exogenous increase in supply, rather than a shock driven by a combination of higher demand and supply of workers. It does, however, help illuminate some of the short-run effects of the recent record high participation rate. It helps to explain the recent strength in employment, solid economic growth and some of the weakness in wages growth and inflation despite the very low local unemployment rate.

Revenue impact over the Budget and forward estimates

Under this scenario, overall tax revenues are largely unchanged after four years (see Table F.2). Higher household consumption in New South Wales and nationally raises the national GST pool, increasing NSW GST revenue. In contrast, payroll tax collections are marginally lower, with more modest nominal wages offsetting a higher level of employment. With a larger economy and lower wages, the economy has become more internationally competitive, lifting coal royalties slightly.

Table F.2: The effect of higher participation on major revenue parameters

Financial year estimate ^(a) (\$, million)	2019-20	2020-21	2021-22	2022-23
Payroll tax	(7)	(27)	(45)	(52)
Land tax	0	8	14	11
Transfer duty	7	14	11	9
Coal royalties	1	3	5	7
Other tax revenue	(1)	(7)	(17)	(22)
GST revenue	6	17	26	33
Total revenue	6	7	(5)	(14)

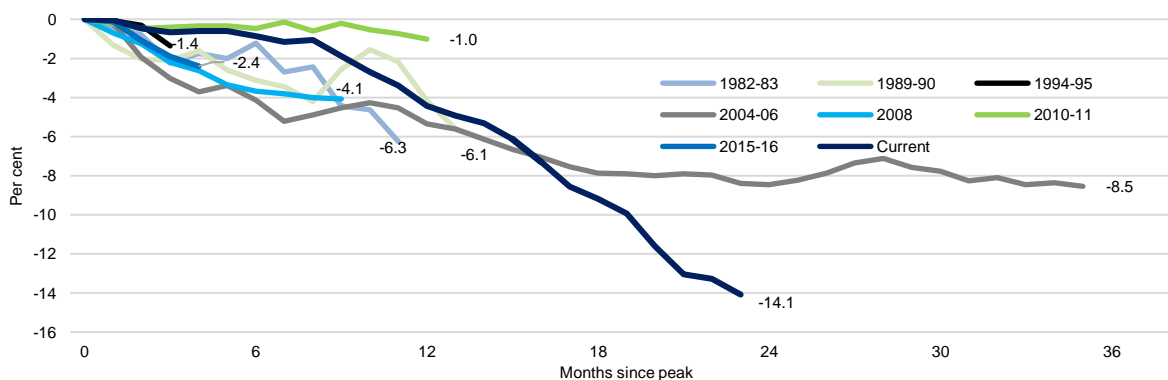
(a) Figures reported are the change in the level of each parameter relative to the baseline.

Source: CoPS, Victoria University and NSW Treasury

Lower New South Wales and national house prices

Following several years of strong growth, Sydney house prices have fallen dramatically from their peak in mid-2017. In May, Sydney’s median house price was down over 14 per cent from its peak, the largest nominal decline since the early 1980s (see Chart F.4). Both softer demand and increasing housing supply have led to the current price declines. Additional drivers have included tighter credit conditions, affordability challenges, low rental yields and reduced investor and owner occupier sentiment.

Chart F.4: The largest decline in Sydney house prices since the early 1980s*



* Stratified median sales price of houses, seasonally adjusted

Source: CoreLogic and NSW Treasury

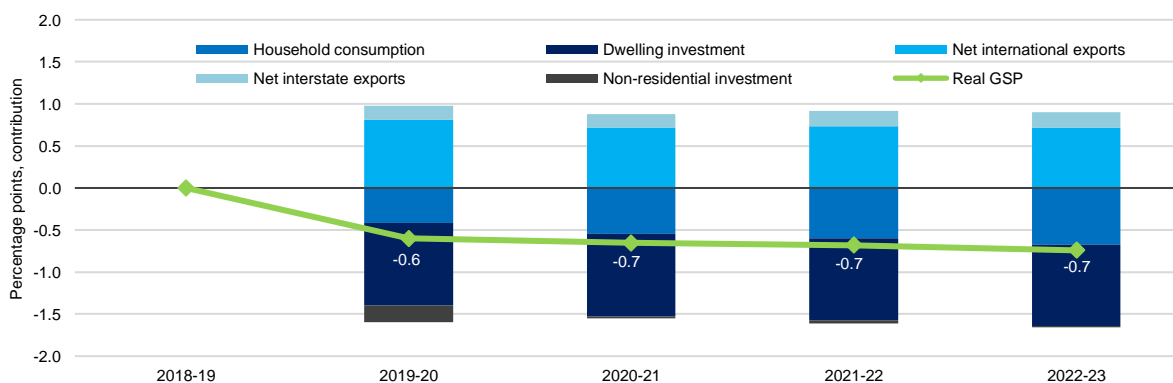
Current forecasts assume that house prices will stabilise from late-2019. This is consistent with improving auction clearance rates, lower interest rates and a gradual improvement in household income growth. There is the risk, however, that this does not eventuate, and house prices continue to decline. The weakness in housing finance commitments and rental price growth provide the strongest basis for this risk. Affordability also remains an issue. Despite the recent fall, house prices are still around 60 per cent higher than in late-2011, leaving house price to income ratios still stretched, suggesting further downside risk.

Hence, this scenario examines the impact of a further fall in house prices. In New South Wales, house prices are negatively shocked by 10 per cent, while the rest of Australia experiences a fall of 7 per cent, roughly matching relativities seen in the current downturn. The fall in house prices originates as a reduction in homebuyers demand for housing. Lower house prices result in lower conveyance duty, which partially offsets the effect of falling house prices on economic activity.

Macroeconomic impact over the Budget and forward estimates

The fall in house prices has a negative impact on the NSW economy (see Table F.3). GSP is about three-quarters of a percentage point lower after four years (see Chart F.5). This is the result of falls in dwelling investment and household consumption, slightly offset by improved international and interstate trade.

Chart F.5: Lower dwelling investment drives much of the decline in gross state product



Source: CoPS, Victoria University and NSW Treasury

Residential construction activity is most negatively affected by the shock to house prices. This fall in housing investment occurs because new residential construction projects have become less economical. Developers no longer receive a return on investment that compensates them for the risk, and the cost of construction hasn't fallen by the same degree.

The resulting fall in household consumption is consistent with less household income and a negative wealth effect. Lower economic activity reduces demand for employment, causing the unemployment rate to trend higher and wages to slow. Increased interstate migration outflows somewhat mute the decline in wages relative to the rest of Australia.

Partially offsetting these declines is an increased contribution from international and interstate trade. An increased contribution from international trade is the result of a lower Australian dollar, increasing international demand for exports and reduced domestic demand for more expensive imports. Interstate trade contributes more because the State's imports from the rest of the country decline, consistent with weaker local consumption.

Table F.3: The effect of lower house prices on major economic parameters

Financial year estimate ^(a)	2019-20	2020-21	2021-22	2022-23
State final demand	(1.6)	(1.6)	(1.7)	(1.7)
Gross state product	(0.6)	(0.7)	(0.7)	(0.7)
Employment	(0.7)	(0.6)	(0.6)	(0.5)
Unemployment rate	0.7	0.3	0.2	0.1
Consumer price index	(0.5)	(0.3)	(0.4)	(0.3)
Nominal wages	(0.6)	(0.7)	(1.0)	(1.1)
Working age population	0.0	(0.2)	(0.3)	(0.4)

(a) Figures reported are the per cent change in the level of each parameter relative to the baseline.

Source: CoPS, Victoria University and NSW Treasury

Revenue impact over the Budget and forward estimates

The softer economic outlook flows through to substantially lower tax collections (see Table F.4). Residential transfer duty collections fall sharply because property valuations collapse and the turnover of property declines. Payroll tax collections fall because employment and wages decline. GST receipts fall because national household consumption and dwelling investment is weaker. Along with this, the State's share of GST revenue also falls as the rest of Australia's population expands due to interstate migration. Offsetting lower revenues slightly is higher coal royalties in response to an improvement in international competitiveness, via a lower currency and wages.

Table F.4: The effect of lower house prices on major revenue parameters

Financial year estimate ^(a) (\$, million)	2019-20	2020-21	2021-22	2022-23
Payroll tax	(139)	(144)	(178)	(194)
Land tax	0	(87)	(121)	(145)
Transfer duty	(477)	(516)	(545)	(561)
Coal royalties	41	33	32	30
Other tax revenue	(80)	(73)	(91)	(96)
GST revenue	(345)	(364)	(382)	(403)
Total revenue	(1,001)	(1,151)	(1,285)	(1,370)

(a) Figures reported are the change in the level of each parameter relative to the baseline.

Source: CoPS, Victoria University and NSW Treasury