

INVESTMENT INSIGHTS
JULY 2020

QIC

Fiscal Stimulus

Implications for institutional
infrastructure investors



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1. OVERVIEW

Governments around the world are scrambling to contain the unprecedented economic fallout of the COVID-19 pandemic. Many are expending resources in an effort to prevent the current health crisis from snowballing into a long-term economic depression. However, the timeline for recovery is still uncertain, making the true cost of this crisis challenging to ascertain. The sudden jolt of this crisis has also come at a painful time. The global economy, particularly outside of the US, was slowing in recent years and economies have struggled to overcome the ‘three Ds’ of high debt, ageing demographics and disruptive technology (suppressing wages and inflation).

Governments have thus turned to both fiscal and monetary policy to soften the economic blow. However, because the marginal utility of monetary policy has declined since the 2008 Great Financial Crisis (“GFC”), fiscal stimulus is now the primary bailout mechanism for this pandemic. This is a welcome change that global central banks have been calling for repeatedly in recent years.

This paper therefore intends to explore the potential effects of COVID-19 stimulus measures on the infrastructure investment landscape. While the themes discussed in this paper are global, the research for this paper relies heavily on lessons learned from the US given its rich history of transformational fiscal stimulus programs.

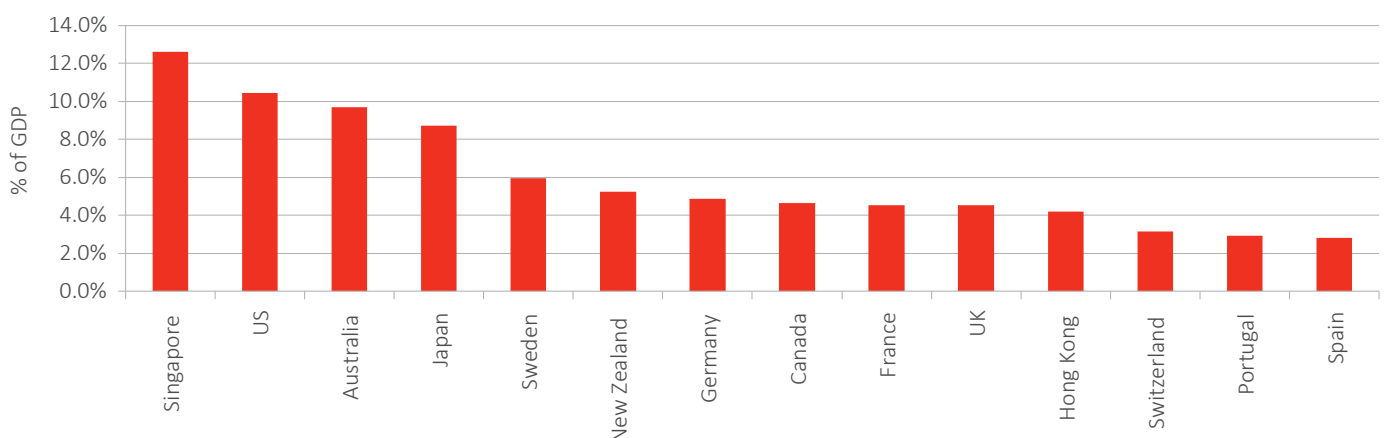
In the aftermath of COVID-19, we expect there may be unique opportunities to partner with governments to support economic recovery and public balance sheet repair. Positioning for these opportunities will require an in-depth understanding of what governments hope to achieve with their stimulus packages. There are early signs that they will be highly aspirational, attempting to tackle society’s bigger challenges as a call to arms to drag economies out of their hibernation. We believe decarbonisation, healthcare, and digitalisation will be prioritised to deliver a much-needed boost to global productivity.

QIC’s unique heritage and track record of working closely with governments positions it well over the coming years to invest into these recovery efforts.

2. COVID-19 FISCAL STIMULUS IN CONTEXT

In response to the COVID-19 pandemic, we have seen some of the largest fiscal stimulus announcements since World War II. Singapore, the US, India, and Australia have so far announced and begun implementing significant fiscal stimulus packages as a percentage of GDP. Some of the announced packages (as a percentage of GDP) are shown in Figure 1.

Figure 1: Fiscal stimulus (% of GDP, ex loan guarantees and equity injections)



Source: QIC as at June 2020

Globally, fiscal stimulus for necessary health expenditures, tax relief, and other spending measures to support people and firms are currently estimated at US\$4.4 trillion. Additionally, public sector loans and equity injections, guarantees and other contingent liabilities totalling US\$4.6 trillion have been made available.¹

So far, these packages have been collectively focussed on short term support measures to bridge liquidity issues and offset depressed levels of household consumption and business investment resulting from forced COVID-19 hibernation.

Figure 2: COVID-19 fiscal stimulus themes

<p>1 Increased health spending</p> <ul style="list-style-type: none"> • Substantial increases in funding for health systems • Aust - A\$2.4b Commonwealth funding and the government has agreed to share in the costs 50/50 with the States in treating COVID-19. • The US has allocated hundreds of billions of USD for hospitals, equipment and testing • UK established COVID-19 emergency response fund to provide £14b of support 	<p>2 Measures to support business</p> <ul style="list-style-type: none"> • Direct support to impacted industries/ businesses or wage subsidy (US, France, Aust, UK, NZ, Canada) • Government to provide guarantees for bank loans, particularly to SMEs, or other loan relief (Aust, France, UK, UK, Switzerland, Japan, South Korea) • Increasing depreciation allowance (Germany, Aust, NZ) 	<p>3 Measures to support consumers</p> <ul style="list-style-type: none"> • General cash handouts/income support (Aust, US, NZ, Canada) • Payments to employees taking sick/ unpaid leave due to COVID-19 or for other impacted workers (US, UK, Australia, Italy, Spain, Japan, Canada) • Mortgage repayment holidays or utility bill relief (Italy, Spain)
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Source: QIC

In developed markets, the largest sums have been committed to job retention schemes (up to ~70 percent in Canada), followed by tax relief (up to ~40 percent in France), while direct cash payments have been more common in emerging markets (comprising almost 100 percent of stimulus packages in Thailand, Vietnam and the Philippines). Public investment has so far been limited except in China, and even in China the scale of public investment in response to COVID-19 has so far been modest relative to its public investment in the wake of the GFC.²

Through these stimulus measures there will likely be unintended consequences, as history indicates that large increases in debt levels have inevitably led to deleveraging cycles. The magnitude of current stimulus actions makes any future deleveraging even more challenging. None of the natural deleveraging strategies are free of trade-offs. Deleveraging strategies include:

- **Spending cuts:** Austerity measures where governments, corporations and individuals spend less relative to their income and pay down their debt. This is deflationary and cannot be used to deleverage all sectors in an economy. Globally, public sector surpluses necessarily result in private sector deficits.
- **Debt write-offs:** Debt restructuring or outright defaults. This is also deflationary and can cause significant long-term scarring to financial systems.
- **Wealth redistribution:** Wealth is redistributed via taxation. Additional taxation is also deflationary and limits future growth. Further, wealth redistribution via taxation faces the same limitations as spending cuts in that it cannot achieve deleveraging in aggregate across both the public and private sectors.
- **Increasing money supply:** Central banks can pursue increases in the money supply (e.g. M2³) through programs such as quantitative easing ("QE") in an attempt to increase inflation and deleverage economies in real terms. However, QE has proven to be ineffective at stoking inflation in practice.
- **Productive growth:** Deleveraging is ideally achieved through productive investment that produces income growth higher than interest rates, although it is a slow process that requires long-term planning. This form of balance sheet repair is frequently pursued by the private sector, but governments have recently been hesitant to use investment to increase future tax revenue and deleverage over time.

² UBS, April 2020; IMF Fiscal Monitor, April 2020

³ M2 is defined as coins and notes that are in circulation and other money equivalents (collectively called M1) and, in addition, short-term time deposits in banks and certain money market funds.

In order to manage the debt burden while catalysing economic recovery, fiscal stimulus will increasingly shift away from any short-term measures toward an accelerating pipeline of investments seeking to enhance productivity, such as infrastructure. Investments in developing stronger and resilient infrastructure has proven to have tangible impacts on productivity (i.e., the ability to produce more efficiently). Infrastructure investment could be an extraordinarily useful tool for macroeconomic stabilisation. As discussed further in this paper, most estimates of the output “multiplier” for infrastructure investment are substantially higher than for other fiscal interventions. The Economic Policy Institute estimates that if the fiscal boost of infrastructure investment were accommodated by monetary policymakers, each US\$100 billion in infrastructure spending would boost job growth by roughly 1 million full-time equivalents.⁴

Hence, it is an ideal time for governments to increase their commitment to long-term ‘nation building’ programs and climate goals, all while providing a pathway towards secular reduction in unemployment levels and recovery out of COVID-19.

3. CASE STUDIES OF SELECT HISTORICAL STIMULUS MEASURES

To understand the potential implications of the current fiscal stimulus programs for infrastructure investors, we have analysed historical periods of extraordinary fiscal stimulus. Table 1 shows chronology of some of the major economic crisis dating back to The Great Depression and Figure 3 shows some statistical references for such crisis.

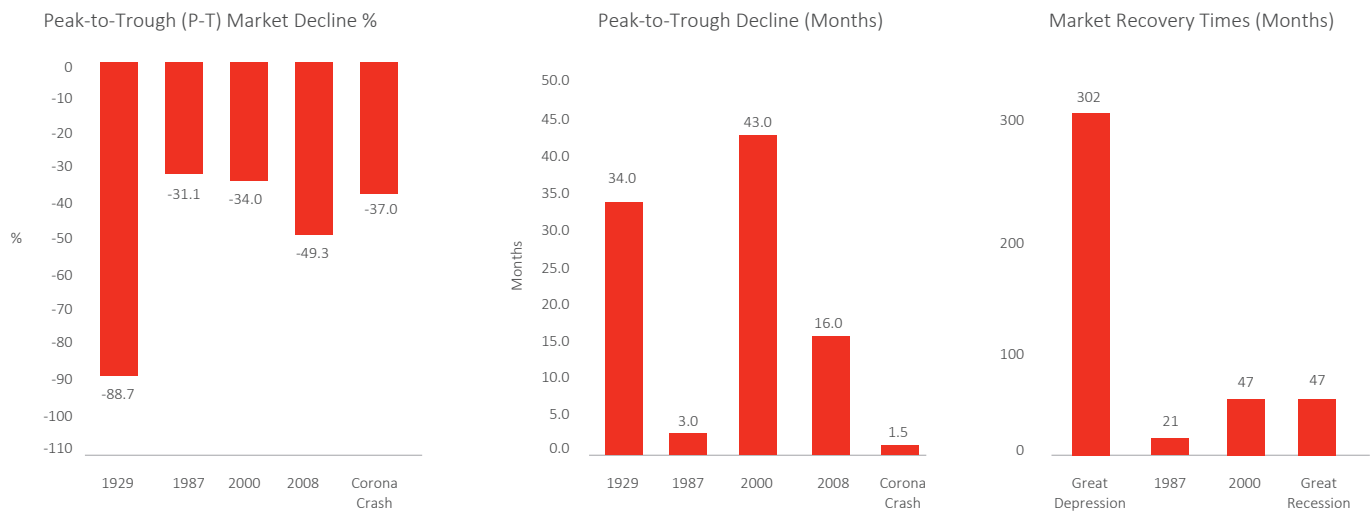
Table 1: Chronology of historical crises⁵

Year	Event	Overview
1929	The Great Depression	The most devastating stock market crash and the longest depression in the history of the US; 89.2 percent loss on the Dow over three years.
1948	Post-WW2 Recovery	The US transferred or invested over US\$13 billion (equivalent to over c.US\$128 billion in 2020) into Europe between 1948-1951 across approximately 18 countries.
1973-74	Inflationary Bear Market	DJIA lost over 45 percent of its value, London Stock Exchange FT30 lost 73 percent of its value. Recovery to the previous market level in the UK was not seen until May 1987
1987	Black Monday crash	Greatest one-day percentage decline in US stock market history
2000	Dotcom bubble	Nasdaq dropped 78 percent from March 2000 to October 2002, took 15 years to reach 2000 peak again
2007-08	Global Financial Crisis	Millions of job losses, sharpest drop in global economic activity in the modern era prior to COVID-19

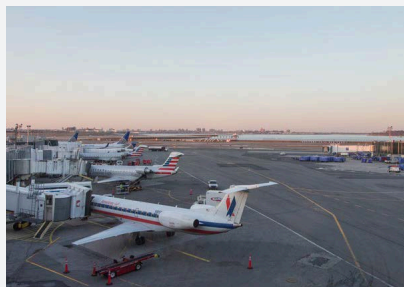
⁴ The Economic Policy Institute, July 2017

⁵ Bloomberg; National Bureau of Economic Research

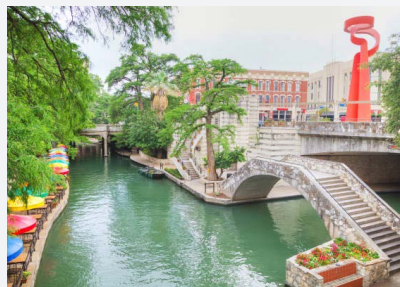
Figure 3: Dow Jones market reactions to historical crises⁶



3.1 US STIMULUS DURING THE GREAT DEPRESSION: THE NEW DEAL (1933 - 1939)



New York's LaGuardia Airport
800 airports constructed or improved



San Antonio River Walk
78,000 bridges



Timberline Lodge Oregon
125,000 buildings

The New Deal was a series of large-scale relief programs that US President Franklin D. Roosevelt ("FDR") launched between 1933 and 1939 to end the Great Depression. With a price tag approximately equivalent to US\$790 billion in 2020, federal debt increased by over 30 percent as result of the New Deal. FDR proposed the New Deal to address what historians refer to as the "3 Rs": relief for the unemployed and poor, recovery of the economy back to normal levels, and reform of the financial system to prevent a repeat depression. The New Deal advocated government spending as a key economic driver for boosting consumer demand and has been widely credited for its significant role in countering the Great Depression and revitalising the US economy.

The series of measures in the New Deal included public work projects, financial reforms, and regulations. Major federal programs were created to provide support for farmers, the unemployed, youth and the elderly, and re-inflate the economy after prices had fallen sharply, while new constraints and safeguards were also placed on the banking industry.

Additionally, FDR's administration put an enhanced focus on domestic infrastructure, describing the development and delivery of new roads, bridges, airports and power transmission infrastructure across many jurisdictions as a uniting force for the US. The establishment of the Works Progress Administration ("WPA") by presidential act in 1935 was the main mechanism for infrastructure development in the New Deal. The WPA's initial appropriation in 1935 was for US\$4.9 billion (about 6.7 percent of the 1935 GDP). WPA initially led to small, localised tasks like roads, bridges, schools, community parks, and drainage ditches, but over time Oregon's Timberline Lodge, the Riverwalk in San Antonio, and New York's LaGuardia Airport became just a few of the iconic projects that have come to best exemplify the efforts of the WPA.

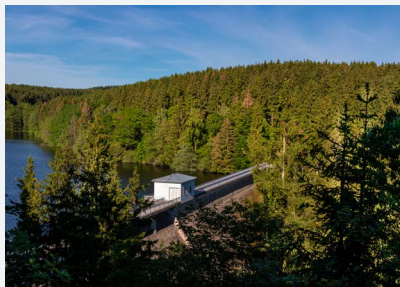
According to statistics compiled in *American-Made*, the WPA covered the US with 650,000 miles of road, built 78,000 bridges, erected 125,000 civilian and military buildings, and constructed or improved 800 airports.

The New Deal's impact on the economic recovery as measured by the GDP growth and reduction in unemployment was quite impressive. From 1933 to 1937, real gross domestic product grew at an annual rate of almost 10 percent, and unemployment fell from 25 percent to 14 percent, according to Christina Romer, the former chair of the Council of Economic Advisers in the Obama administration.

3.2 GERMAN STIMULUS DURING THE GREAT DEPRESSION (1932 – 1935)



1936 Olympic Games Infrastructure



Zillierbach Dam



Autobahn Network

The integration of fiscal and monetary stimulus in Germany during the Great Depression is an interesting precedent, which may hint at alternative paths forward for modern authorities to better coordinate stimulus in response to COVID-19.

From 1932, Offa Bills (promissory notes redeemable with Germany's central bank) were used in Germany for paying private contractors to undertake public works, when Heinrich Brüning served as chancellor. Adolf Hitler continued the practice and introduced Mefo Bills (a variation on the same concept) for rearming Germany.

In both cases, the promissory notes were issued to building contractors by the government and were convertible to currency by the central bank. This way, the central bank directly financed public works. This stimulus facilitated Germany's hosting of the 1936 Berlin Olympics (which marked Germany's return as a superpower) as well as the construction of Germany's vast network of autobahns which ignited the growth of Germany's automobile manufacturing industry.

3.3 US STIMULUS POST WORLD WAR II: THE MARSHALL PLAN (1948 – 1951)

THE MARSHALL PLAN MODERNISED INDUSTRIAL PRACTICES, REBUILT WAR-TORN INFRASTRUCTURE, AND STIMULATED PRIVATE INVESTMENT



Corinth Canal (Greece)



Génissiat Dam (France)

The Marshall Plan (officially the European Recovery Program or ERP) was an American initiative passed in 1948 for foreign aid to Western Europe after the end of World War II. The plan established the Economic Cooperation Administration (“ECA”), whose mission was to boost the European economy, to promote European production, to bolster European currency, and to facilitate international trade via removal of trade barriers (especially the importation of US goods into Europe).

The ECA transferred over US\$13 billion (equivalent to over c.US\$128 billion in 2020) to Europe between 1948-1951, representing approximately 5 percent of US GDP in 1948. Approximately 18 countries received benefits, with the largest recipients being the United Kingdom (c.26 percent of the total), France (c.18 percent) and West Germany (c.11 percent). Similar aid programs were provided in Asia. The aid was used for the purchase of food, staples, fuel and machinery from the US as well as investment in industrial capacity in Europe.

The plan ultimately played a pivotal role in the rapid recovery of Europe, but reasons for the plan’s success have been debated. Aid accounted for c.3 percent of the combined national income of the recipient countries between 1948 and 1951, which implies an increase in GDP growth of less than half a percent. However, it is believed that the plan stimulated other investment needed for the political reconstruction of Western Europe. The National Bureau of Economic Research (NBER) found that the aid itself was not large enough of a financial investment to significantly accelerate Europe’s recovery, but the conditions attached to the aid pushed the European political economy towards market organisation, free trade, and financial stability. The Marshall Plan demonstrates that relatively small-scale fiscal stimulus can be effective by stimulating private investment.

3.4 THE GLOBAL FINANCIAL CRISIS (2008)



45,000 miles of road and bridge improvements



More than 100,000 renewable energy projects



Transit centres including the Fulton Center in New York City

With the onset of the GFC, the global economy was in a downward spiral and many modern economies put in place fiscal and monetary programs to work to resuscitate the economic engine. Key learnings from the GFC include the need to minimise regulatory hurdles for the deployment of funds allocated to infrastructure (see the US experience) and to ensure infrastructure spending is well targeted to deliver positive outcomes (see the Australian experience).

UNITED STATES

The Economic Stimulus Act of 2008 was the first of two stimulus packages in the US after the GFC. Its cost was projected to be US\$152 billion. The Act included tax rebates to low and middle-income taxpayers, tax incentives to stimulate investment and an increase in limits on mortgages eligible to be purchased by government sponsored enterprises (GSEs such as Fannie Mae and Freddie Mac).

The American Recovery and Reinvestment Act of 2009 (“ARRA”) was the second stimulus package in the US after the GFC and was significantly larger (US\$831 billion).

Figure 3: The American Recovery and Reinvestment Act of 2009 (US\$ billions)⁷

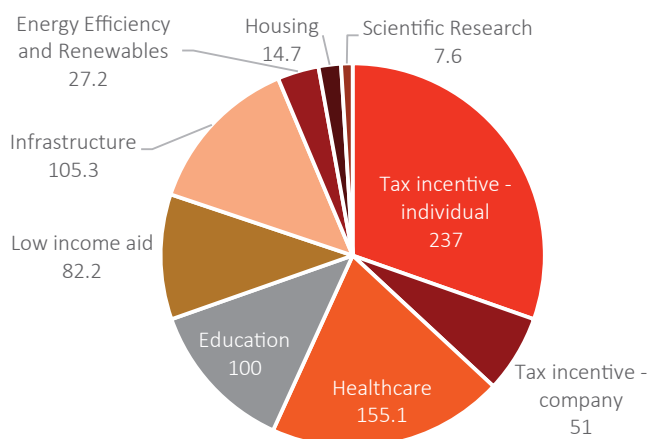
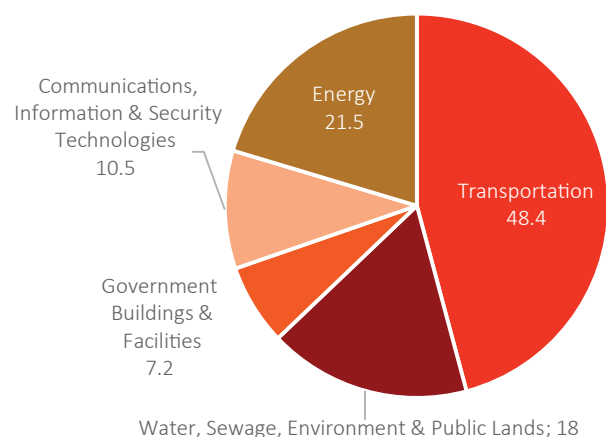


Figure 4: Breakdown of ARRA 2009 Infrastructure Spending (US\$ billions)⁸



⁷ Kenton, W. (2018). American Recovery and Reinvestment Act.

⁸ Kenton, W. (2018). American Recovery and Reinvestment Act.

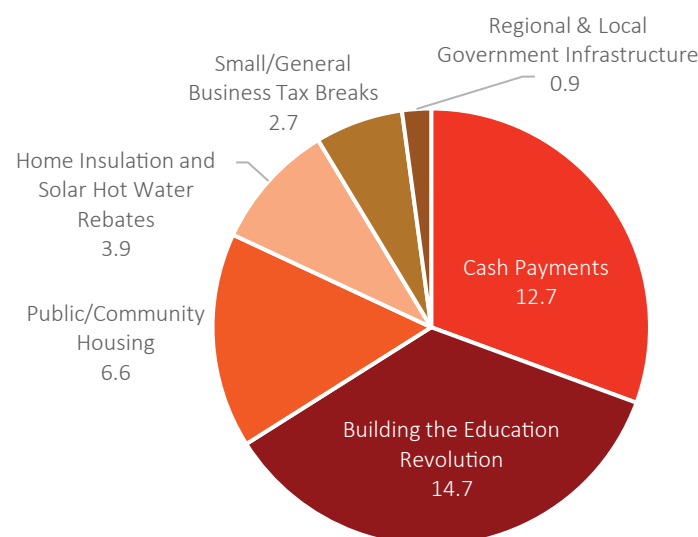
Despite a meaningful allocation to infrastructure, ARRA failed to create any large-scale signature projects as there simply were not enough “shovel ready” infrastructure projects that could be quickly undertaken subject to congressional authorisation. According to the Mercatus Center at George Washington University, the American way of building public infrastructure has one notable speed bump: the National Environmental Protection Act (NEPA), which requires public infrastructure projects with environmental implications to undertake an environmental impact statement (EIS). These analyses take on average 4.5 years to complete. ARRA-funded projects were subject to 193,000 NEPA reviews and 850 EISs. Hence, a majority of the ARRA infrastructure allocation went to remediation and repair work but still preserved and created infrastructure jobs.

According to The Economic Policy Institute, ARRA created jobs for up to 3.3 million people in 2010, when its spending peaked. Of all of ARRA’s components, the Congressional Budget Office found that the two with the biggest bang-to-buck ratio were federal purchases of goods and services and transfer payments to the states for infrastructure spending—when the states spent the money as intended.

AUSTRALIA

The Australian government also implemented two packages of fiscal stimulus in response to the GFC. The first A\$10 billion package was comprised of A\$8.7 billion that would flow to pensioners and low-income families in the form of cash bonuses. The second package was more substantial (A\$42 billion) and focused on longer-term outcomes. It included cash payments and investment, primarily in education infrastructure and public housing, as well as a very small amount of tax reform.

Figure 5: Second Australian Stimulus Package (A\$ billions)⁹



The Australian Treasury estimates that without the stimulus packages the unemployment rate would have peaked at 10 percent rather than 8.5 percent and Australia would not have avoided recession.¹⁰ However, there is significant debate about whether the infrastructure spending was well targeted, with some education projects criticised due to perceived waste and the home insulation program ultimately being shut down due to the tragic death of four people and hundreds of house fires.

⁹ Australian Federal Budget Papers (2009)

¹⁰ <https://treasury.gov.au/speech/the-return-of-fiscal-policy>

4. KEY LEARNINGS

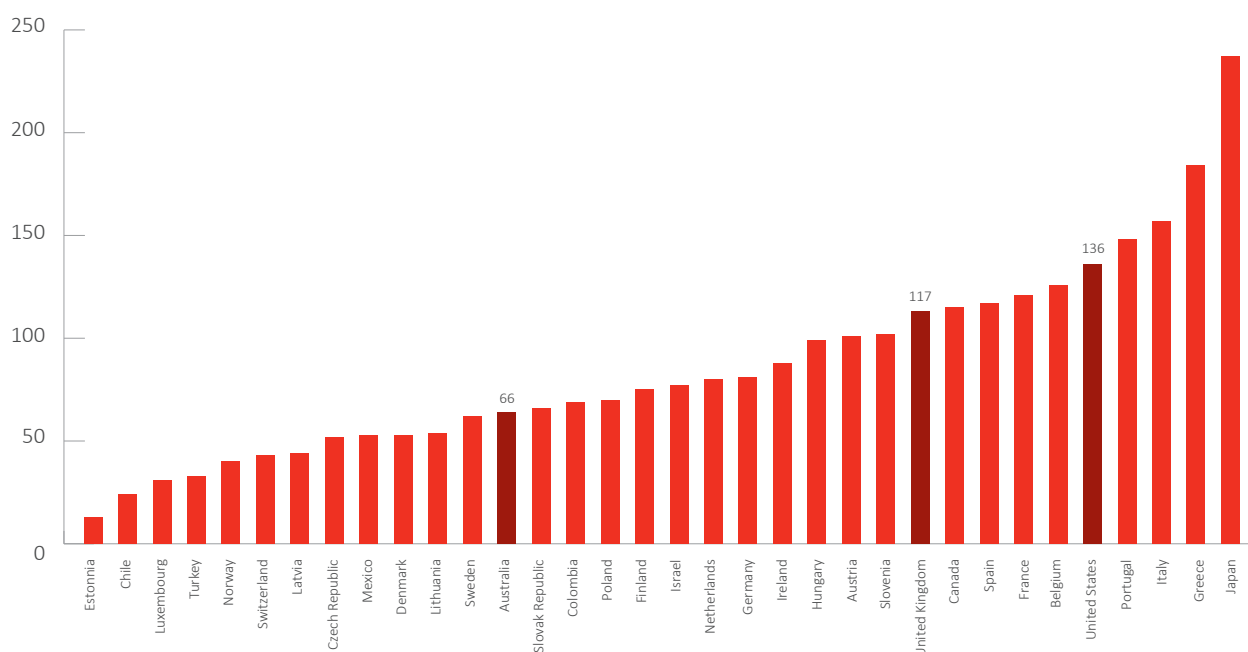
In reviewing the historical fiscal stimulus actions, key learnings can be drawn from how governments are expected to finance such stimuli, the effectiveness of investing in infrastructure, and the role of the private sector in enhancing the effectiveness of fiscal stimulus.

4.1 STIMULUS FUNDING: THE SHIFT FROM INFLATION AND TAXATION TO DEBT FINANCING

The borrowing capacity of countries will be a critical factor affecting their ability to publicly fund fiscal stimulus for their respective economies in response to the COVID-19 pandemic. Average public debt of advanced economies had plateaued at about 100 percent of GDP in the 2010s, compared with 74 percent in 2007.¹¹ In comparison, Australia entered this pandemic with a lower level of general government debt compared to the UK and US as shown below. A debt burden increase for Australia close to one fourth of its GDP in response to COVID-19 would still leave it with lower levels of public debt than the UK and US before the pandemic.

What is clear is that government debt across all jurisdictions is set to rise substantially as a result of the need to fund fiscal stimulus during the crisis, with more likely to be required during the recovery phase to boost productivity and return to robust economic growth rates.

Figure 6: OECD general government debt to GDP (2018)



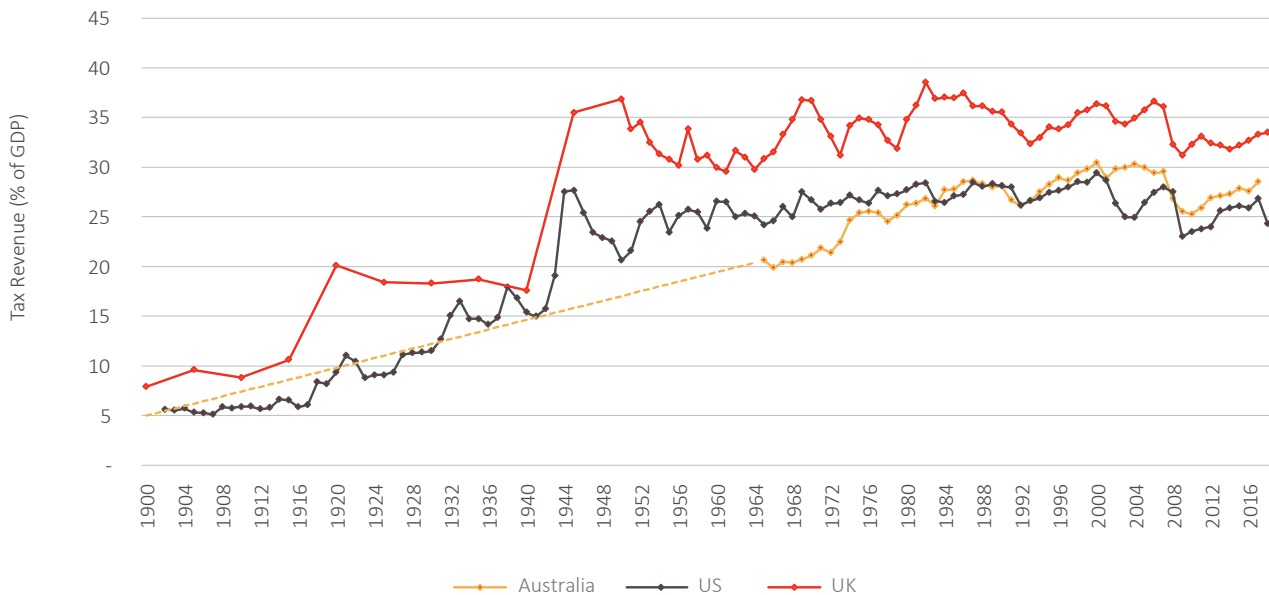
Source: OECD Databank

In Australia, the UK and the US there have been step changes in each country's tax take after periods of unusually high government spending to support economic recoveries. In Australia, World War I (WWI) and the subsequent recovery period doubled the tax to GDP ratio to 11 percent, and World War II (WWII) again doubled the tax to GDP ratio to 22 percent. In the US, WWI doubled the tax to GDP ratio to 11 percent, and WWII increased the ratio from 15 percent to 27 percent. For the UK, WWI doubled the ratio to 20 percent and WWII caused the tax to GDP ratio to double again from 18 percent to 36 percent.¹²

¹¹ IMF Fiscal Monitor, April 2020

¹² Extracted from <https://treasury.gov.au/publication/economic-roundup-winter-2006/a-brief-history-of-australias-tax-system> (Australia), <https://ourworldindata.org/taxation> (UK and US) and <https://www.oecd.org/tax/tax-policy/revenue-statistics-2522770x.htm> in April 2020

Figure 7: Historical tax revenue (% of GDP)



Sources: OECD Databank, Australian Treasury, OurWorldInData

Unlike prior recoveries which involved a debt-busting combination of growth, inflation, spending cuts and the tax increases noted above, governments are likely to be faced with a different set of constraints to repair their balance sheets today:

- **Status quo growth and inflation:** Even prior to the current global recession, the real growth rate of GDP per capita and inflation have been subdued in advanced economies and has declined in emerging market and middle-income economies since 2013.¹³ Neither economic growth nor inflation are emerging as material drivers of balance sheet repair for governments.
- **Spending cuts:** Cutting or reducing certain programmes and public services, while improving fiscal balances in the short run could undermine what is likely to be a fragile economic recovery.
- **Tax rate increase:** The tax to GDP ratios in Australia, UK and US are still below the OECD average of 34 percent and therefore there remains the potential to increase taxes. However, the economic drag of taxes on the economy, particularly in light of increasing international tax competition between jurisdictions to attract highly mobile capital and businesses, may limit the usefulness of simple tax rate increases. It is also unclear whether increases in tax rates have the potential to sustainably increase tax revenues.¹⁴
- **Tax base expansion:** This may take the form of structural tax reform (e.g. broad-based land tax, carbon taxes), temporary austerity taxes (e.g. wealth taxes on the wealthiest individuals¹⁵) or base broadening.
- **Asset recycling:** This involves governments privatising existing infrastructure assets or building greenfield infrastructure with the aim of privatising once projects have been de-risked. The proceeds from the sales are then reinvested into new infrastructure projects.
- **Increase in growth:** Arguably, the best way to achieve government balance sheet repair is to boost tax revenue by supporting robust economic growth through targeted fiscal stimulus.

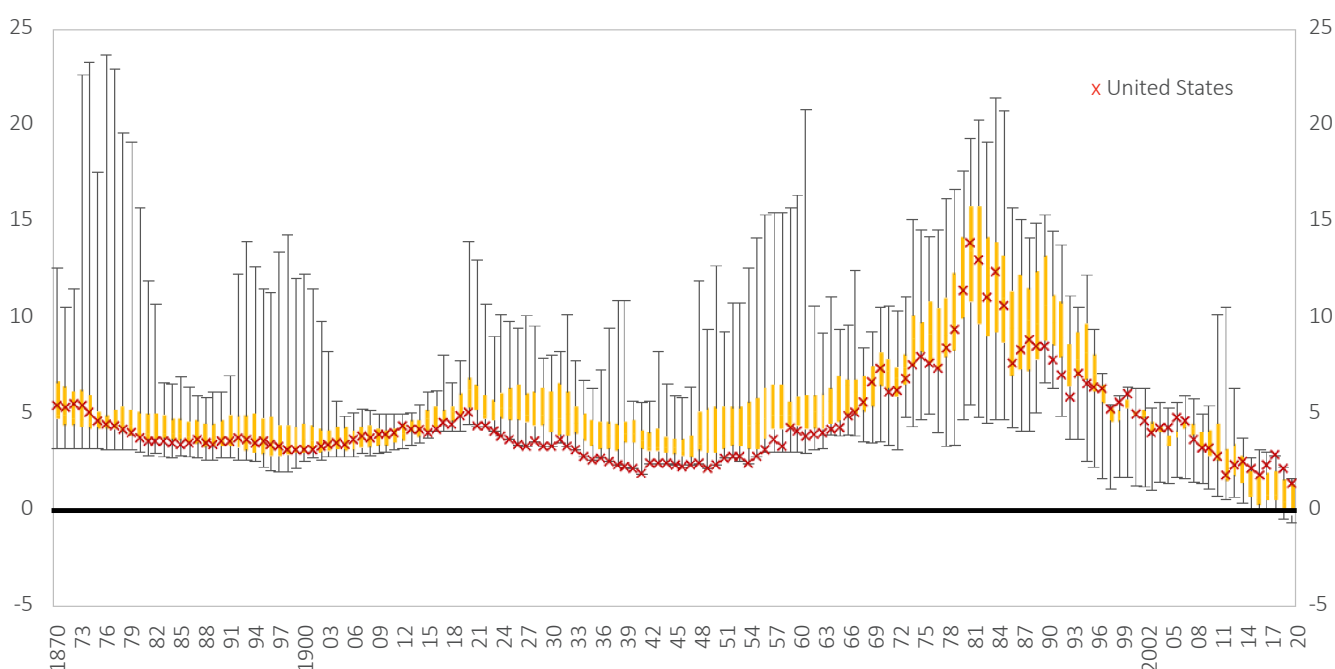
¹³ IMF Fiscal Monitor, April 2020

¹⁴ Working Paper: The US Experience with Fiscal Stimulus: A Historical and Statistical Analysis of US Fiscal Stimulus Activity, 1953-2011 by Antony Davies, Bruce Yandle, Derek Thieme, and Robert Sarvis

¹⁵ A progressive European wealth tax to fund the European COVID response by Camille Landais, Emmanuel Saez, Gabriel Zucman 3 April 2020

The limited levers available to governments mean public balance sheet repair in the wake of COVID-19 is unlikely to be quick and governments are likely to remain highly reliant on debt financing for expenditure that cannot be undertaken by the private sector. On the other hand, current and forecasted low interest rates in the long term (refer Figure 8) is conducive to governments taking a long-term approach to balance sheet repair, affording the opportunity to pursue further fiscal stimulus that can boost productivity and revitalise economies.

Figure 8: Major Advanced Economies: 10-Year Government Bond Yields



Source: Jordà-Schularick-Taylor Macrohistory database; IMF

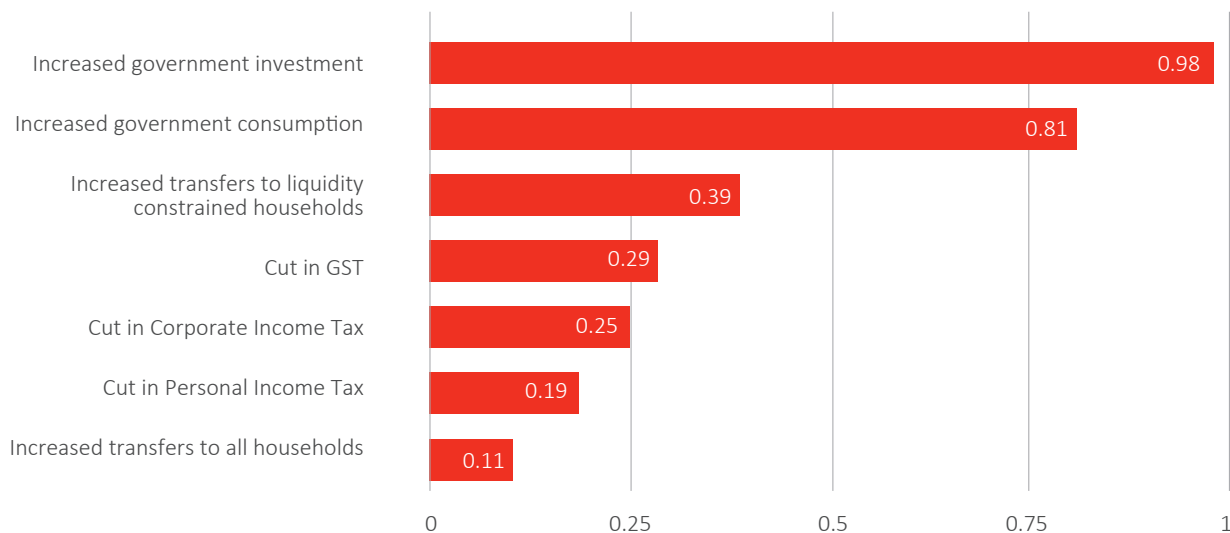
4.2 INFRASTRUCTURE PLAYS A KEY ROLE IN FISCAL STIMULUS

A key learning from historical crises has been that infrastructure spending is arguably the most effective form of fiscal stimulus for governments to deploy. Historical assessments about the effectiveness of fiscal stimulus hinge on relative estimates of the size of what economists call ‘fiscal multipliers’: how much return governments can expect as a result of increased economic output from money spent.

Based on an IMF study, government investment in infrastructure carries a multiplier of 1.3x whereas actions like general transfers have multipliers as low as 0.2x. Figure 9 shows the most recent IMF estimates of fiscal multipliers in Australia. The multipliers reflect the impact of a two-year one percent GDP change in the relevant fiscal instrument in terms of the average change in real GDP over the same two years. This analysis shows that the most cost-effective multiplier is federal investment in productive assets (i.e. infrastructure).

As economies continue to evolve, the infrastructure sectors at the forefront of productivity enhancement continue to change. One sector that has incredible potential to boost productivity in the near term is 5G data infrastructure, which can enhance the efficiency and effectiveness of a broad range of industries, from healthcare to autonomous vehicles.

Figure 9: Relative impact of fiscal multipliers on Australian GDP



Source: IMF, 2019

The IMF also discovered that these multipliers are not static. When interest rates are very low and debt in the private sector – households and businesses – is high, the return from government spending is higher. This has significant implications for the current environment, with private sector debt levels near all-time highs in some countries, most notably the high household debt in Australia and high corporate debt in the US.

However, not all infrastructure stimulus is equal. Because the focus of fiscal stimulus measures is to preserve and create jobs immediately, infrastructure stimulus tends to be focused on “shovel ready” projects rather than projects that will have the greatest long term economic, environmental and social benefits.



CASE STUDY

NEW SOUTH WALES (NSW) STIMULATES ECONOMY WITH INFRASTRUCTURE ASSET RECYCLING

The NSW state government implemented the State Infrastructure Strategy in 2012, citing poor economic performance over the previous decade. They also flagged the need to address dropping productivity through productive infrastructure investment. Focus was placed on greenfield infrastructure projects in the transport, power, water and data sectors. The initial cost estimate was A\$20b over 20 years, which was funded through a 49 percent lease of the State’s electricity network assets. Deloitte Access Economics performed analysis of the strategy in 2014. They estimated a 3.6 percent increase in the ongoing level of Gross State Product (“GSP”) at the end of the program in 2035 (A\$30.9b real increase in GSP) compared to a base level of GSP without the A\$20b of investments funded by asset recycling. The estimate of the benefit was considered conservative, as they did not put a dollar value on broader welfare benefits not captured in GSP.

4.3 THE ROLE OF THE PRIVATE SECTOR IN INFRASTRUCTURE STIMULUS

The effectiveness of infrastructure stimulus can be further improved by leveraging private investment, and more specifically by encouraging the private sector to take risk in areas that the public sector needs. Specifically, this includes infrastructure sub-sectors that are rapidly evolving and require continuous capital expenditure such as data infrastructure, mobility, decarbonisation, utility networks and sustainability infrastructure.

Transferring risk to the private sector in the form of greenfield PPPs and asset recycling has the simultaneous effect of reducing deficits. While already effective individually, greenfield PPPs (where new infrastructure is built and long-term managed by the private sector) and asset recycling (where government divests out of an asset and lets private sector manage and achieve economic return in exchange for upfront monetary proceeds) can be even more effective when pursued in tandem. Governments can choose to strategically recycle capital out of assets that are better risk managed by the private sector and use such recycled capital to serve as primary funding for developing new infrastructure in a PPP framework. With the appropriate risk transfer to the private sector, governments can tap into the expertise of the private sector that serves the best interest of the users of such infrastructure. Greenfield PPP and asset recycling strategies, when executed efficiently, have already proven their merits across numerous projects. QIC has been involved in many successful projects that have used these strategies. Two examples from the US include Long Beach Courthouse, a highly successful greenfield PPP project, and the monetisation of The Ohio State University's parking system, an asset recycling program to fund the construction of new research infrastructure on campus.

Infrastructure subsectors have a varying degree of dependence on government funding. For example, digital infrastructure (e.g., 5G rollout) investment is expected to be private sector led and remain relatively independent from government support. On the other hand, water / wastewater treatment will continue to require government funding and legislative support to get developed further. Renewable energy and distributed infrastructure, in general, are likely to be funded by a hybrid approach, with certain areas expected to be led by the private sector, while others such as fleet electrification, community solar, etc. will continue to require government support.

For sectors in which the government plays a larger role, we can expect to see expansion of existing programs. Reflecting on lessons learned from the GFC, US Rep. Sam Graves (Committee on Transportation and Infrastructure Ranking Member) stated that *“‘shovel-ready’ does not work, and that more effective ways to get federal funding into projects and creating jobs are speeding up the project permitting process and funnelling available funding through good existing programs, such as the Federal-Aid Highway Program and the Airport Improvement Program.”* The Moving Forward Framework, proposed by House Democrats in January 2020, includes the reinstatement of Build America Bonds (created as part of the American Recovery and Reinvestment Act of 2009 and expired in 2011), expanding the national cap on private activity bonds for qualified highway or surface freight transfer facilities and the use of tax credit bonds as an alternative to tax-exempt bonds.

Additionally, governments should seek to channel private capital strategically. Louis Hyman, an economic historian and director of the Institute for Workplace Studies at Cornell, provides an example of an effective PPP program in the Reconstruction Finance Corporation (“RFC”), established in the US in 1932. As the idea of the New Deal was being conceived, the RFC, a public-private entity, set up lending systems to channel private capital into publicly desirable investments by using insurance to guarantee loans. Among other programs, the RFC created the Rural Electrification Administration which issued low interest loans to build electricity transmission infrastructure to rural areas, simultaneously creating jobs in rural areas. In the lead up to World War II, the RFC did for the aerospace industry what it had previously done for houses and electrification, it created channels for private capital investment through the Defence Plant Corporation (“DPC”). By providing incentives in the form of loans and accelerated depreciation allowances, the DPC directed US\$25 billion of private capital into manufacturing over the course of the war. DPC financing is estimated to have added the equivalent of half of the entire pre-war manufacturing capacity to the US by the end of the war. In the post-war period, aerospace subsequently became one of America's largest industries.

A more recent example of a program that successfully encouraged private investment in public infrastructure is the US' National Broadband Plan (2010). This plan, which set aggressive goals for broadband evolution and accelerated the release of radio spectrum. The plan did not require government spending, instead taking a "leave the internet alone" approach. It streamlined the permitting process and provided rights of way, only costing US\$20 million.

5. POTENTIAL INFRASTRUCTURE STIMULUS PACKAGES

5.1 UNITED STATES

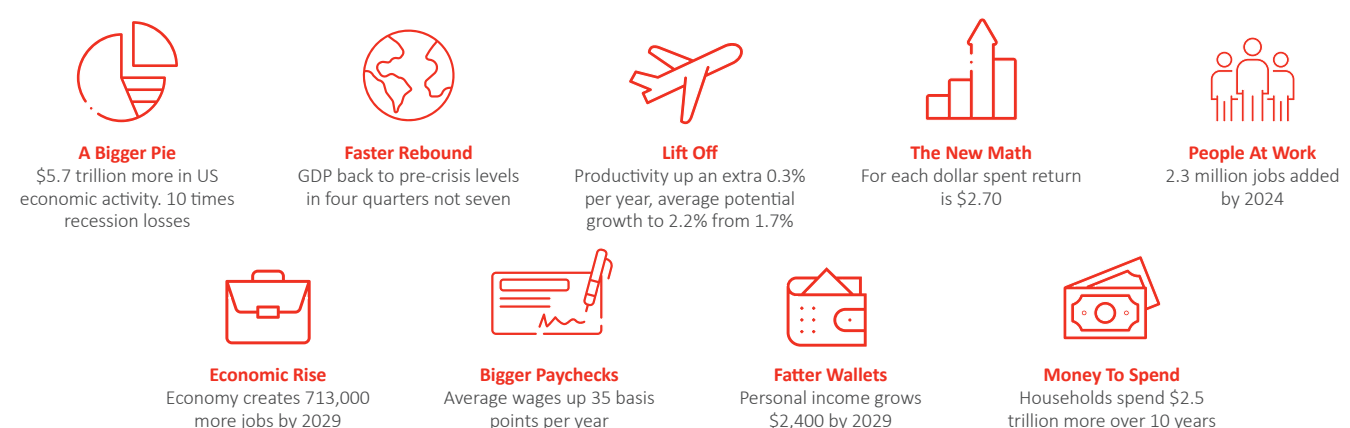
A US infrastructure plan has been contemplated for some time now. President Trump has promoted infrastructure spending since he was on the campaign trail in 2015, but his proposals have failed to garner support despite bipartisan support to repair crumbling infrastructure. However, in early June 2020, President Trump signed an executive order (13927) to provide federal agencies the foundation to speed up environmental permitting in the wake of COVID-19. This executive order is expected to have strong opposition from the environmental groups. Presumptive Democratic nominee Joe Biden has his own infrastructure plan with a focus on climate change.

If there is another phase of COVID-19 pandemic response measures, it is expected to focus on the longer term need for investment and job creation, and therefore could include elements of infrastructure stimulus (the first three phases of measures were focused on addressing the immediate health and economic emergencies). However, the progress that the individual states and cities have made in developing new infrastructure has predominantly been done using local and state level legislative authorities. While slow to begin, now 36 US states have PPP enabling legislations. Some states such as Texas, California, Florida, Maryland, have done the most in developing new public infrastructure using the PPP frameworks.

The Trump administration was rumoured to have a target list of infrastructure projects at the onset of its first term, but an official list has not been released by the White House to date. However, certain agencies such as US Army Corp of Engineers and US Reclamation District have a finite list of projects that have appropriated funding (or likely to have). These projects are likely to be progressed in the near term and are expected to be expedited in the event an infrastructure bill is passed.

The nature and timing of an infrastructure plan remains uncertain, but the current environment of low real interest rates, low materials prices, and high unemployment would lend itself well to one. Today's unemployment rate is near 15 percent and is expected to peak near 20 percent. S&P found that if the US invested US\$2.1 trillion into public infrastructure over 10 years, it would create 2.3 million jobs by 2024 and could add US\$5.7 trillion to GDP over the same time period, increasing annual GDP growth by +0.5 percent. The likelihood of infrastructure stimulus would increase if there is a second wave of COVID-19 in the fall, which S&P estimates could bring unemployment near Great Depression levels of 25 percent.

Figure 10: Estimated impacts of US\$2 trillion in infrastructure over 10 years



While unlikely to pass, on 12 May 2020 Democratic leadership in the US House of Representatives introduced a US\$3.0 trillion package that included US\$30.7 billion to highway and transit agencies and billions more for various broadband initiatives. This is not the first time Democrats have proposed an infrastructure plan. In January 2020, House Democrats put forward the Moving Forward Framework, a five-year, US\$760 billion infrastructure plan focused on modernising highways and improving highway safety (US\$329 billion), public transit (US\$105 billion), broadband and communications (US\$86 billion), clean water and wastewater infrastructure (US\$75 billion), and passenger rail (US\$55 billion), among other sectors. In response to the Moving Forward Framework, Republicans indicated they will be less focused on marrying infrastructure funding with climate goals and more focused on allocating funding to existing programs and streamlining the project delivery process.

While there has not been sweeping infrastructure legislation yet, there are ongoing measures at both the federal and state levels. To replace aging water infrastructure, two bills are currently being progressed by the Senate: the American Water Infrastructure Act (AWIA) of 2020 and the Drinking Water Act of 2020, which provide credit assistance and ease requirements for borrowers to build water infrastructure. Similarly, hydrogen infrastructure buildout is being progressed. At the federal level, a public-private partnership between the Department of Energy and automakers is working to address hurdles to establish hydrogen fuelling infrastructure. At the state level, the California Energy Commission is investing in an initial network of 100 public hydrogen stations across the state.

5.2 AUSTRALIA

In Australia there is currently a broad consensus within the sector and amongst governments that maintenance and smaller capital projects (in the range of approximately A\$50 million to A\$500 million) could be accelerated and commenced most easily to provide stimulus for the economy. For these types of projects, approvals could be sought almost immediately, planning work can be progressed even with current lockdown controls in place, and resources could be deployed within months. Clustering similar smaller projects as part of programs could help to build scale and deploy stimulus faster.

However, to materially improve the long-term productivity of the Australian economy will require the acceleration of larger, more complex projects. The Australian Government has committed to invest A\$100 billion in transport infrastructure through its rolling infrastructure plan, however, this is budgeted to occur gradually over 10 years from 2019-20 and much of this funding remains uncommitted to projects. Australia's Infrastructure Priority List, published by Infrastructure Australia, provides a menu of options for investment that could be brought forward to aid recovery, some of which include:

- Inland Rail (A\$8.4b-A\$10b). 1700km rail link/track upgrade from Melbourne to Brisbane via regional Victoria, NSW and Queensland. Completion 2024–25.
- NSW: Sydney Metro 31 metro stations, 66km rail line in three stages: North-west 2019; City and South-west 2024; Metro West Sydney–Parramatta investigation (A\$12b).
- NSW: WestConnex road, interchange and tunnel projects 2015–2024 for Parramatta Road, M5 and north-south corridors (A\$16.6b).
- NSW: Western Sydney Airport Badgerys Creek Stage 1 single runway, capacity 10 million passengers per year (\$5.3b). Projected cost over three stages to 2064: A\$38b.
- VIC: North East Link (A\$15.8b).
- VIC: West Gate Tunnel (A\$6.7b).
- VIC: Melbourne Airport rail link (A\$5b). Construction begins 2022.
- VIC: Metro Trains (A\$2.3b) 65 high-capacity trains for the network.
- Snowy Hydro 2.0 (A\$3.8b+). Proposed pumped-hydro Snowy Mountains Scheme expansion to provide 2000 MW capacity and seven-day continuous storage capacity.

The Federal Government is currently in the process of assessing where funds will have the most impact and considering which sectors are best placed to support an economic recovery. The Government has announced it will be prioritising a series of major projects totalling A\$72 billion in investment (both public and private) for accelerated regulatory approvals (21-month approvals vs 3.5-year average approvals) via deregulation and better federal-state coordination. Details are still lacking, but the projects are believed to include the Marinus Link transmission line between Tasmania and Victoria, Inland Rail from Melbourne to Brisbane, the Olympic Dam extension in South Australia, town water projects in New South Wales and mining infrastructure in Western Australia.

The recent announcement of Australia's Technology Investment Roadmap suggests that facilitating private sector energy investment will also form a key pillar of the infrastructure stimulus to be rolled out. The roadmap provides a framework to accelerate the adoption of low emissions technologies in Australia, with an emphasis on partnering growth in renewables with continued utilisation of gas, transitioning in the long term to an increased reliance on hydrogen in both the energy and transportation sectors.

5.3 EUROPE

In Europe, on July 21st 2020, the European Commission approved a massive stimulus package that consisted of a €1.074 trillion EU budget for 2021-27, plus a 750 billion euro recovery fund. The deal earmarks 30% of the entire package for climate protection and says all spending must contribute to EU emissions-cutting goals. This could see nearly €550 billion spent on climate over 2021-27, ranging from investments in electric cars, hydrogen, renewable energy, and agriculture. One area, 'Just Transition Fund,' EU's flagship fund for weaning countries of fossil fuels received 17.5 billion euros- less than half of what was previously proposed.

Other green provisions of the EU stimulus package include:

- The recovery fund and the 2021-27 budget must comply with the EU goal of climate neutrality and contribute to the new 2030 emission target.
- The European Investment Bank will become the EU's climate bank; its board will review a capital increase by the end of this year.
- To make farming more sustainable, 40% of the EU's agriculture budget will be dedicated to climate.
- The commission will develop a methodology for monitoring climate spending to detect and prevent greenwashing, and will report annually on green expenditure.

There have also been climate related tax funding measures proposed as part of this package. The deal states that there should be a non-recycled plastic waste levy introduced as of Jan. 1, 2021, and that a carbon border adjustment mechanism and a digital duty should be in place by Jan. 1, 2023. The latter represents almost a two-year delay from what an earlier proposal suggested in terms of digital taxation.

6. IMPLICATIONS FOR INSTITUTIONAL INFRASTRUCTURE INVESTORS

6.1 STIMULUS IS MOST EFFECTIVE WITH PRIVATE SECTOR COLLABORATION

As we saw from PPP programs like the Reconstruction Finance Corporation (“RFC”) and the US National Broadband Plan, infrastructure stimulus does not necessarily require large amounts of government spending to create jobs and deliver long term economic, environmental and social benefits. These programs were successful because they directed private capital to necessary projects by providing incentives and a streamlined process for private investment. These precedents demonstrate how governments can enhance fiscal multipliers by leveraging the vast amount of dry power currently sitting in infrastructure private equity funds, which Preqin estimates to be US\$212 billion at the end of 2019.¹⁶

According to World Bank’s 2018 report “When (and when not) to use PPPs,” involving the private sector through PPPs can tackle some of the complex infrastructure project delivery challenges with an appropriate incentive structure in these projects. Private investors are generally well placed to manage operational and construction risks because they have a financial interest in limiting costs and delays. Hence, the efficiency of private sector capital can be more significant in larger, more complex projects, if structured with equitable risk sharing, than the ones with straightforward risk profiles. Private investment should be directed towards projects that require dealing with multitudes of stakeholders, regulatory and approval bodies, and are technically complex. This also avoids the problem of having an outsized portion of public funds being directed into a project that may have heavily localised benefits. For smaller projects there may be less disparity in the effectiveness of public and private capital.

6.2 IMPLICATIONS FOR THE PRIVATE INFRASTRUCTURE INVESTMENT LANDSCAPE

Interest in traditional infrastructure PPPs and asset recycling could be renewed by additional fiscal stimulus. Whether or not direct infrastructure stimulus occurs, expansion of public deficits could renew interest in long awaited asset recycling programs and PPPs for traditional infrastructure assets (roads, public transit, water, etc.). In the US, national concern about the condition of infrastructure, a growing track record of PPPs at the state and local level, and availability of private capital focused on infrastructure are contributing to this momentum. In Australia, the federal government used grants to encourage state and local governments to pursue asset recycling programs. According to a study by the Reason Foundation, PPP leases of existing infrastructure assets in the US could generate US\$720-885 billion. Currently, a pipeline of well-prepared, bankable projects is constrained by political scepticism and / or a lengthy review and permitting process. Fiscal stimulus measures, especially if combined with streamlined approval processes and investment allowance regimes that account for technological improvements, climate resiliency, and reduction of carbon footprints, could catalyse traditional infrastructure investment. In the absence of direct stimulus, investors have the ability in geographies such as Australia and some US states (e.g., Pennsylvania) to invest in infrastructure projects through unsolicited bids.

Infrastructure stimulus would also present an opportunity to advance climate resiliency projects and progress climate goals.

An Oxford University study¹⁷ found that ‘green stimulus’ – projects that cut greenhouse gas emissions while also stimulating economic growth – create more jobs, deliver higher short-term fiscal multipliers, and lead to increased long-term cost savings as compared to traditional stimulus. In the US, 13 Federal agencies published the National Climate Assessment in 2018 which estimated that if significant steps are not taken to address climate change, the resulting damage could reduce the size of the economy by as much as 10 percent by the end of the century.

The challenge for governments is to balance ‘shovel-ready’ projects that can boost growth and jobs relatively quickly with climate-oriented projects. However, there is precedent of effective ‘green stimulus’. The ARRA included green infrastructure investment and funding for research and development in renewable energy and energy efficiency. During the GFC, automakers also agreed to higher fuel efficiency standards in order to receive financial lifelines. It remains to be seen whether and to what extent governments will be able to advance climate goals through economic stimulus plans in the current crisis. In the US,

¹⁶ Preqin Press Release “A Banner Year for Infrastructure in 2019” 10 January 2020

¹⁷ Oxford Smith School of Enterprise and Environment, “Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?” 4 May 2020

proponents argued for airlines receiving Federal aid to commit to cutting greenhouse gas emissions, but this provision did not pass. Future stimulus measures could include aspects of the ‘Green New Deal’ proposed by US Democrats, which entails investments in renewable energy, transmission upgrades, and transportation system improvements. In Europe, the Green Recovery Plan provides a roadmap for integrating a COVID-19 economic recovery plan with the Green Deal. The Green Recovery Plan includes significant investment in research and innovation in sustainability, which will accelerate the need for circular economy infrastructure investment such as waste-to-value projects and hydrogen infrastructure.

Sectors where private sector capital is efficient and competitive. Some sectors that have significant near-term investment requirements, and therefore where private capital could be sought and deployed quickly include:

- Digital infrastructure.** The COVID-19 pandemic has accelerated the digitalisation trend by catalysing work-from-home, e-commerce, e-learning, telemedicine, and other online content consumption such as virtual live events. Communications infrastructure is lagging, and private investors have historically played an important role in digital buildout. While much of hard infrastructure is government owned, digital networks have generally been privately built and funded. According to trade group US Telecom, investors have poured over US\$1.4 trillion into the internet network, resulting in the US having 20 percent of the world’s total internet infrastructure. Yet McKinsey estimates that investment in digital infrastructure is not growing fast enough to meet projected needs driven by growing population and usage, leaving an investment gap. McKinsey estimates that digital infrastructure investment needs to rise between 6-11 percent on an annualised basis between 2018 and 2030. The telecommunications industry – which has been the main funder of digital infrastructure to date – will not be able to independently fund the continued expansion of 5G, fibre, and other digital infrastructure. Infrastructure investors have already stepped into certain sub-sectors such as telecom tower spin-offs and data centres, which are beginning to be well understood. However, other areas such as rural broadband present more challenging financial returns. Unresolved, this could further widen the digital divide and inclusion gaps. The Rural Electrification Administration provides a useful precedent for how the government can leverage private sector capital to solve this problem. Infrastructure investors could also provide funding for asset-light businesses with opportunities including communications software, telehealth, education technology, and fintech.
- Logistics and automation.** The COVID-19 pandemic has accelerated the shift to online consumer spending thereby increasing the urgency of investment in logistics and warehousing infrastructure. Private companies including Amazon and UPS have invested heavily in getting parcels to customers faster including sorting centres, robotics and airplanes. These networks are heavily integrated with public infrastructure and could be considered a public service. The sector is also poised for significant technological change. Based on analysis of sectors with the most predictable physical activities, McKinsey estimates that the transportation and warehousing industry has the third highest automation potential of any sector (after accommodations, food service and manufacturing). In addition to a large warehouse footprint, this requires network efficiency (being able to move products quickly between centres, delivery vehicles, etc.) The COVID-19 pandemic has accelerated the trend of near-sourcing¹⁸, which can provide savings in transportation and logistics costs, better protect intellectual property, and decrease delivery time. But this will require shifts in existing supply chain and distribution networks.
- Healthcare resiliency.** The COVID-19 pandemic has highlighted inadequacies in existing health systems even in developed countries. As a result, preparedness for similar outbreaks will be reconsidered and supply chains for critical health equipment will be re-examined. Infrastructure investors had already begun to invest in physical healthcare infrastructure such as aged care and acute care facilities. In addition, healthcare data and information systems will require investment to support contact tracing, medical records, and telemedicine. US government has provided direct grants to the healthcare providers (both non-profit and for-profit) to weather the current crisis and is expected to provide additional funding in various forms (grants, loans, etc.) to develop further resiliency in the healthcare supply chain. Such incentives can be combined with private capital to increase the scale of investment and achieve this resiliency in the system much faster.

¹⁸ Near-sourcing refers to businesses placing operations and manufacturing close to where end products are sold, in contrast to outsourcing which is focused on moving manufacturing operations to low cost locations.

7. CONCLUSION

As historical crises have shown, unique investment opportunities can arise out of event-driven disruption. In the aftermath of COVID-19, we expect there may be unique opportunities to partner with governments to support economic recovery and public balance sheet repair.

In response to the pandemic, we have seen some of the largest fiscal stimulus packages since WWII. So far, these packages have been focussed on short term support measures to bridge liquidity issues and offset depressed levels of household consumption and business investment.

As attention turns toward economic recovery, we believe fiscal stimulus will increasingly focus on accelerating the pipeline of productivity enhancing infrastructure projects. It is an ideal time for governments, in partnership with the private sector, to increase their commitment to long-term 'nation building' priorities such as energy decarbonisation, network resilience, digital connectivity, transport network capacity and water security.

In some countries this may be underpinned by a further recycling of assets from government and a potential increase in public private partnerships, which were an important component of economic recovery efforts in prior crises.

As observed in historical fiscal stimulus measures, investments in infrastructure have a multiplier effect on general economic activity and job creation.¹⁹ In the past, the public sector has borne the predominant burden of funding infrastructure development. However, given the current debt load in Western economies, it will be beneficial and originally an imperative to have private sector participation to provide funding, risk-sharing, and asset management in the face of the COVID-19 disruption. Governments can do their part by creating appropriating policy and legislative frameworks that allow for such public and private participation to be effective (e.g., RFC in the New Deal programs).

Fiscal stimulus measures continue to be implemented and legislators are evaluating additional measures that could come to fruition over the next 12 to 18 months. QIC continues to actively monitor such developments across Australia, North America and Europe, and is using its resources to identify investment opportunities for our clients in these geographies resulting from Government fiscal stimulus.

¹⁹ Near-sourcing refers to businesses placing operations and manufacturing close to where end products are sold, in contrast to outsourcing which is focused on moving manufacturing operations to low cost locations.

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