

# **‘Snap back’ or slide down**

**The impact of a 10 percent recession  
on the growth path for Australian  
GDP**

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Discussion paper

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# Contents

Summary.....	1
Introduction.....	7
GDP Growth in Australia.....	8
Recessions in Australia .....	10
Recoveries in Australia .....	14
Recovery from 2020 recession .....	16
What might drive record rates of economic growth?.....	19
Macroeconomic models .....	21
Why Macro modelling assumptions matter for government policy .....	24



# Summary

If the Australian economy shrinks by 10 percent in the first half of 2020 it will likely take at least 21 months before Gross Domestic Product (GDP) reaches the levels achieved in the December quarter of 2019. Australia has never experienced such a deep and long-lasting reduction in the level of its national income.

In the past it has only taken between three and 12 months to get back to the pre-boom level of GDP because previous recessions have been far shallower than the downturn being predicted by the Reserve Bank of Australia (RBA) this year. To put the RBA's forecast 10 percent reduction in GDP into perspective, GDP shrank by 1.4 percent during the 1991 recession. The impact of COVID19 (the novel coronavirus) on the economy is expected to be seven times larger than the last recession experienced in Australia.

If the RBA's forecast for the depth of the expected 2020 recession is accurate there is no chance that the level of Australia's GDP will 'snap back' to its 2019 level in the coming months. To be clear, while the *rate of growth* of GDP may 'snap back' quickly, *the level of GDP* will not – and it is the level of GDP, not its rate of growth, that determines the level of employment, the level of consumer spending and the level of government revenue.

The distinction between the rate of GDP growth and the level of GDP is typically overlooked in policy and political debates in Australia because the mathematical distinction between rates and levels is of little policy relevance while the economy is growing steadily, as it had done since 1991. However, after a very large 'shock' to the level of output, the distinction becomes central to understanding how key economic variables are likely to behave in the coming years. Consider the following example:

Two people start work on the same day, at the same workplace, on the same salary and make the same contributions to superannuation each week. After 10 years of work one of them takes nine months off to care for a new baby and then returns to the same job and gets the same pay as their colleague. In the nine months they took off work, however, they made no contributions to super. While their future income and contributions to super will be identical, the person who took nine months off work will never have the same level of superannuation balance – unless taking time off work causes future pay rises to be more generous.

Do recessions cause recoveries? If the 1991 recession had been twice as deep, would the subsequent recovery have been twice as strong? Similarly, will the health policy induced COVID19 recession cause the Australian economy to grow more rapidly than it otherwise would have for the next few years? Or does six months of reduced production and income

impede the ability of the economy to expand and mean that the economy grows more slowly than it otherwise would have?

Such theoretical and philosophical questions about what causes economies to recover from recession and what the role of government is during such recessions are usually of little, if any, interest to the public or policy makers. As we approach the sharpest and deepest recession Australia has ever experienced, it is important to consider whether economic theory and historical evidence suggests that the economy will 'snap back' and to consider the consequences for policy makers if it is not inevitable, or even likely, that the economy will snap back at all.

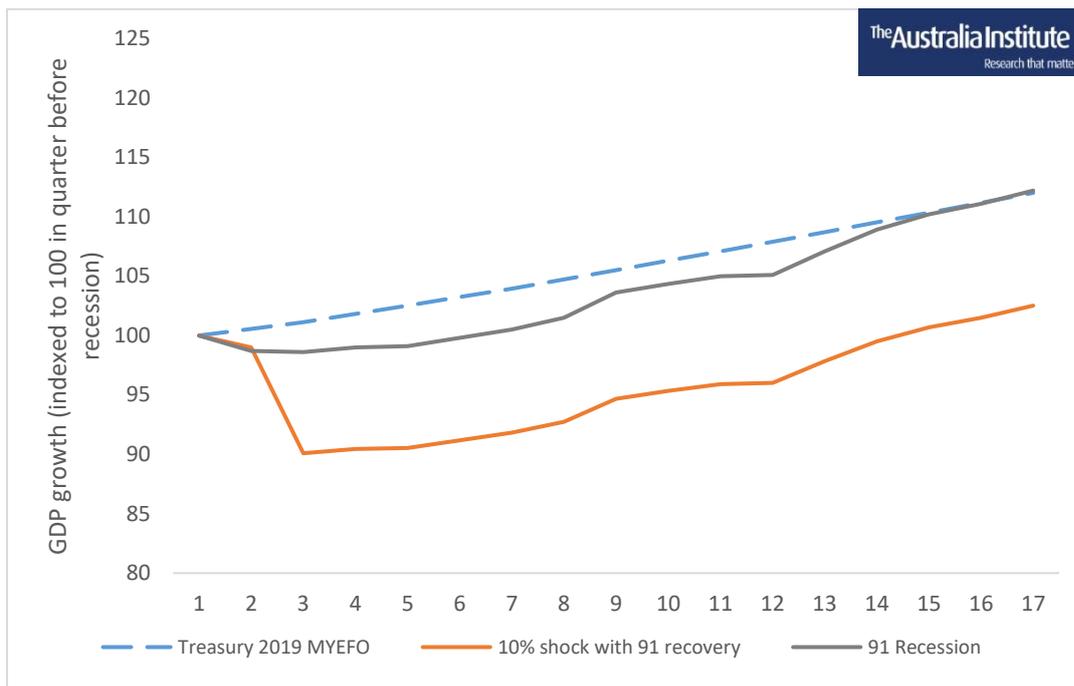
If the Morrison Government believes that the level of GDP will 'snap back' then the role of government in the recovery could be limited to, as the Prime Minister suggests, helping businesses through 'hibernation' until a 'business led recovery' can take place.

But if economies need to be 'shocked back to life' by government policy before business activity and household spending return to anything like their normal patterns, then the role of government needs to be radically different.

While no one can be certain about the depth of the 2020 recession and the trajectory of the post-recession recovery, history and economic theory can help inform our thinking about what is possible, what is plausible and what, if anything, is inevitable.

Figure 1 shows the timing and depth of the RBA's forecast 10 percent COVID19 recession with the growth path of the recovery after the 1991 recession. It then compares this to the timing and depth of 1991 recession and recovery, and the projections made by Treasury in the 2019 Mid-Year Economic and Fiscal Outlook (MYEFO) of the growth in GDP for the coming years.

**Figure 1 – 1991 recovery after 10% recession with 1991 recession and MEFO predictions**



Source: Australia Bureau of Statistics (2020) *5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates*, available at <<https://www.abs.gov.au/AUSSTATS/abs@.nsf/ProductsbyCatalogue/52AFA5FD696482CACA25768D0021E2C7?OpenDocument>>. Note that all GDP figures are seasonally adjusted unless otherwise stated

Reserve Bank of Australia (2020) *Statement by Philip Lowe, Governor: Monetary Policy Decision, 5 May*, available at <<https://www.rba.gov.au/media-releases/2020/mr-20-13.html>>

Commonwealth Treasury (2019) *Budget papers 2019-20 – MYEFO*, available at <[https://budget.gov.au/2019-20/content/myefo/download/MYEFO\\_2019-20.pdf?2](https://budget.gov.au/2019-20/content/myefo/download/MYEFO_2019-20.pdf?2)>

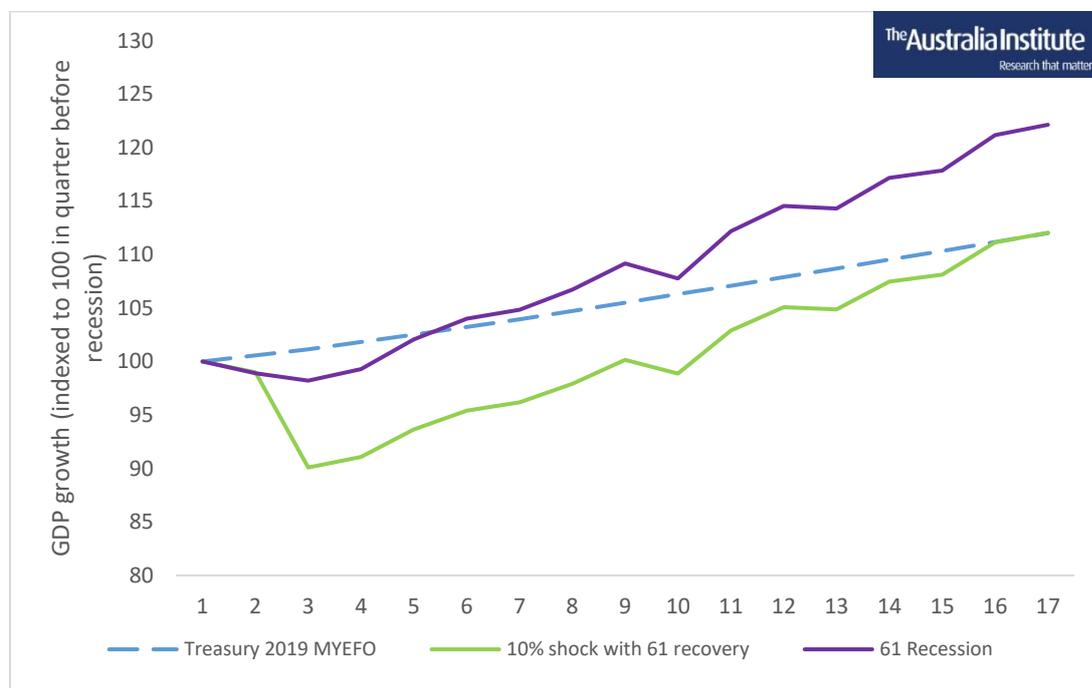
Figure 1 shows that the Australian economy did not ‘snap back’ after the 1991 recession (grey line), it crawled back. But because the 1991 recession was not very deep (GDP declined by 1.4 percent) it took only 12 months after the recovery began before the level of GDP was back above where it was before the 1991 recession occurred.

But because the 2020 recession is expected to be so deep, if the modern economy were to grow at the same rate as it did in the years after the 1991 (orange line), it would take Australia three years before the level of GDP was again above where it was in December 2019. The figure also shows that if the economy responds along the 1991 growth path the Australian economy will likely never reach the growth path predicted by Treasury in the 2019 Budget Papers (blue dashed line).

But what if the recovery path from the 1991 recession is too pessimistic? The fastest recovery Australia has ever had from a recession was following the 1961 recession. Figure 2 shows that if the Australian economy follows the same path out of the 2020 recession as it

did out of the 1961 recession (green line) it would ‘only’ take 18 months before Australia’s GDP was back above the level it attained in December 2019.

**Figure 2 – 1961 recovery after 10% recession with 1961 recession and MEFO predictions**



Source: Australia Bureau of Statistics (2020) 5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates

Reserve Bank of Australia (2020) Statement by Philip Lowe, Governor: Monetary Policy Decision

Commonwealth Treasury (2019) Budget papers 2019-20 – MYEFO

As shown in Figure 2 and discussed below, the RBA projections for the likely recovery from the 2020 recession (blue dashed line) closely follow the growth path from the 1961 recession (green line). While such an historic precedent suggests that rapid economic growth can be sustained for a long period after a recession, the intervening five recessions between 1961 and today suggest rapid and sustained expansions are the exception rather than the norm.

Again, no one can say with certainty how deep the 2020 recession will be, and no one can say with certainty how fast the economy will grow after the COVID19 restrictions are removed. But when attention is focussed on the level of GDP rather than its rate of growth it is clear that if Australia’s GDP falls by anything like 10 percent it will be years before the level of output is above the levels obtained last year. Such a situation has not occurred since quarterly GDP data has been collected by the Australian Bureau of Statistics (ABS). It would mean that, compared to December 2019:

- The number of people employed will be significantly lower
- The amount of money spent by the household sector will likely be significantly lower

- The amount of tax collected by the Commonwealth Government will be significantly lower
- Businesses that had enough capacity to meet demand in 2019 will have no reason to invest in new capacity for some years.

This paper begins by presenting historical data to provide context to evaluate the claim that the Australian economy will ‘snap back’ once restrictions on activity are lifted. It then compares the pace of Australia’s recovery from previous recessions within the RBA’s forecast that GDP will grow at an annualised rate of eight percent in the second half of this year and six percent next year.

The paper then considers what the likely drivers of such rapid growth would be. Economic theory shows us that GDP is simply the sum of consumption spending, government spending, investment spending and net exports (exports minus imports). The paper argues that:

- Since the RBA predicts unemployment will rise rapidly and fall slowly, consumer spending is unlikely to drive economic activity.
- As the government is committed to phasing out the JobKeeper payment and JobSeeker supplement, either these cuts in Government spending in the second half of the year will act as a brake on economic growth or the Government will have to significantly change its fiscal policy.
- As the world economy is forecast to slow and international tourism and student numbers are likely to remain suppressed for some time, net exports are unlikely to surge.
- And if the above three drivers are absent, it is unlikely that the private sector will invest significantly in new plant, equipment or housing. Especially when population growth will be lower than expected and the *level* of GDP will remain below its 2019 peak for years to come. Firms that had enough capacity to meet demand in 2019 will likely not need to expand their production capacity for some time.

Where then does the optimism about snap back come from?

The paper concludes with a brief overview of the fundamental assumptions upon which the most commonly used economic models in Australia are based. This discussion demonstrates that the conclusion that the Australian economy will ‘snap back’ is actually an assumption of these models. That is, the most commonly used economic models in Australia literally assume that the long run path of the economy is fixed and independent of short term ‘fluctuations’. In turn, the main economic models are built on an ‘error correcting’ framework which assumes that if the level of GDP is lower than was expected, GDP will grow at a faster than average rate until the economy is ‘back on track’. The major problem with assumptions such as these is that they give policy makers misplaced faith that GDP will

'snap back' when it is more likely that GDP needs to be 'dragged back' by sustained, and expensive, government stimulus.

# Introduction

The Reserve Bank of Australia estimates that measures to control the spread of COVID19 will result in a reduction in the level of Australia's GDP of around 10 percent in the first half of 2020.

The Morrison Government has announced a range of 'temporary and targeted' policy measures designed to assist the economy through a period of 'hibernation' until it 'snaps back' in the second half of 2020.<sup>1</sup>

Consistent with the Morrison Government's assertion that the economy will snap back, the RBA, and other forecasters, have suggested that GDP will grow by around four percent in the second half of 2020 (an annualised rate of eight percent) and continue to grow at six percent per year from 2021 onwards.<sup>2</sup> While such a response is possible, it is by no means inevitable, or even likely.

In the lead up to the COVID19 pandemic the Australian economy had been experiencing low rates of wage growth, productivity growth and, in turn, GDP growth. While it is possible that the largest contraction of GDP in Australian history might lead to a sustained increase in the quarterly rate of growth in the coming years, there are no strong theoretical or empirical reasons to think that such an outcome is either likely or inevitable.

This paper presents data on all the recessions experienced in Australia since the ABS began collecting quarterly GDP data in 1959. It pays particular attention to the patterns of economic growth exhibited as the economy has recovered from previous recessions. The paper then considers the theoretical underpinnings of the major economic models used in Australia to draw attention to the explicit assumptions in those models that GDP will 'snap back'. The key point made in this paper is that the data on recoveries from previous recessions contradicts the snap back assumptions in the most commonly used economic models.

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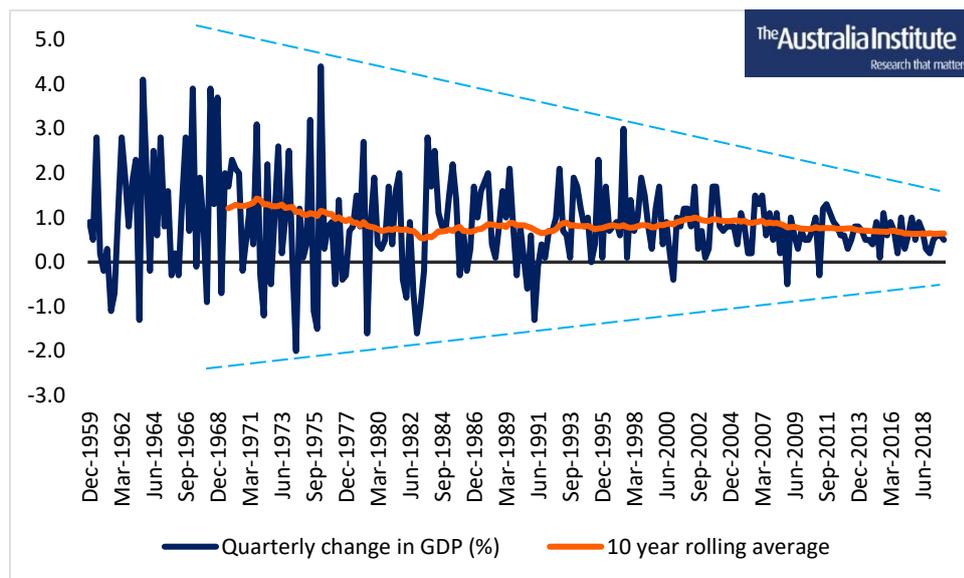
1 Commonwealth Treasury (2020) *Economic Response to the Coronavirus*, available at <[https://treasury.gov.au/sites/default/files/2020-03/Overview-Economic\\_Response\\_to\\_the\\_Coronavirus\\_2.pdf](https://treasury.gov.au/sites/default/files/2020-03/Overview-Economic_Response_to_the_Coronavirus_2.pdf)>

<sup>2</sup> Reserve Bank of Australia (2020) *Statement by Philip Lowe, Governor: Monetary Policy Decision*

# GDP growth in Australia

Figure 3 shows that the quarterly rate of GDP growth (seasonally adjusted) exhibits a high degree of volatility and that both the average rate of growth, and the degree of volatility have been declining over time.

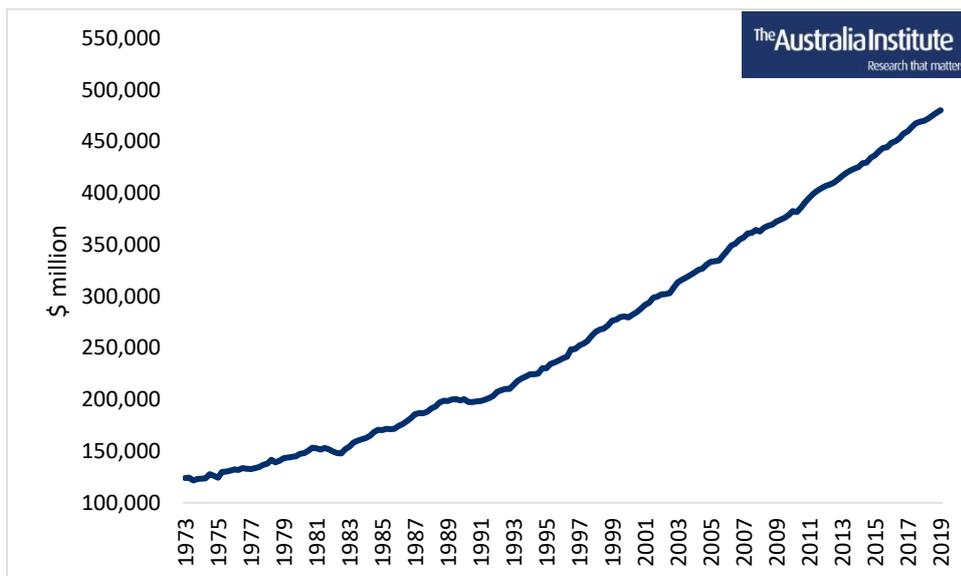
**Figure 3 – The volatility of GDP growth**



Source: Australia Bureau of Statistics (2020) 5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates

Figure 4 shows that the level of GDP is far less volatile. It shows that recessions in Australia are relatively rare and relatively shallow.

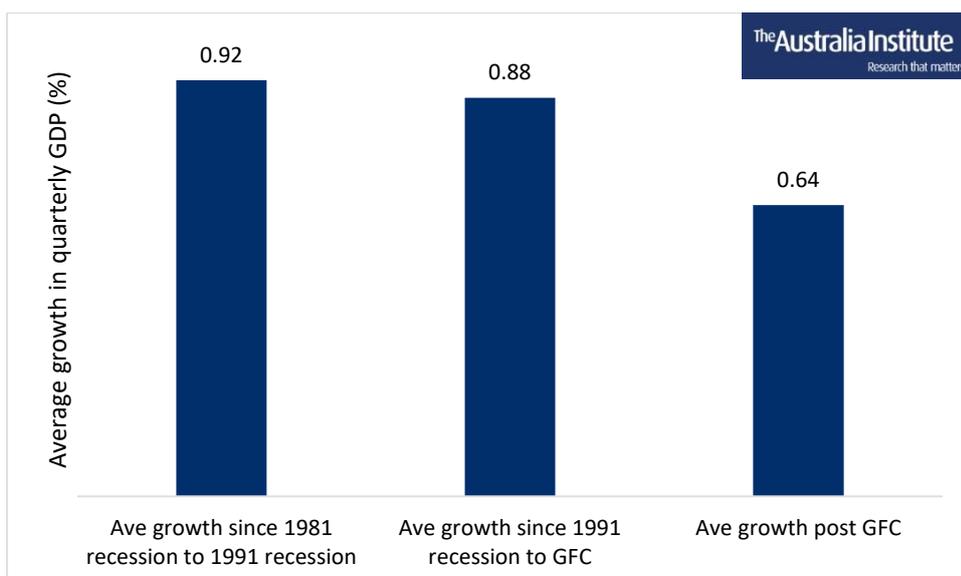
**Figure 4 – Level of GDP 1973 to 2019**



Source: Australia Bureau of Statistics (2020) 5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates

Figure 5 shows that the trend rate of growth has slowed noticeably since the GFC in 2008. Significantly for the purposes of this paper, after the slowdown in domestic and international economic growth following the GFC the Australian economy did not ‘snap back’ to its historic rate of GDP growth. Between the 1991 recession and the GFC, the average rate of growth was 0.88 percent per quarter or about 3.5 percent annually. After the GFC it falls to 0.64 percent per quarter or about 2.6 percent annually.

**Figure 5 – Decline in the trend rate of growth**

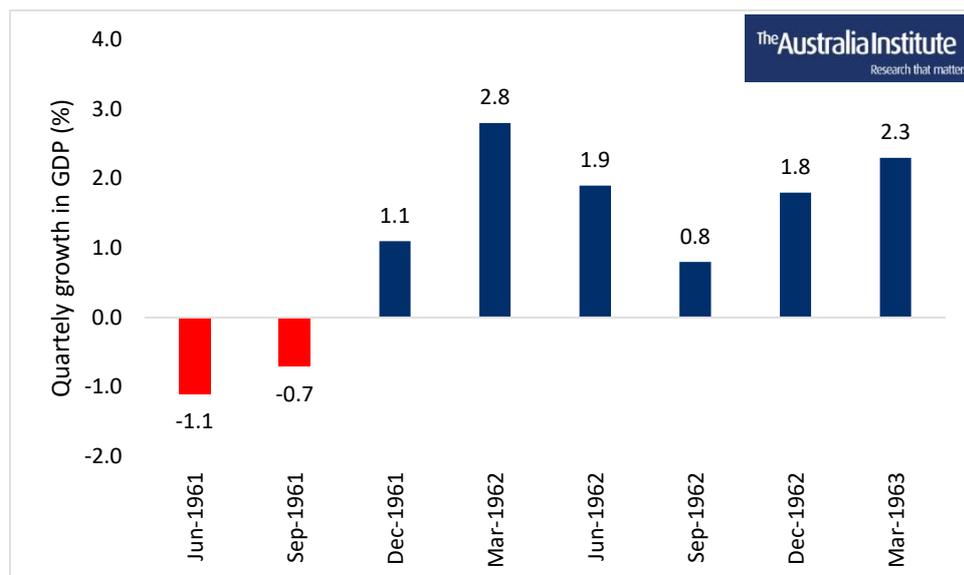


Source: Australia Bureau of Statistics (2020) 5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates

# Recessions in Australia

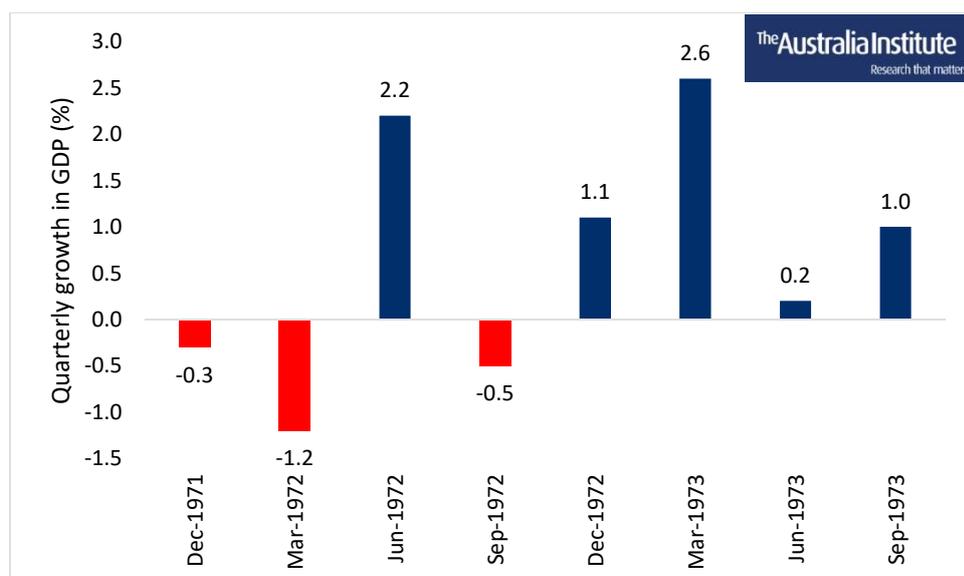
A technical recession is defined as two consecutive quarters of negative GDP growth and, since quarterly data has been collected by the ABS, Australia has experienced six such recessions. The shape of each recession is presented below.

**Figure 6 – 1961 recession**



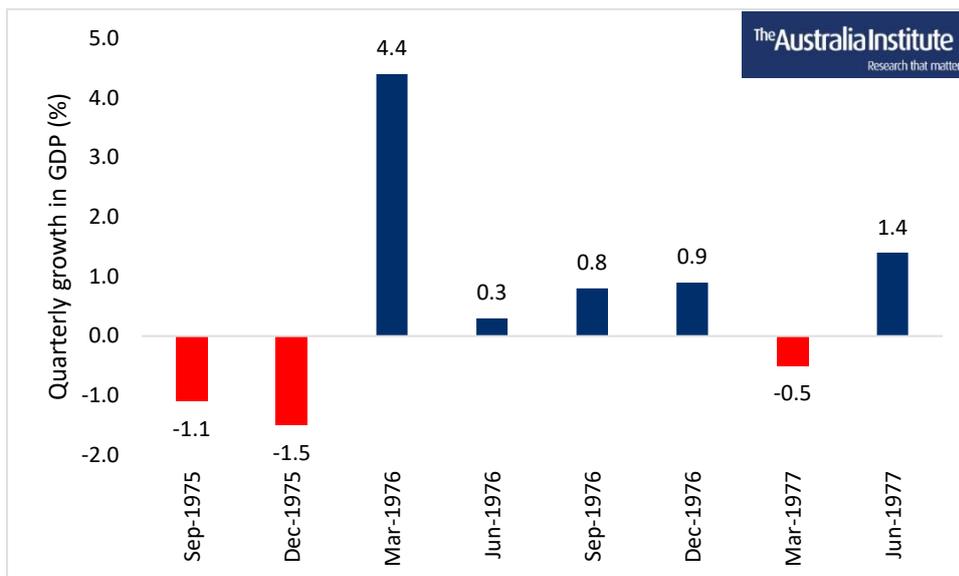
Source: Australia Bureau of Statistics (2020) 5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates

**Figure 7 – 1971 recession**



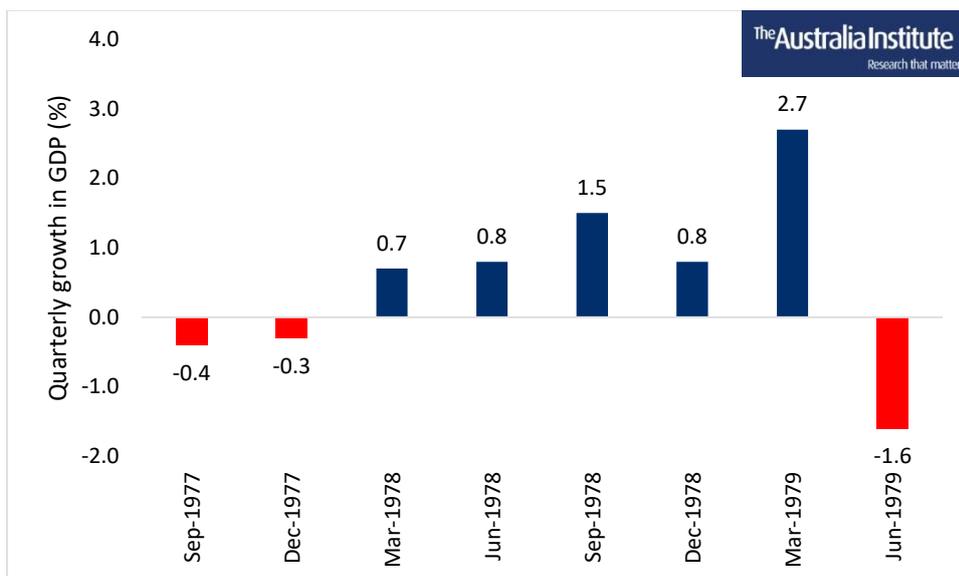
Source: Australia Bureau of Statistics (2020) 5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates

**Figure 8 – 1975 recession**



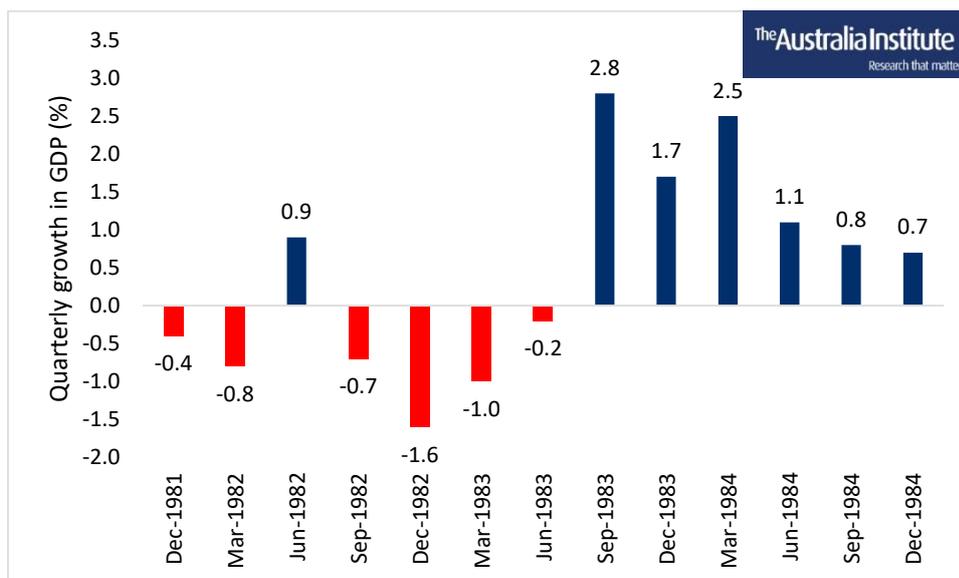
Source: Australia Bureau of Statistics (2020) 5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates

**Figure 9 – 1977 recession**



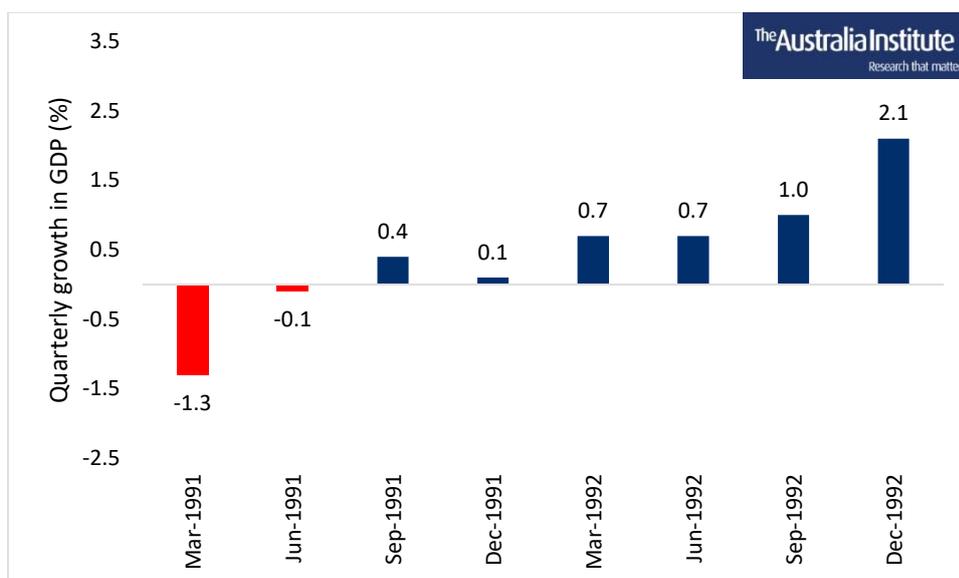
Source: Australia Bureau of Statistics (2020) 5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates

**Figure 10 – 1981 recession**



Source: Australia Bureau of Statistics (2020) 5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates

**Figure 11 – 1991 recession**



Source: Australia Bureau of Statistics (2020) 5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates

Table 1 compares the expected size of the 2020 recession with the recessions of 1981 (previously Australia’s deepest recession) and 1991 (Australia’s most recent recession). While the 1991 recession saw GDP fall 1.4 percent over two quarters, if the RBA forecast is correct the fall in GDP in the 2020 recession will be more than seven times as large.

**Table 1 – Size of recessions**

<b>Recession</b>	<b>Size of recession</b>
<b>1981</b>	-3.8%
<b>1991</b>	-1.4%
<b>2020 (predicted)</b>	-10.0%

Source: Australia Bureau of Statistics (2020) *5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates*

# Recoveries in Australia

While there is no clear pattern to the shape of recoveries from Australian recessions the first quarter after the end of the recession is often particularly strong. While this provides some support for the idea that the economy may ‘snap back’ to its previous level in the second half of 2020 the historic data also provides two reasons why this is unlikely. First, as discussed above, the expected decline in GDP in 2020 dwarfs any previously measured decline and, in turn, it would take much higher rates of growth, for a much longer period of time, for GDP to regain its pre-2019 level.

Second, while an analysis of past recessions shows that strong growth in the first quarter is a common, but not universal, element of Australian recessions, past data also makes clear that the surge in GDP in the first quarter after a recession is not usually maintained. Table 2 provides the average rate of growth in the six quarters after recovery from a recession has begun. It shows that on average three out of the six post-recession quarters are about the same as the average rate of growth for the period 1961 to 1992, over which the five recessions occurred.

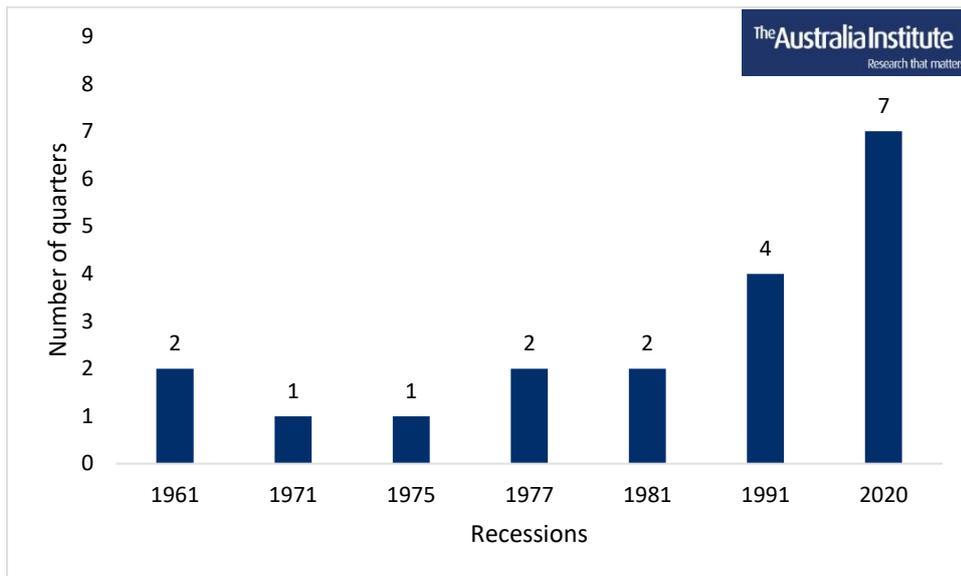
**Table 2 – Average GDP growth in the six quarters following Australian recessions**

Quarter after recovery	Average growth
1 <sup>st</sup>	1.93%
2 <sup>nd</sup>	0.87%
3 <sup>rd</sup>	1.42%
4 <sup>th</sup>	1.15%
5 <sup>th</sup>	1.00%
6 <sup>th</sup>	0.98%
<b>Average for period 1961–1992</b>	<b>0.90%</b>

*Source: Australia Bureau of Statistics (2020) 5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates*

Figure 12 shows how long it took after a recovery from recession began before the economy was again as large as it was before the recession. It then compares that to the expected recovery from the 2020 shock. The recoveries from most of the previous recessions was three to six months (or one to two quarters), with the 1991 recession taking 12 months (four quarters). Using the RBA’s predicted growth rates, we see that after a 10 percent recession it will take 21 months (or seven quarters) for the economy to be again as large as it in December 2019.

**Figure 12 – Number of quarters after recovery before economy reaches pre-recession size**



Source: Australia Bureau of Statistics (2020) *5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates*

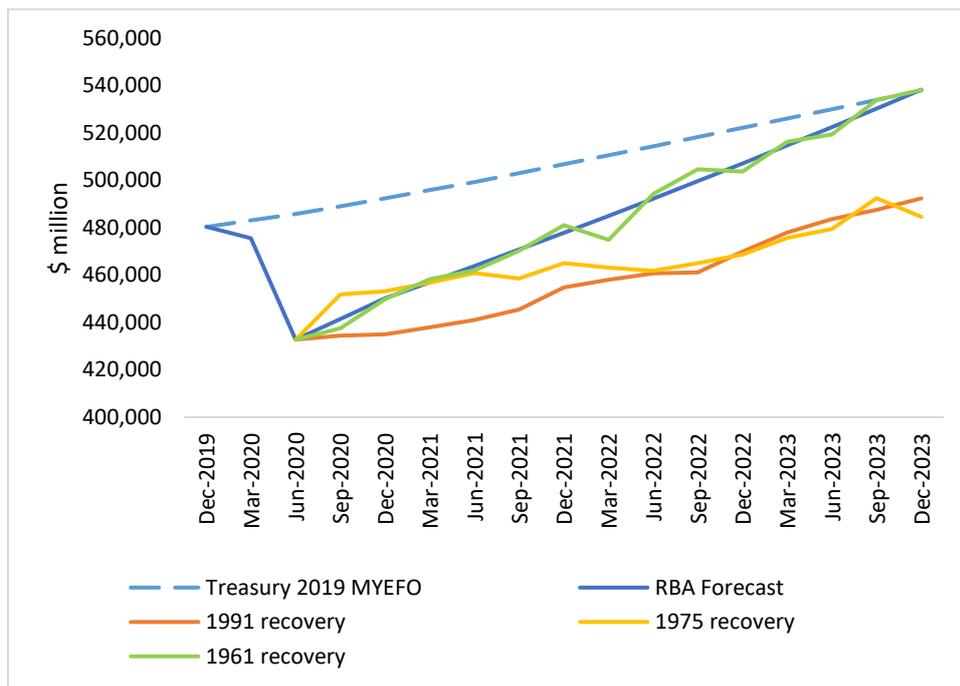
Reserve Bank of Australia (2020) *Statement by Philip Lowe, Governor: Monetary Policy Decision*, 5 May, available at <<https://www.rba.gov.au/media-releases/2020/mr-20-13.html>>

# Recovery from 2020 recession

While there is some evidence that economies grow strongly in the quarter after a recession there is no empirical evidence to suggest that such a 'snap back' is either inevitable or sustainable. In order to better understand the possible shape of the recovery from a 10 percent recession, Figure 13 compares several different scenarios, namely:

- 1) Treasury 2019 MYEFO (blue dashed line) – before COVID19 had been discovered Treasury expected GDP to grow at 2.25 percent in 2019-20, 2.75 percent in 2020-21 and then three percent after that.
- 2) The RBA projection (blue line) – the RBA is forecasting GDP to fall 10% in the first two quarters of 2020, then grow by four percent in the last two quarters (eight percent annualised growth) of 2020 and six percent in 2021 and beyond. It is not clear how long the RBA thinks that the economy can grow at six percent but, consistent with the models discussed below, the high rate of growth is assumed to persist while the economy is below its long run level of 'potential output'.
- 3) 1961 recession (green line) – the recovery from the 1961 recession was the strongest of all recoveries and largely mirrors the RBA's recovery estimates. It is substantially stronger than the recoveries of all other recessions since the ABS started collecting quarterly GDP data. The intervening five recessions between 1961 and today suggest rapid and sustained expansions are the exception rather than the norm.
- 4) 1975 recession (yellow line) – the 1975 recovery began well with a strong increase in GDP growth in the first quarter after the recession, but this growth was not sustained. Figure 13 shows that if the recovery from the 2020 recession follows the path of the 1975 recession then the level of GDP will never return to the growth path that Treasury expected back in 2019. In fact, GDP would remain around \$53 billion per quarter (\$212 billion per year) lower than it would have been without the recession.
- 5) 1991 recession (orange line) – the recovery from the 1991 recession began without a bang and grew slowly but steadily for the next 6 quarters, largely converging with the recovery path coming out of the 1975 recession. Again, if the 2020 recovery follows the recovery path of the 1991 recession then the level of GDP will remain around \$185 billion per year lower than Treasury's 2019 MYEFO projected growth path.

**Figure 13 – Various growth scenarios after a 10% recession**



Source: Australia Bureau of Statistics (2020) 5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates

Reserve Bank of Australia (2020) Statement by Philip Lowe, Governor: Monetary Policy Decision

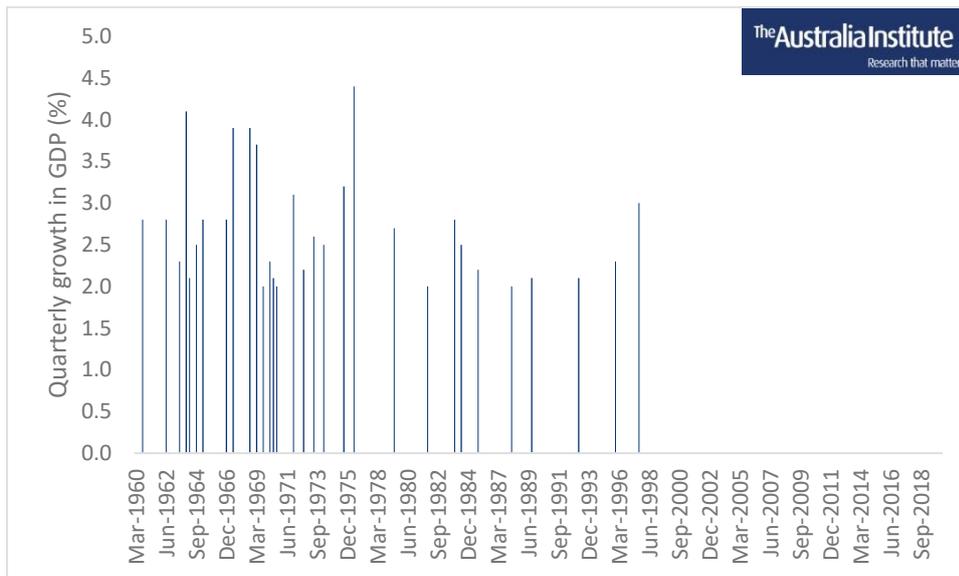
Commonwealth Treasury (2019) Budget papers 2019-20 – MYEFO, available at <[https://budget.gov.au/2019-20/content/myefo/download/MYEFO\\_2019-20.pdf?2](https://budget.gov.au/2019-20/content/myefo/download/MYEFO_2019-20.pdf?2)>

The key point from Figure 13 is that, unless the quarterly growth rate of GDP can stay well above its historic average for many years, the level of GDP in Australia will remain permanently below the growth path predicted by Treasury last year.

The significance of GDP settling in to a new lower level, is that even if the economy settles back to the historic rate of GDP growth it is the level of GDP that determines the number of people who will be employed, the size of national income and the amount of tax collected by the government.

While it is possible that the high and sustained levels of quarterly GDP growth required to return to the Treasury growth path can be achieved, as Figure 14 shows such an outcome seems highly unlikely. Figure 14 shows all the quarters of GDP growth that are two percent or more. While the RBA growth path requires two percent per quarter GDP growth in the September and December quarters of 2020 and 1.5 percent per quarter after that, over the last seven years the average quarterly growth rate has been 0.6 percent and the last time that Australia recorded a quarterly growth rate of two percent or more was in 1997.

**Figure 14 – Quarters with growth rates of 2% or more**



Source: Australia Bureau of Statistics (2020) 5206.0 Australian National Accounts: National Income, Expenditure and Product, December 2019 - Table 1. Key National Accounts Aggregates

Much has changed in the Australian economy since the 1991 recession, and it is possible that the high percentage of casual and gig economy workers in today’s labour market will make it possible for the economy to grow faster for longer than it ever has before. On the other hand, such a high degree of precarious workers might act to dampen consumer spending, reduce consumer confidence and make firms less likely to invest in training and retraining their workforce. Time will tell.

# What might drive record rates of economic growth?

GDP can be broken up into a number of composite parts and, just as GDP is equal to the sum of its parts, growth in GDP is equal to the sum of the growth in each of its parts.

The most common way to decompose GDP is as follows

$$\text{GDP} = C + I + G + (X-M)$$

Where:

C = Consumption spending

I = Private investment spending (including construction of privately-owned homes)

G = Government spending

(X-M) = Exports minus imports

If GDP is to grow between six and eight percent in the coming years, when it had been growing at below three percent before COVID19 struck, then either each of the components of C, I, G and (X-M) need to grow at between six and eight percent or, if some components grow more slowly, then some parts will need to grow much more rapidly than that to deliver economy wide growth of six to eight percent.

What then are the prospects for growth in each of GDP's component parts?

C - Consumption is likely to be flat as a result of the impact of high levels of unemployment and underemployment on the disposable incomes of millions of Australians. While it is possible that spending by households who have not lost income may surge when shops, restaurants and airlines open up, it is unlikely that such a one off surge in consumer spending will be sustained for the two to three years required to climb out of a 10 percent recession. It is also possible that low house prices and fear of unemployment may lead to households saving more money due to a lack of confidence about the future rather than spending more money to celebrate the end of lockdowns. The threat of a second wave of infections and lockdowns may also weigh on confidence and spending. Record low levels of population growth will also slow the rate of growth of consumer spending.

I – Businesses invest in new capacity in the expectation of making a profit. In the second half of 2020 the level of demand will be well below the level of demand in 2019, so it is unlikely that many businesses will see the need to expand their production capacity. That is, even if they see a rapid *growth* in sales in the second half of 2020, their *level* of sales is unlikely to

exceed the level of sales in 2019 and, in turn, there will be little incentive for business to rapidly expand production capacity.

G – The Federal Government has announced its intention to reduce government spending in the second half of 2020 from the record levels of spending announced for the first half of the year via the winding back of JobKeeper and JobSeeker. For government spending to contribute to record growth in the next two years, government spending would need to grow from its current levels. If government spending declines, then other parts of the economy will need to grow much more rapidly than the projected six to eight percent.

(X-M) – a slowing world economy makes significant growth in net exports unlikely. Coal and iron ore exports have, to date, held up through the crisis so these commodities cannot be expected to boom in the second half of the year. Overseas tourism and foreign student numbers will likely be well below their 2019 highs.

In short, while it is likely that there will be a significant surge in consumer spending once restrictions are lifted, in part because consumers will have pent up demand for a range of recreational activities, such a surge is unlikely to be maintained for subsequent quarters both because actual unemployment will suppress household spending and because the fear of unemployment will weigh on many of those who remain in work. Lower consumer confidence has a significant impact on consumer spending, on consumer durables (such as appliances), eating out and holidays.

Absent strong and sustained growth in consumer spending in Australia and around the world, and absent big increases in government spending, big increases in private investment seem unlikely. And unless there is strong growth in all these drivers, or very strong growth in some of these drivers, then a 'snap back' is impossible.

# Macroeconomic models

While all models are based on assumptions which inevitably limit their realism, the commonly used macroeconomic models used in Australia are based on a number of assumptions that make them fundamentally inappropriate for analysing both the likely impact of a 10 percent recession on the long run level of GDP and, in turn, for analysing the appropriate policy response to such a crisis.

Any economic model that seeks to predict the future must make assumptions about what things do, and do not, have an impact on that future. In turn, to understand how well a model can predict the future it is important to understand what those assumptions are.

Both the Computable General Equilibrium (CGE) models that are widely used in Australia and the econometric MARTIN model<sup>3</sup> used by the RBA are literally based on the assumption that quarterly changes in the rate of GDP growth have no impact on the long run level of GDP. On the contrary, these models begin by estimating what the long run level of GDP will be in ten years or more based on supply side factors. Treasury refer to the small number of variables that the model allows to affect the long run level of GDP as 'the three Ps', namely:

- Population
- Participation
- Productivity

Modellers use assumptions about these supply side factors to determine the long run growth path that the economy is assumed to follow into the future. Once that long run growth path has been calculated (based on the assumptions fed in by the modeller) the long run growth path is used to provide 'closure conditions' for a separate 'short run' model that exhibits a lot more volatility than the long run model. In turn the fixed long run growth path is used to give the short-term model a predetermined destination.

Put simply, macroeconomic models are built on the assumption that the path the economy follows does not have an impact on the destination that the economy reaches.

The rationale for this approach is that it allows the model to exhibit 'Keynesian dynamics' in the short term (i.e., there is a role for aggregate demand in determining the rate of growth and the level of employment) while simultaneously exhibiting the 'classical long run properties' of a neoclassical Solow type growth model (i.e. the only thing that determines the level of output is the 'three p's').

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<sup>3</sup> Short for "MACroeconomic Relationships for Targeting INflation model".

The problems with such a 'dual structure' are numerous but the biggest problem is that the 'classical long run' model literally assumes that unemployment is impossible. This long run model that assumes unemployment is impossible is then used to determine the long run impact of a period of unemployment!

In the words of one of the architects of Treasury's TRYM model<sup>4</sup> (a CGE model):

The short run and long run properties of the TRYM model can easily be examined separately because of the way the model has been constructed. Effectively, there are two versions of the model; a dynamic version that incorporates short run behaviour and the adjustment towards the long run; and the long run or steady-state version which is used to derive the long run equilibrium growth path for the model. This is simulated before running the dynamic version of the model to provide future equilibrium values...<sup>5</sup>

Put another way, CGE modelers start by predicting the future based on the 'three Ps' and then they let the model tell them how the economy will get from wherever it is to the path that they have assumed it will end up.

This determination to ignore the role of path dependence in the economy, and to ignore the theoretical inconsistency with using a classical supply side model that assumes unemployment is impossible to predict the long run consequences of a period of unemployment, is not unique to CGE models. The authors of the RBA's MARTIN model are proud of its 'error correcting' architecture, stating:

Most key behavioural equations in MARTIN are modelled using error-correction models. An equation is considered 'behavioural' if it captures important aspects of economic behaviour (for example, how much households spend or how prices are set).

Error-correction equations are used because they can match empirical regularities in the data, while having stable long-run properties. Under this approach, economic variables are assumed to revert (or 'error-correct') to long-run growth paths based on cointegrating relationships in the data that are consistent with economic intuition.<sup>6</sup>

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<sup>4</sup> Short for "Treasury Macroeconomic model".

<sup>5</sup> Downes P (1995) *An Introduction to the TRYM Model Applications and Limitations*, IFAC Proceedings Volumes, Vol 28, Issue 7, pp19-29, July, available at <<https://www.sciencedirect.com/science/article/pii/S1474667017470881>>

<sup>6</sup> Cusbert T & Kendall E (2018) *Meet MARTIN, the RBA's New Macroeconomic Model*, March Bulletin, 15 March, available at <<https://www.rba.gov.au/publications/bulletin/2018/mar/meet-martin-the-rbas-new-macroeconomic-model.html>>

Further:

The long-run relationships in an error-correction model ensure that the whole model system stabilises in a plausible way. The specification of the long-run relationships combine empirical relationships in the data with economic intuition, which is used to guide what economic relationships might be considered 'plausible'.<sup>7</sup>

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<sup>7</sup> Cusbert T & Kendall E (2018) *Meet MARTIN, the RBA's New Macroeconomic Model*

# Why Macro modelling assumptions matter for government policy

The metaphor that the economy can, and likely will 'snap back' implies that the economy is driven by natural forces and that economic outcomes are independent of the policy decisions that governments make. But history and economic theory show that government policy makes a big difference to macroeconomic performance. If policy makers believe that the economy can, and will, snap back then there is no need for them to take steps to drag the economy back.

But the assumption that GDP will snap back is literally built into the most commonly used macroeconomic models and, in turn, to the thinking of many macroeconomists in Australia.

Models that simply assume that a return to the previous level of output is inevitable are both theoretically flawed and ignore empirical evidence to the contrary.

Of even greater concern is that the fact that if it is assumed that the economy will revert to its original trend level of output after a negative shock then there is no reason to design policies to maximise the chance that such a return is actually achieved.

If the government wants to implement a policy to 'drag back' the economy to something approaching the growth path that we were on in 2019, the options include:

- 1) Sustained fiscal stimulus, or
- 2) Policies to encourage domestic replacement of imports

But if the government doesn't implement such policies in the short term, or worse still, begins to reduce fiscal stimulus in the second half of 2020, then the prospects for GDP and unemployment in Australia are dire. With interest rates at record lows, household debt at record highs, and a world economy facing a similar downturn to Australia, the only likely contender to lead the Australian economy not just back to its trend rate of growth, but to the level of output we were on in 2019, is the public sector. The sooner the Commonwealth government confronts this reality, the more efficient it will be in designing good medium-term fiscal policy measures and the quicker the Australian economy will rise above its 2019 level of output.