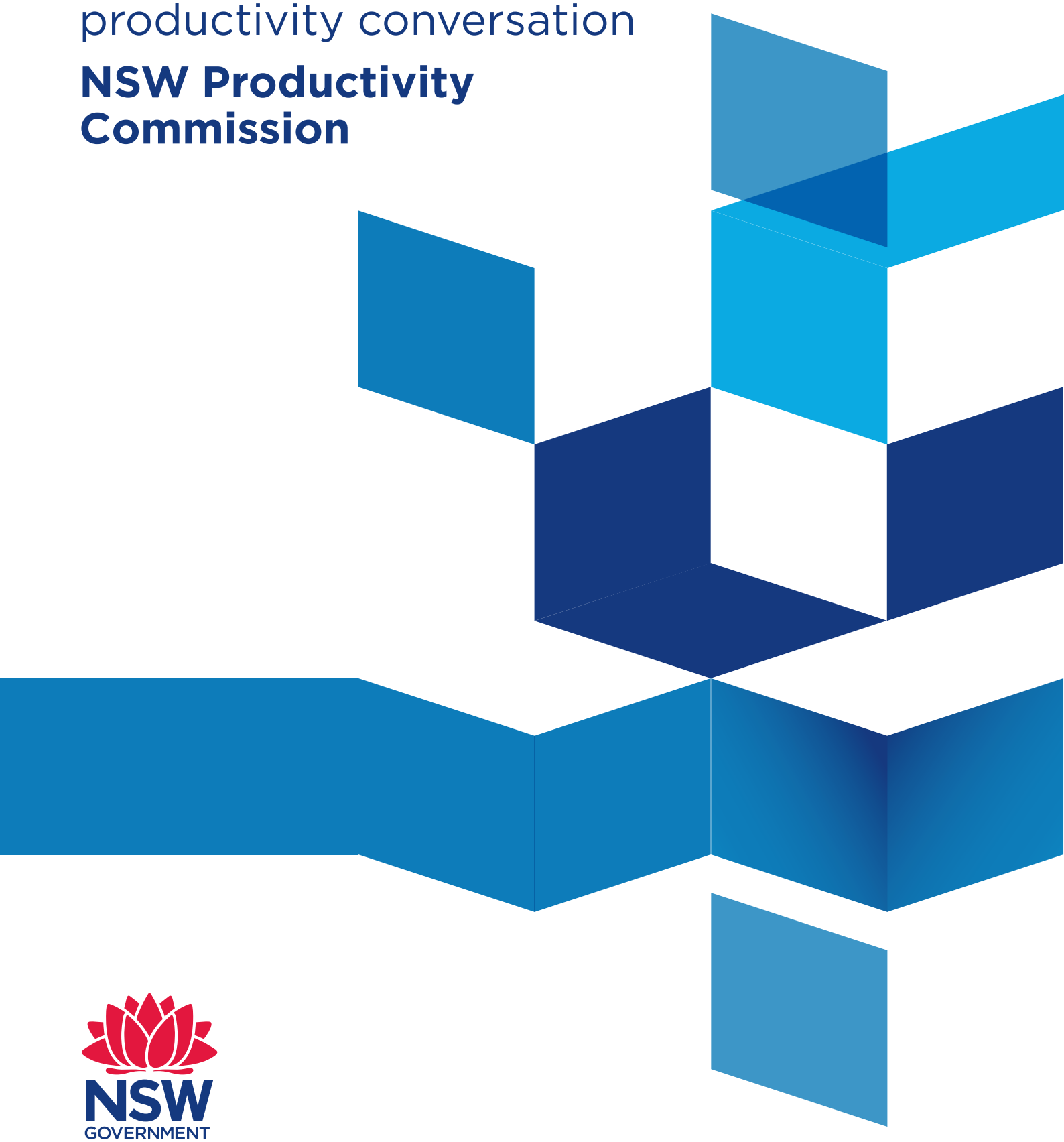
October 2019

Kickstarting the productivity conversation

NSW Productivity Commission



NSW GOVERNMENT

Commissioner's Message

This Discussion Paper is the first major publication produced by the NSW Productivity Commission and its main aim is to start a conversation about how the NSW Government can best support continued growth in the State's living standards.

A number of recent reports have outlined the productivity challenges facing Australian governments. These include an ageing population, the increasing costs of healthcare, energy and housing. This is the first document that outlines the specific productivity challenge New South Wales faces.

When I was appointed, the Treasurer tasked me with spearheading a reform agenda focused on four core themes:

- making it easier to do business
- lowering the cost of living
- making housing more affordable, and
- making NSW the easiest state to move to.

This Paper is just one component of a much wider body of work being developed across the NSW Government to give effect to the Premier's Priorities and other NSW Government objectives.

The private sector is a central driver of productivity. This is where the innovations and strategies needed to propel our economy into the future, and the investment that extends the capacity of our economy will come from. Government's role is to ensure the rules are set in a way that best fosters an innovative spirit, enabling business to meet consumer preferences. Rapidly advancing digital technologies will be a critical enabler of productivity by expanding economic opportunity, particularly for regional communities.

As the Nobel Prize-winning economist Paul Krugman said: "Productivity isn't everything, but in the long-run it is almost everything." The way we address our productivity challenges will shape our economy and the living standards of New South Wales households in the decades to come. The choices that governments make in the following years will also determine whether our grandchildren grow up in a state that continues to enjoy some of the highest living standards in the world.

In issuing this Discussion Paper, the NSW Productivity Commission is not outlining NSW Government policy. We're starting a community conversation about how we best respond to these challenges and about the choices we face.

This is the first step in developing a productivity reform agenda for New South Wales. Our next report, a New South Wales Productivity Green Paper, will be shaped by the issues outlined in this paper and the feedback we receive from stakeholders and the wider community over the coming months. A further round of consultation will then inform the development of a Productivity White Paper, which will include clear recommendations for the NSW Government as it shapes its productivity reform agenda.

Peter Achterstraat AM
NSW Productivity Commissioner

Secretary's Message

Dear Commissioner,

It is with great pleasure that I receive the Productivity Discussion Paper, the first major publication by the New South Wales Productivity Commission.

Release of the Discussion Paper provides a platform to start a conversation around productivity to ensure the right priorities have been identified and define what policy options should be considered.

New South Wales has always been a strong economic force. In the last five years, we have outperformed the nation in terms of economic growth and job creation. With a sound policy environment, record spending on the State's infrastructure program, and high workforce participation, we have enjoyed the opportunities and progress that have allowed us to prosper.

We cannot, however, rest on our laurels or fail to acknowledge the risks to this success. Productivity growth has declined in New South Wales, as it has in Australia and much of the world, since the turn of the millennium.

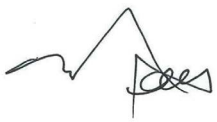
Declining productivity growth, along with other risks outside our control, including an ageing population and lower terms of trade, means more is needed to overcome the challenges of tomorrow. A new productivity reform agenda offers us the opportunity to meet these challenges so New South Wales continues to be a great place to live, work, start a business, and raise a family.

This Discussion Paper is an important step in starting the conversation about the need to drive ongoing reform in New South Wales.

The Discussion Paper will be followed by Green and White Papers, set for release in 2020. These papers will complement the vision for the NSW economy set out in the Economic Blueprint, which will present long-term strategies to deliver the next phase of economic growth.

I look forward to future publications from the NSW Productivity Commission as part of the ongoing work to deliver future growth and prosperity for NSW citizens.

Kind Regards,



Michael Pratt AM
NSW Treasury Secretary

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Glossary

ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
ACT	Australian Capital Territory
ADG	Apartment Design Guide
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
AI	Artificial Intelligence
AMR	Automatic Mutual Recognition
ANZSCO	Australian and New Zealand Standard Classification of Occupations
API	Application Programming Interface
AQF	Australian Qualifications Framework
ASQA	Australian Skills Quality Authority
ATAR	Australian Tertiary Admission Rank
BCA	Business Council of Australia
BITRE	Bureau of Infrastructure, Transport and Regional Economics
CASA	Civil Aviation Safety Authority
CBD	Central Business District
CEPA	Cambridge Economic Policy Associates
CET	Clean Energy Target
CIE	Centre for International Economics
COAG	Council of Australian Governments
CoPS	Centre of Policy Studies
CPD	Continuing Professional Development
CSIRO	The Commonwealth Scientific and Industrial Research Organisation
CSO	Community Service Obligation
DA	Development Application
DPE	Department of Planning and Environment
DPI	Department of Primary Industries

DPIE	Department of Planning, Industry and Environment
EIS	Emissions Intensity Scheme
FCA	Financial Conduct Authority
GDP	Gross Domestic Product
GPOP	Greater Parramatta and Olympic Peninsula
GPS	Global Positioning System
GSOO	Gas Statement of Opportunities
GSP	Gross State Product
GST	Goods and Services Tax
HELP	Higher Education Loan Program
ICT	Information and Communications Technologies
IGR	Intergenerational Report
INSW	Infrastructure NSW
IPART	Independent Pricing and Regulatory Tribunal
ISP	Integrated System Plan
IWCM	Integrated Water Cycle Management
LAHC	Land and Housing Corporation
LEP	Local Environment Plan
LGA	Local Government Act
LGCI	Local Government Cost Index
LNG	Liquefied Natural Gas
LWU	Local Water Utility
MEB	Marginal Excess Burden
MFP	Multifactor Productivity
NAPLAN	National Assessment Program – Literacy and Numeracy
NEG	National Energy Guarantee
NEM	National Electricity Market
NOLA	National Occupational Licencing Authority
NPR	National Performance Report
NRAR	Natural Resources Access Regulator
NSW	New South Wales
NZ	New Zealand
O*NET	Occupational Information Network
OECD	Organisation for Economic Co-operation and Development

OLG	Office of Local Government
PC	Productivity Commission
PIC	Place Infrastructure Compact
PISA	Programme for International Student Assessment
RABs	Regulated Asset Bases
REDS	Regional Economic Development Strategies
RET	Renewable Energy Target
RTOs	Registered Training Organisations
SCATS	Sydney Coordinated Adaptive Traffic System
SICs	Special Infrastructure Contributions
SIS	State Infrastructure Strategy
SOC	State-Owned Corporation
TAFE	Technical and Further Education
ULV	Unimproved Land Value
UK	United Kingdom
US	United States
VET	Vocational Education and Training
WA	Western Australia
WHS	Workplace Health and Safety
WTP	Willingness to Pay

We're starting a conversation about productivity and you're invited to have your say

The Office of the NSW Productivity Commissioner (the Commission) was established to drive productivity improvements that enhances the lives of all residents, businesses and communities in New South Wales. Stakeholder participation in the policy-making process is critical to achieving this goal.

We want meaningful community discussion about why we need to make changes, the long-term benefits, areas of immediate focus, and designing and implementing changes. We are releasing this Discussion Paper, ahead of the development of detailed reform options, to enable community input early in the process and to better understand the positive and negative impacts of reform, as well as transitional issues.

The Commission encourages interested parties to make written submissions by 27 November 2019. These can be of any length and do not need to cover every issue raised.

General discussion questions

- Do you agree with the six focus areas identified—outlined in Chapter 3 and subsequent chapters—for a productivity agenda?
- Do you agree with the issues and challenges identified for each focus area? What other issues should we consider?
- What reform options should we consider (see areas for specific feedback identified throughout the Paper)?

Written submissions can be submitted to: http://productivity.nsw.gov.au/. Submissions may be published on the Commission website unless accompanied by a request for confidentiality.

The Commission will also seek additional feedback through targeted face-to-face consultation. This feedback will be used to develop a productivity reform Green Paper for publication in the first half of 2020, followed by the release of a White Paper later in the year. The White Paper will include a recommended reform agenda for consideration by the NSW Government.

Executive summary

To secure the best future for New South Wales, it's time we started making our own luck

Australia and New South Wales benefitted greatly from a once-in-a-generation surge in the terms of trade between 2003-04 and 2011-12, which supported improvements in living standards. New South Wales has long been the economic hub of Australia, and has been the destination of choice for the most productive industries, businesses and workers. This economic activity has delivered high wages and living standards for communities across the State.

But we cannot be complacent. China's economic growth has slowed, the terms of trade boom has subsided, and real wage growth has stagnated. Business investment has fallen as a share of the economy. Annual productivity growth in New South Wales has slowed from more than two per cent throughout most of the 1990s to less than one per cent in the past decade.

We also face challenges in the future. An ageing population means a smaller proportion of the population will be working to support the living standards of our communities. Automation and other technologies present opportunities but will also disrupt labour markets. Growth must therefore be sustainable to manage future challenges and safeguard the living standards of future generations.

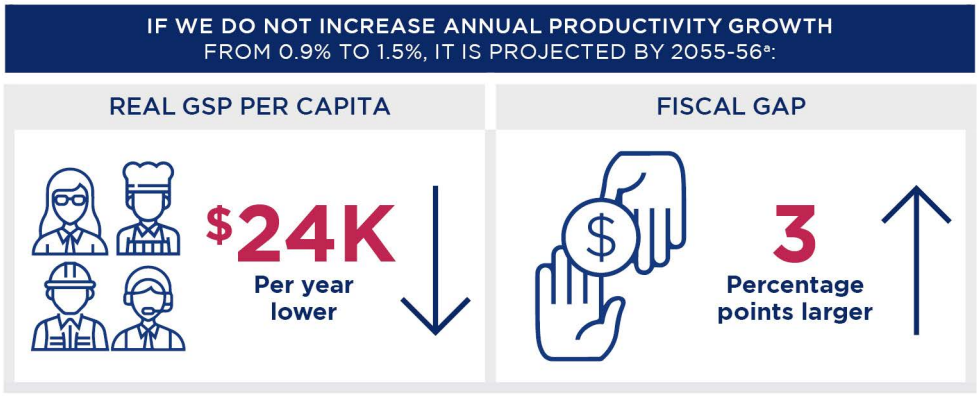
These are global issues, but we must take a proactive approach to solving them for our communities. Productivity growth—working smarter not harder—is the only reliable way to deliver long-term improvements in living standards. It's time to make our own luck.

We can no longer rely on traditional economic levers

With interest rates at record lows and a massive pipeline of investment in infrastructure already underway, the usual economic levers are reaching their limit. Creating a more productive New South Wales is one lever we can still pull to drive long-term, sustainable growth and improvements in real incomes.

Productivity growth is not just about maximising economic output. To achieve sustainable improvements in living standards we need to ensure that everyone can participate in the economy and reach their full potential. Any negative impacts of reform must also be appropriately managed.

FIGURE ES.1: IMPACT OF PRODUCTIVITY IMPROVEMENTS



[a]NSW Treasury preliminary modelling. Note: 0.9 per cent is current annual average growth rate since 2011-12; 1.5 per cent is the long run annual growth rate assumed by the IGR.

The high standard of living enjoyed by citizens of New South Wales is thanks in part to previous reforms such as floating the dollar in 1983, the National Competition Policy reforms of the 1990s, introduction of the GST in 2000, and significant investments in infrastructure. These reforms have been credited with creating the conditions that supported increasing productivity growth, demonstrating that a focused effort by governments can produce significant benefits to households and businesses.

We need to be bold and lead the rest of the country

Governments can improve productivity in a number of ways and business and economic leaders—including Commonwealth Productivity Commission Chairman Michael Brennan and Reserve Bank of Australia Governor Phillip Lowe—have urged governments at all levels to focus on improving productivity.

State governments have an important role to play in supporting productivity by creating the conditions that help businesses invest, compete and innovate. They also provide services to educate the current and future workforce with the skills needed in a modern economy, and the infrastructure which links business to markets and makes our cities and towns liveable.

Momentum for action is growing, and these challenges are not unique to New South Wales or Australia. We want to lead by example by developing a productivity reform agenda. This will require understanding and support for what needs to change and why, not just from policy makers but the community as well. It will be a journey to reach this point, and to help get there we need to discuss current challenges and their potential solutions.

That's why we are kickstarting a conversation about the choices we make now to set us up for longer-term gain and the future we want. A future where we all work smarter, not harder, and nobody is left behind.

This Discussion Paper canvasses the case for productivity reform and issues for feedback. It is based on consultation and the Commission's research. It is intended to frame public discussion and does not represent the position of the NSW Government.

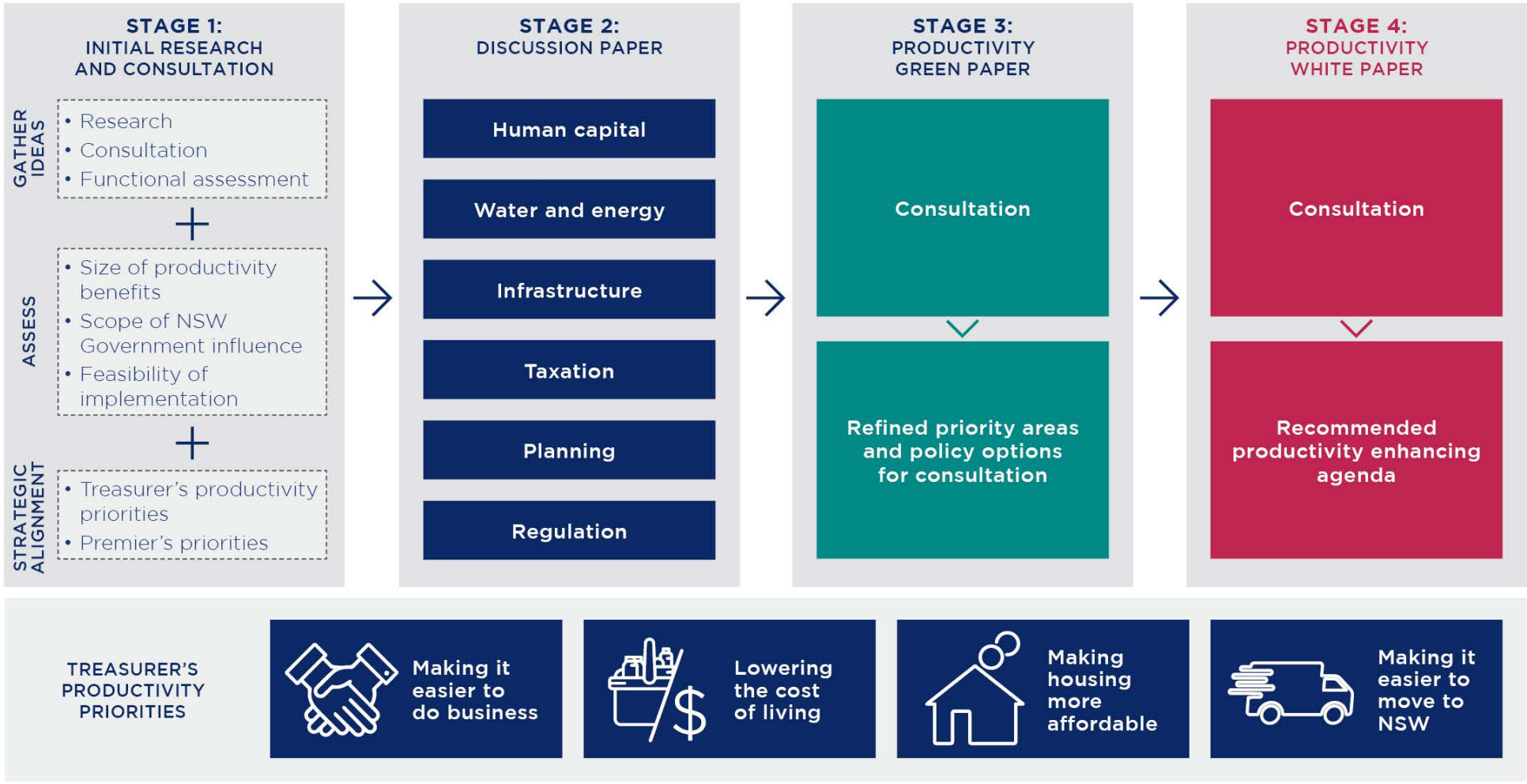
Everyone should have a say in shaping our shared future

There are many ways to improve productivity, but meaningful change is hard and not everything can be done at once, so a strategic agenda is required to focus and galvanise effort.

The Productivity Commission has identified six draft productivity priorities (see Figure ES.2). These were settled on following careful analysis of: policy levers with potentially large productivity gains, the NSW Government's scope to influence outcomes, and how each priority supports the Commission's initial focus areas. These priorities are not exhaustive or representative of NSW Government policy.

There are many other potential areas of reform, and the Commission is seeking feedback on whether the right priorities have been identified and what policy options to consider. This feedback will inform the development of a Productivity Green Paper, outlining policy options for feedback. These options will then be refined into recommendations for the NSW Government contained in a Productivity White Paper. Everyone should have a say in shaping our shared future and how we get there.

FIGURE ES.2: IMPACT OF PRODUCTIVITY IMPROVEMENTS



Building human capital for a modern and evolving economy

Technological innovations, demographic changes, and shifting preferences increasingly require people to upskill and reskill throughout their working lives. Rapid technological progress offers promising economic opportunities but depend on a suitably skilled workforce. If the productive capacity of our workforce is to continue growing, educational and training systems will need to adapt. Not doing so risks leaving behind parts of the community.

ISSUES	DISCUSSION QUESTIONS
Lifting school performance and education outcomes	
• The most recent PISA results (an OECD school performance benchmark) show declining reading, mathematics and science performance in NSW schools.	• How can the NSW Government improve student outcomes and the performance of NSW schools? • What are the core competencies that a modern school system should provide, given the increasing digitalisation of the economy?
Improving Vocational Education and Training	
• The VET sector's ability to provide effective training programs for the current and future economy is being hampered by excessive complexity and a lack of flexibility.	• Do the issues and challenges identified in this section reflect the challenges facing the VET sector in delivering skills for a modern economy? What can be done to address these challenges? • How could governments raise the profile of VET, and shift cultural attitudes towards the sector?
Ensuring labour market regulation works towards building human capital	
• Labour market regulation can protect consumers and minimise risk. Requirements that are overly stringent can, however, reduce market competition and consumer choice.	• How can labour markets facilitate the need for future workers to continually undergo retraining or upskilling in response to technological advancements and innovation?
• Occupational licensing requirements may represent unnecessary barriers to entry for potential market entrants.	• How should occupational licensing regimes deliver their objectives without imposing unnecessary regulatory burden?
• Continuing Professional Development (CPD) requirements for some licensed professionals may represent an excessive administrative burden.	• What do best-practice CPD arrangements look like?
• Mutual recognition schemes can improve labour mobility across state and territories.	• How could mutual recognition arrangements be improved to better facilitate interjurisdictional labour flow?

Better matching healthcare work with skills and qualifications

- Health professionals may not be working at the top of their scope of practice due to regulatory and cultural barriers.

- What regulatory and cultural barriers could be preventing health professionals from optimal performance?

Reliable, sustainable and productive use of our water and energy

Water and energy are essential to all sectors of the economy, underpinning business operations and household living standards. Population growth and climate variability, however, pose challenges to the reliable, sustainable, and productive use of these resources. The right governance and regulatory frameworks will support appropriate future investment in these sectors. Productivity payoffs will come from using water and generating energy as efficiently and effectively as possible. This will put downward pressure on prices for consumers while managing the risks posed by population growth and increasing climate variability.

Productivity and sustainability objectives can be complementary where we can produce the same output with fewer inputs of natural resources. This increases measured productivity while also helping to ensure that the current generation's consumption does not compromise that of future generations.

	ISSUES	DISCUSSION QUESTIONS
WATER	**Improving governance in the rural and urban water sectors** 	
	• Governance of the rural and urban water sectors is complex. Functions are spread across government departments, independent regulators, and state-owned corporations. • This can create overlap and gaps in roles and responsibilities, and coordination problems.	• How could New South Wales improve governance and institutional arrangements for water management? • How could the State improve water planning, and what are some possible ways to: i. clarify the roles and responsibilities of State Owned Corporations (SOCs), government, and regulators in water planning? ii. increase integrated water cycle management approaches where they are cost-effective?

WATER

Improving service delivery in regional areas

- Bills for water and sewerage services in regional NSW are higher on average, than in metropolitan NSW and regional Victoria.
- These outcomes are linked to the challenges faced by largely council-run local water utilities.

- How could the efficiency of local water utilities be improved to increase water security and quality, and lower bills for regional communities?

Expanding the role of water recycling and greater efficiency

- Water recycling and greater water-use efficiency can play a significant role in achieving sustainable growth, alongside traditional measures to increase supply.
- Metropolitan New South Wales uses more water per person than metropolitan areas of Queensland and Victoria, benchmarking data indicates.

- What are the barriers to New South Wales achieving larger scale and cost-effective water recycling?
- How can the NSW Government encourage households and businesses to be more water efficient, particularly in metropolitan New South Wales?

ENERGY

Improving asset utilisation and demand management

- Electricity prices have risen over the past decade due to a combination of significant network investment, rising demand, commodity prices, and the closure of coal generators.
- State-based policies are putting downward pressure on electricity prices but there is scope for further initiatives to improve efficiency.

- Are there further steps we can take to achieve greater efficiency in network businesses and environmental programs in the New South Wales?
- How could electricity demand management be further improved in New South Wales?

Lowering prices through investment certainty

- Policy uncertainty about greenhouse gas reduction is limiting investment across the National Electricity Market and putting upward pressure on prices.

- How can New South Wales work to reduce uncertainty in electricity generation and emission reduction requirements to improve the investment outlook?

ENERGY

Efficiently determining electricity reliability standards

- Reliability is important, but it is critical to avoid ad hoc policymaking and inefficient expenditure.
- Cost-effective solutions and consumer willingness to pay for reliability provide guidance for evaluation.

- What is the best framework for future evaluations of generation and network reliability?
- What additional measures, if any, can we take to cost-effectively improve reliability?

Ensuring secure and reliable supplies of gas

- New South Wales has significant reserves of gas but a relatively low share of production in Australia.
- Gas-fired electricity generation will likely be needed to supplement intermittent energy sources, particularly to meet demand in critical peak periods.

- What initiatives could we consider to remove barriers to gas exploration and production?

Streamlining energy regulatory arrangements

- New South Wales regulatory activities are currently dispersed across a number of agencies.

- How could we improve the New South Wales energy regulatory framework?

Smart ways to get more from our infrastructure

The NSW Government has committed $93 billion to infrastructure investment over the next four years. Further investments will be limited by medium- to long-term fiscal constraints. As our population and demand for services grows, maximising value from investments and existing assets will be critical to the liveability and productivity of our cities and regions.

ISSUES	DISCUSSION QUESTIONS
Maximising value from investments 	
• Continued improvements to project selection and sequencing are critical to maximise the productivity benefits of infrastructure.	• How can we further strengthen the governance and transparency of infrastructure investment? • What types of targeted service improvements and demand management solutions could be considered to maximise value from our infrastructure?
• Coordination challenges mean infrastructure delivery may not keep up with growing communities. Well-coordinated investments can deliver benefits that exceed the sum of their parts.	• How can we improve strategic land use planning and coordination with major infrastructure delivery?
Getting the most out of existing assets 	
• Congestion costs in Sydney were estimated by The Bureau of Infrastructure, Transport and Regional Economics (2015) at $6.1 billion, rising to $12.6 billion by 2030. Building new roads alone will not solve congestion. Better use of roads and managing peak demand can also reduce congestion costs.	• What further options should the NSW Government consider to alleviate congestion?
• Service crowding on the rail network in peak times can reduce reliability and crowding is projected to increase over time. This drives the need for more costly investment.	• What measures could we explore to reduce pressure on rail infrastructure during peak periods?
• Smart infrastructure offers opportunities to leverage data to improve efficiency, ensuring best use of existing assets.	• How could agencies use data and 'smart' infrastructure to improve asset management?

Exploring innovative service delivery models

- Infrastructure benefits are directly linked to service delivery. There are a range of innovative, customer-focused service delivery models already in place in New South Wales in areas such as public transport, health and social housing.

- How can existing innovative service delivery models be further leveraged to improve productivity and customer outcomes?
- What other innovative service delivery models should the NSW Government consider to improve productivity and customer outcomes?

Modernising our tax system to help our economy grow

State taxation is necessary to fund services and infrastructure for the people of New South Wales. But because taxes distort prices, they can impose economic costs by changing decision making. Some taxes create higher costs than others.

The State could make significant productivity gains if it moved from inefficient taxes toward efficient, fit-for-purpose revenue sources. Many taxes that the NSW Government relies on for revenue, such as duties on property transfers, motor vehicles and insurance, are particularly inefficient.

The NSW Government needs to consider expectations on local government and how reform could improve efficiency. Community satisfaction could be enhanced by more transparent performance reporting for councils and greater autonomy on how they fund local services.

ISSUES	DISCUSSION QUESTIONS
Reducing inefficiency in property taxes 	
• Transfer duty is an inefficient tax due to its impact on labour mobility and use of the State's housing and commercial building stock. This is complicated by state governments relying on transfer duty for a significant portion of their revenue to fund essential services.	• What steps could the NSW Government take to reduce its reliance on transfer duty?
Improving insurance duties 	
• Insurance taxes encourage under-insurance and un-insurance, increasing the risks to those affected.	• How can insurance taxation arrangements be improved?

Improving motor vehicle taxes

- Motor vehicle taxes (duty and registration fees) do not reflect the total costs of road use (i.e. costs of congestion, wear and tear on roads).
- New technology could provide opportunities to more accurately and inexpensively measure road use.

- How could motor vehicle taxation arrangements be improved?

Simplifying payroll tax arrangements

- Payroll tax can be an efficient tax but differences between states and territories and the application of thresholds reduce its efficiency.

- How can payroll tax arrangements be further improved and simplified?

Modernising gambling taxes

- The gambling market continues to evolve, with the introduction of new gambling products, channels and business models.

- How can gambling taxation and licensing continue to effectively adapt to changes in the industry?

Enabling councils to deliver better services

- The role of local government is changing, with widening community expectations for service provision.
- Council rates are among the State's most efficient revenue sources but the rate pegging system restricts the ability of councils to respond to community expectations.
- There is scope for more transparent monitoring of council productivity and to make this information available to the residents they serve.

- Should performance monitoring and benchmarking be adopted for local governments in New South Wales?
- Would regular community satisfaction surveys help make councils more responsive to their residents?
- How could councils improve their funding arrangements to provide greater flexibility in meeting their residents' service needs?

Planning for the housing we want and the jobs we need

Planning influences investment and productivity because it regulates what we can build and where we can build it. An effective planning system must address market failures without creating unnecessary red tape. A planning system that is responsive to the evolving needs and preferences of a growing population and business community is a key enabler of productivity growth.

ISSUES	DISCUSSION QUESTIONS
Unlocking the potential of our employment zones	
• Continued population growth means housing affordability will remain an ongoing challenge. • Some employment zones can be overly prescriptive about the type of businesses that can locate in certain areas. This limits employment opportunities and consumer choice.	• How could the New South Wales zoning system be simplified and improved to support greater business innovation and competition? • What other planning policy options should the NSW Government consider to ensure the planning system support job creation and respond to consumer preferences?
Building dwellings that better match our preferences	
• Minimum apartment sizes and parking requirements may provide certainty but can increase the cost of housing and limit consumer choice.	• What steps could the NSW Government take to improve residential development regulations to support an adequate supply of affordable housing? • How could the NSW Government ensure regulations around zoning, building codes and design guidelines are flexible and aligned with demand and preferences?
Providing greater housing choice to balance labour mobility with tenure security	
• Australia has a high level of tenant mobility. In part, this reflects poor tenure security, evidenced by a high number of involuntary tenancy terminations. Evidence suggests that security of tenure can improve socioeconomic outcomes. • The Build to Sell development model can be excessively cyclical.	• Should the NSW Government level the playing field in the housing sector by supporting a more stable source of housing supply? If so, how? • What is the most efficient mix of planning, regulatory and tax settings to deliver outcomes that get the balance right between tenure security and housing mobility?

Making the most of our public spaces and green space

- A growing population and a trend toward apartment living means a greater need for best use of public and green space.

- Are there other innovative ways of providing new public space, particularly on underutilised land?
- What opportunities are there to improve the use of transport corridors in high density areas?

Moving toward more efficient and equitable developer contributions

- Infrastructure contributions paid by developers to state and local governments are not applied on a consistent basis.
- Contributions liabilities are often unclear, which can adversely affect decisions by property owners and developers.

- What principles could be applied to the developer contributions system to ensure transparent, consistent and efficient outcomes?
- How might developer contributions be improved to support growth in new areas and service growing community needs?

Minimising red tape and complexity

- Planning approval delays can be costly.

- What could the NSW Government do to improve efficiency in planning system administration and ensure economic and community benefits?

Forward-looking regulation that supports competition and innovation

Regulation is a necessary tool to ensure markets work effectively while maintaining appropriate protections for consumers and the community. Effective regulation is key to addressing some of the reform priorities identified in this Discussion Paper and maintaining economic conditions supportive of innovation, competition and economic growth. Conversely, poorly designed regulation can create an excessive administrative burden, stifle investment, and delay businesses becoming operational. The NSW Government is implementing a new regulatory policy framework, with regulatory stewardship as a cornerstone, to support regulation that is responsive and adaptable.

ISSUES	DISCUSSION QUESTIONS
Forward-looking regulation that supports competition and innovation 	
• New technologies and products create challenges to the prescriptive approach to regulation. This can lead to regulation that impedes opportunities for new investments.	• What new tools can be harnessed to enable an adaptive, iterative and outcomes-based approach? Is there scope for greater uptake of these tools in New South Wales?

Introduction

Key points

- This Discussion Paper kickstarts a conversation about how to increase productivity in New South Wales.
- The Office of the NSW Productivity Commissioner (the Commission) has identified key areas of potential productivity reform based on extensive consultation and its own research and analysis. The content of this Discussion Paper does not represent NSW Government policy.
- The Commission seeks feedback on whether we have the focus areas right, whether we should consider other areas, and solutions to the problems identified.
- Feedback will assist the Commission to identify reform options for inclusion in a Productivity Green Paper. Following further consultation, those options will be refined into a Productivity White Paper for the NSW Government to consider.
- A productivity reform agenda will complement other NSW Government initiatives such as the move towards outcome-based budgeting and developing an Economic Blueprint for New South Wales.

1.1

We need to start a conversation about options to improve productivity

The Productivity Commission is kickstarting a conversation about ways to: improve the State's productivity, ensure a strong and resilient economy, maintain high living standards for future generations, and spread reform benefits throughout the community. It has identified six priority areas for productivity enhancing reform, and specific productivity-related issues within these priority areas. We are seeking feedback on the priorities and specific reform opportunities for the NSW Government to consider.

This is the first step in a conversation about productivity for New South Wales. Feedback will inform development of reform options, for inclusion in a Productivity Green Paper. A Productivity White Paper will be developed following further consultation and will identify specific reforms the NSW Government could implement.

This Paper builds on the findings of the NSW Government's Intergenerational Report 2016: Future State NSW in 2016 (the IGR, NSW Government, 2016). The IGR recognised that the best way to achieve strong and sustainable economic growth and address budget challenges was through sound policies supporting the 'Three Ps': population, participation and productivity. The next IGR is due for publication in 2021.

The IGR highlights the economic consequences of the State's ageing population, which will likely lead to a fall in labour force participation and higher health costs over coming decades. In this context, increasing the rate of productivity growth—working smarter, not harder—is the most reliable way to ensure strong economic growth.

The Commission has developed this paper based on its own research and consultation. The content is not NSW Government policy, nor is it binding on the NSW Government. Its purpose is to start a conversation with community and business about the need to improve productivity, and possible options to put New South Wales on the front foot to capture future improvements in living standards.

Given the range of potential options to improve productivity, a strategic approach is needed to focus and galvanise effort. This Discussion Paper presents areas the Commission has identified as most promising (see Section 3.3 for further details). The Commission encourages feedback on whether we have the right focus or if we should consider other areas.

1.2

A productivity reform agenda will support NSW Government priorities

The Commission was established in May 2018 with Peter Achterstraat AM appointed the inaugural NSW Productivity Commissioner. The Commission approach includes strong engagement with business and the community so stakeholders can contribute widely to reform proposals.

The Commission is also charged with overseeing regulatory quality. This includes developing a new framework for agencies to apply for regulatory proposals and advising Cabinet on the quality of evidence underpinning those proposals.

The Commission was tasked by the NSW Treasurer, on its establishment in May 2018, with focusing on four key themes:

Making it easier to do business

Lowering the cost of living

Making housing more affordable

Making it easier to move to NSW

The structure of this Paper reflects areas of opportunity to enhance productivity identified by the Commission. The priority areas identify reforms that can support the initial key themes. For example, implementing a new regulatory framework will make it easier to do business. Planning and taxation reform can help make housing more affordable. Energy reform can lower the cost of electricity.

Other policies, priorities and initiatives considered throughout the development of this Paper include:

- The Economic Blueprint being developed for New South Wales announced in the 2019-20 Budget to make the most of future economic opportunities over the long term. The Blueprint will provide an overarching strategic framework for other forward-looking plans to build off. These include a new trade and investment strategy (under development) which will focus efforts to attract international investment and facilitate trade. A productivity reform agenda will complement the Economic Blueprint and trade and investment strategy by identifying how to provide an environment to support business growth and investment.
- Outcomes Budgeting, under which funding decisions focus on outcomes that matter to citizens. The aim of Outcomes Budgeting is to drive performance in the public sector and results for citizens.
- A fresh approach to digital and ICT investment across the NSW Government. This includes creating a Digital Restart Fund to introduce a modern approach to prioritising, investing in and governing ICT and digital projects. The fund will create significant efficiencies and align with existing NSW Government commitments to ensure the security and privacy of digital platforms and citizens data.
- The five key policy priorities set by the NSW Government for this term of government: a strong economy, high-quality education, well-connected communities, customer-centric services and breaking the cycle of disadvantage.

1.3 About this paper

This Paper outlines the case for change to foster productivity growth and identifies problems for feedback and options to consider. The Paper is comprised of the following sections:

- Chapter 2 outlines the State's productivity growth challenges and the need for policy reforms to support productivity growth
- Chapter 3 outlines the framework used to identify draft productivity priorities, and
- Chapters 4 to 9 outline the draft productivity priorities and problems for feedback.

The productivity imperative

Key points

- Productivity growth is crucial to achieving growth in material living standards over time, but has slowed globally since the turn of the millennium.
- Australian living standards were bolstered by the mining boom during the first decade of the 2000s, despite weak productivity growth.
- Productivity growth has remained weak in Australia and New South Wales since the end of the mining boom.
- The economy faces demographic challenges with an ageing population. Participation is likely to decline and productivity must pick up the slack to maintain our living standards.
- If productivity continues to grow at its recent average of 0.9 per cent per year, rather than 1.5 per cent per year assumed in the 2016 NSW Intergenerational Report, the economy will be smaller by up to $24,000 per person by 2055-56. The State's fiscal gap will also be up to 3 percentage points larger.
- Increasing productivity growth will help manage the costs of an ageing population and address sustainability challenges.
- Technological change, including artificial intelligence technologies, has the potential to drive productivity growth but may also disrupt the labour market in the short-term.
- While some of the forces driving weak productivity growth are global in nature, New South Wales can improve economy-wide productivity through a strategic reform program.

2.1

The New South Wales story in an Australian and global context

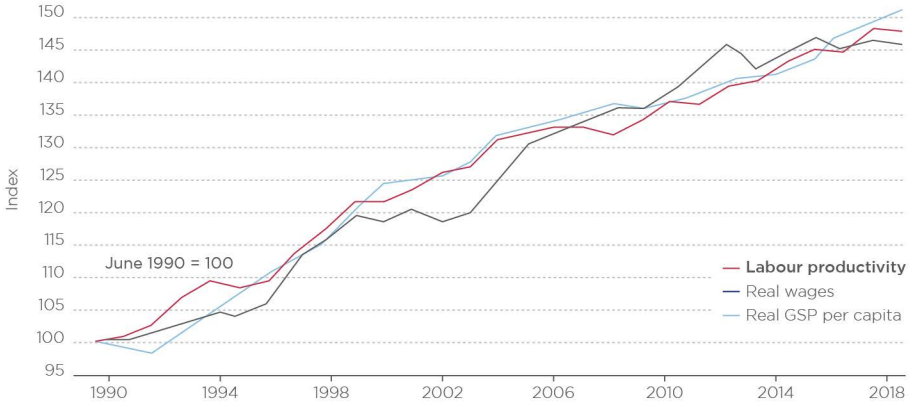
Productivity refers to the efficiency with which the economy produces goods and services. In simple terms, productivity is calculated by dividing total outputs in an industry or across the economy by a measure of inputs. It is commonly measured in terms of output per hour worked, known as labour productivity.

Productivity growth is the key determinant of growth in real per capita incomes and wages over the long-run, and is therefore central to improving living standards in New South Wales.

When firms become more productive, businesses and workers generally share the benefits, and for workers this takes the form of wage growth. The extent to which productivity growth translates into wage growth in the short run will depend on a range of factors including technological change, the relative competitiveness of industries, and the bargaining power of workers. Over longer periods, however, there is a clear and strong link between productivity and real wages (Figure 2.1).

New South Wales has a relatively productive economy compared with other Australian jurisdictions, in terms of its output per hours worked. This has underpinned improvements in living standards and enabled government to help deliver world-class services.

FIGURE 2.1: GROWTH IN REAL WAGES, PER CAPITA GSP AND PRODUCTIVITY GROWTH IN NEW SOUTH WALES

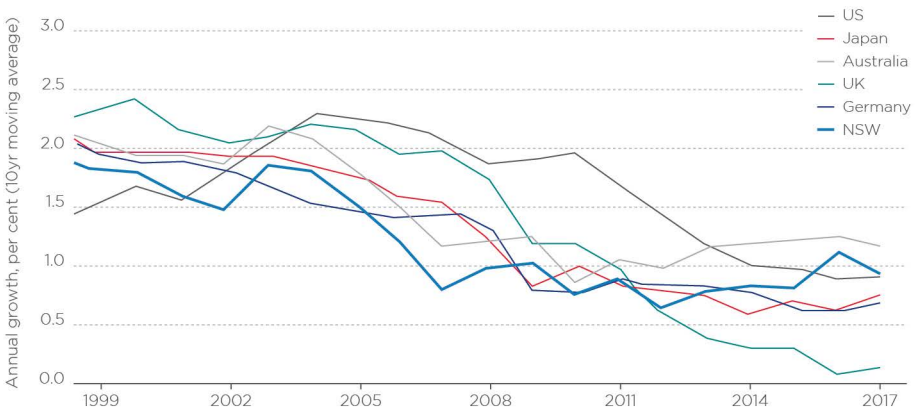


Source: ABS 5220.0, 6202.0. Note: Real wage is the 'real consumer wage' – average earnings in the national accounts deflated by the household consumption deflator.

Australia and New South Wales both experienced strong labour productivity growth during the 1990s following innovations in information technology, investment in human capital, and a period of bold macroeconomic and microeconomic reforms.

Productivity growth has slowed globally since the early 2000s (Figure 2.2), and this has affected New South Wales. The State's productivity growth averaged 2.8 per cent per year from 1994-95 to 1998-99, slowed to 0.8 per cent between 2003-04 and 2011-12, and has averaged 0.9 per cent since 2011-12 (see Figure 2.3).

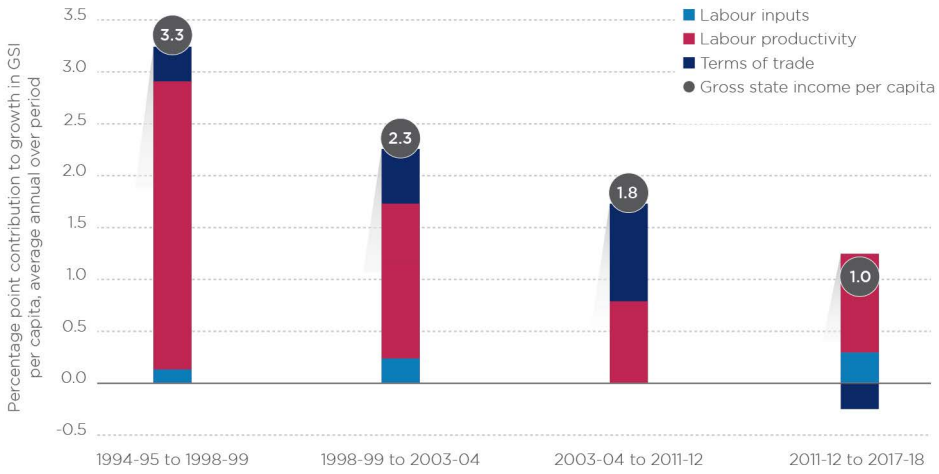
FIGURE 2.2: PRODUCTIVITY SLOWDOWN AMONG ADVANCED ECONOMIES IN RECENT DECADES



Source: OECD, ABS 5220.0, 6202.0

Australian living standards were bolstered by a once-in-a-generation surge in our terms of trade between 2003-04 and 2011-12 thanks to the mining boom, despite weakening productivity growth. Increased export earnings allowed firms to pay higher wages, while consumers benefited from cheaper imports.

FIGURE 2.3: DECOMPOSITION OF SOURCES OF NEW SOUTH WALES PER CAPITA INCOME GROWTH

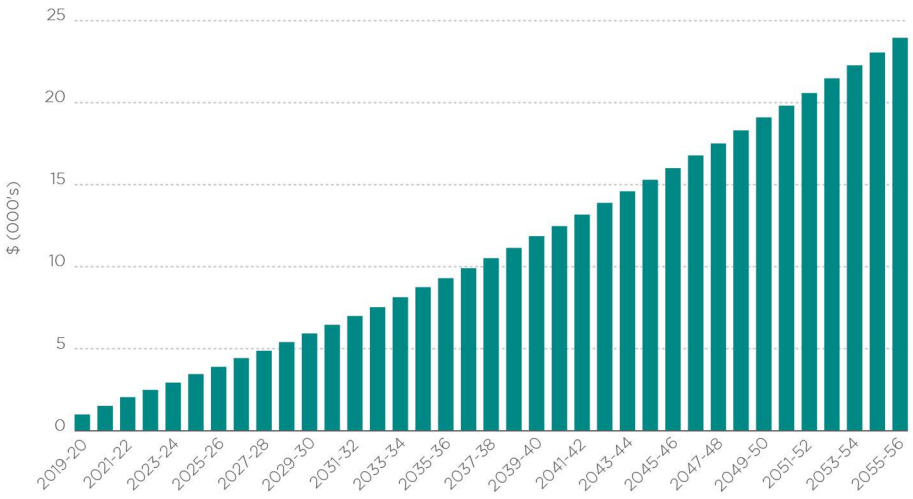


Source: ABS 5220.0, 6202.0.

Figure 2.3 above shows how New South Wales recorded strong labour productivity growth in the late 1990s. Productivity growth remained robust in the period before the mining boom, but was relatively weak during the boom. In this period the terms of trade contributed more than half of the growth in the State's per capita gross income.

Productivity growth has subsequently remained weak. The terms of trade also declined between 2011-12 and 2017-18, resulting in weak per capita income growth by historical standards. Low wage growth in recent years is likely to be linked to weak productivity growth. If productivity growth does not return to the 2016 Intergenerational Report's (IGR) long-run assumption of 1.5 per cent per annum (based on the economy's historical productivity performance), the economy will be smaller by up to $24,000 per person (in real GSP per capita terms) by 2055-56 (see Figure 2.4). This is almost a third of the State's current real GSP per capita of $74,955.

FIGURE 2.4: POTENTIAL GAIN IN REAL GSP PER CAPITA FROM RETURNING TO 1.5 PER CENT PER ANNUM



Source: NSW Treasury modelling.
Note: This chart shows the potential change in real GSP per capita from increasing annual productivity growth from the current rate of 0.9 per cent to the IGR long-run assumption of 1.5 per cent.

We can't rely on a rising participation rate or terms of trade to support per capita income growth in the coming decades.

While the national terms of trade have recently picked up, they are forecast to decline, which will weigh on national and state income.

The economy also faces challenges from an ageing population, which will reduce the labour force participation rate (i.e. the proportion of people aged over 15 years in or seeking employment) over the next few decades. The IGR projected the New South Wales participation rate to fall from about 65 per cent today to 59.5 per cent in 2055-56. This means that productivity growth will need to rise to sustain growth in per capita incomes, as a smaller proportion of the population will be working.

2.2 How do we increase productivity growth?

Labour productivity growth comes from two sources: growth in the ratio of capital to labour used in production, known as 'capital deepening', and 'multifactor productivity' growth, which captures the overall efficiency with which capital and labour are used in production.

Multifactor productivity (MFP) growth can be thought of as a measure of technological and organisational innovation, managerial quality, natural resource inputs, and other factors not captured by changes in capital and labour inputs.

New South Wales will need a substantial increase in capital deepening, MFP growth, or both to achieve annual per capita income growth above 2 per cent, as occurred during the 1990s and early 2000s.

There are a range of explanations for the slowdown in global productivity in recent decades (see Box 2.1 below). Multiple factors are probably at play, but a common theme is a lack of innovation and/or a poor spread of innovation throughout the economy, linked to MFP, and a lack of investment or overinvestment in non-productive assets like housing, linked to capital deepening.

State governments control a range of tax and regulatory levers that affect economy-wide investment and innovation. As uncertainties in the global and domestic outlook grow, microeconomic reforms can help support productivity growth and create a strong foundation for future economic growth.

Box 2.1 The global productivity slowdown

A range of explanations have been offered for the slowdown in global productivity and one theory is weaker business investment. Non-mining investment has fallen steadily in Australia and globally as a percentage of GDP for several decades (PC, 2019a). Lower investment means a lower potential rate of economic growth due to a lower capital stock, which in turn translates to lower labour productivity, other things being equal.

Another theory advanced by the OECD is the emergence of a gap between highly productive 'frontier' firms, which are more innovative and quicker to adopt new technologies, and less-productive 'laggard' firms (Andrews et al., 2015). The productivity gap is thought to be caused by technological improvements not spreading from high-productive firms to less-productive firms as rapidly as they once did. The Commonwealth Treasury found there was a lack of evidence to suggest this is happening in Australia (Andrews et al., 2019). There may, however, be flow-on effects for Australia from other economies. Weaker technology adoption and diffusion might also be related to weak investment, given investment is the main way that firms adopt new technology.

Weak productivity growth in official statistics could also be the result of measurement errors. One major measurement issue relates to the price of information and communications technologies (ICT). For example, some evidence suggests that the price of ICT is falling more rapidly than is captured in national price indices due to improvements in digital technologies (Dervis and Qureshi, 2016). Underestimating declines in the price of ICT would imply that we are underestimating the true rate of productivity growth. This is because accurately measuring productivity growth relies on accurate price measures to derive the volume of output produced in an economy.

Other explanations include that recent technological changes are simply not on the same scale as previous waves of innovation, and therefore are not yielding similar productivity gains (Gordon, 2012). Alternatively, there may be lags in the realisation of productivity gains from the current wave of innovation (Branstetter and Sichel, 2017).

2.3

Increasing productivity growth will help manage fiscal, social and environ-mental risks

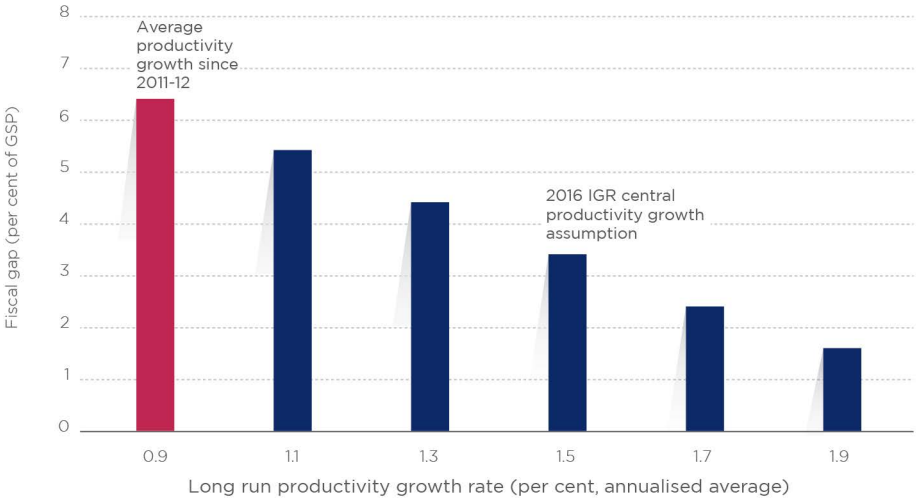
There are likely to be negative consequences for the State Budget without a rise in productivity growth.

NSW Government revenues are dependent on a strong economy, which in turn depends on productivity growth, particularly in the face of demographic changes where labour force participation is expected to fall.

Sensitivity analysis in the 2016 IGR indicates that if productivity growth does not return to the long-run assumption of 1.5 per cent per annum, the fiscal gap[1] will be around 3 percentage points larger by 2055-56. This is equivalent to around $18 billion in today's GSP. Figure 2.5 shows how the fiscal gap changes under different productivity growth scenarios.

1 The fiscal gap is the difference between total expenditure and total revenue, including capital expenditure but excluding interest costs.

FIGURE 2.5: SENSITIVITY OF THE NSW FISCAL GAP BY 2055-56 TO PRODUCTIVITY GROWTH SCENARIOS



Source: 2016 NSW Intergenerational Report.

From another perspective, reforms that reduce pressure on health, justice and education budgets may also improve productivity if they lead to a healthier and more educated workforce.

Boosting productivity can moreover help manage environmental challenges, particularly those posed by increasing climate variability. A more productive economy means using resources more efficiently, including our scarce natural resources, to produce the same output. This could involve a more circular economy, for example, and is crucial for ensuring sustainable growth that safeguards the living standards of future generations.

The effect on productivity of growing automation and artificial intelligence (AI), and other new technologies such as blockchain and the Internet of Things, is likely to be somewhat mixed. On the one hand, AI has enormous potential to increase productivity over the long-term and improve living standards. On the other hand, it could lead to short-term disruption in the labour market as the structure of the economy and employment changes. For this reason, it is crucial for governments to invest in skills and education so citizens have the right skills for the jobs of the future.

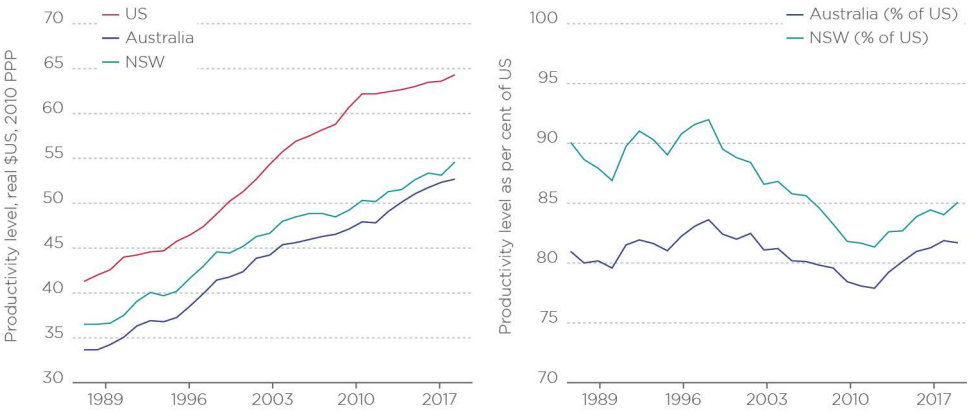
2.4

Room to improve New South Wales' productivity

New South Wales' GSP per hour worked is the second highest among Australian states, suggesting it is relatively productive compared with the rest of Australia.

One way of looking at the relative productivity of New South Wales and Australia is by comparisons with other countries considered to be at the productivity 'frontier'. The United States has consistently been near the top of OECD countries in terms of GDP per hour worked (labour productivity).

FIGURE 2.6: GDP/GSP PER HOUR WORKED (LEFT), AND PRODUCTIVITY LEVELS AS A PROPORTION OF US (RIGHT)



Source: ABS 5220.0, 6202.0, OECD. NSW Treasury.

Australia and New South Wales converged on the United States' productivity levels during the 1990s, around the time of some of Australia's key economic reforms. They diverged during the 2000s and then converged again over the current decade, though not to the same extent as in the 1990s (see Figure 2.6).

There are good reasons why New South Wales (and Australia as a whole) is unlikely to ever fully converge with the productivity levels of the United States. Reasons for this include industry structure and the United States' unique advantages as a large economy at the centre of a range of supply chains. But there is scope for our productivity level to be closer to the frontier, as it was during the late 1990s.

Recent reports highlight the need to lift productivity growth. The Commonwealth Productivity Commission's 2017 five-year productivity review, Shifting the Dial, outlines the productivity challenge for Australia and key reform areas across health, skills, infrastructure and cities, key markets like energy, and government effectiveness. Many of these areas of policy are controlled by states and territories.

The CSIRO (2019b) recently released its Australian National Outlook, which foreshadows a 'slow decline' scenario where Australia has lower growth and investment, lower productivity growth and weaker wage growth if we do not take action on some of our most significant economic, social and environmental challenges.

Senior economic figures in Australia such as Reserve Bank Governor Philip Lowe (2018) have also been increasingly vocal about the need for productivity growth to ensure sustained improvements in living standards.

The success of previous reform waves, alongside increasing calls for reform from business and economic leaders, suggests the NSW Government can boost productivity growth through a strategic reform program.

New South Wales has a strong economy, but a new round of reform is needed to secure the State's future economic prosperity while ensuring that growth is sustainable and the benefits are shared throughout the community.

Prioritising productivity reforms

Key points

- The Commission has identified three key principles to assess and refine productivity-enhancing opportunities:
  - improving resource utilisation: making better use of existing capital, labour and natural resources
  - effective and sustainable government: ensuring the government regulatory framework supports the productive potential of the economy, and
  - no one left behind: enabling all citizens to participate to their full potential.
- The Commission has been selective about what is included in this Discussion Paper. We have identified the areas with the most promise based on a functional assessment of:
  - areas of NSW Government policy influence,
  - the potential value of inclusion in a productivity agenda and
  - strategic alignment with NSW Government priorities.
- Six initial draft productivity priorities are identified, which will be refined into a recommended reform agenda following consultation:
  - building human capital for a modern and evolving economy
  - reliable, sustainable, and productive use of our water and energy
  - smart ways to better utilise our infrastructure
  - modernising our tax system to help our economy grow
  - planning for the housing we want and the jobs we need, and
  - forward-looking regulation to support competition and innovation.

3.1

Productivity principles

Three key principles have emerged from the Commission's consultation and research to date. The principles provide a lens through which to consider options for reform and design any policy changes. This includes addressing transitional issues and ensuring appropriate compensation for any 'losers.' The three principles are:

- improving resource utilisation
- effective and sustainable government, and
- no one left behind.

Improving resource utilisation

Stakeholders have consistently raised the need to realise more from our resources, particularly from existing government assets (i.e. our roads, public transport, schools and hospitals) and removing unnecessary regulatory requirements on the use of private sector assets. This theme is particularly relevant as the NSW Government continues to implement a significant infrastructure program funded in part through asset recycling.

Improving resource utilisation goes beyond the NSW Government being more efficient with each dollar of its assets. It involves improving the utilisation of the State's intangible and tangible resources.

It goes to the core of the productivity challenge because it focuses on increasing the value that can be derived from existing and new assets, which produce output and services, contributing to the growth of the economy. This Paper interprets asset utilisation as covering the public and private sectors in three areas:

- capital resources: this includes
  - public sector infrastructure such as roads, rail, schools and hospitals
  - intangible resources such as information technology and data assets (for example, patient outcome measurement is a critical tool for increasing health care productivity)
  - private sector capital, including buildings, IT and other capital.
- labour resources: this includes human capital (quality) and participation (quantity). The Government's role in this area is as an employer, regulator, service provider, and policymaker.
- natural resources: this includes land, water, energy and other natural resources. Government plays a vital role as a land and asset owner, regulator and service provider and commissioner.

Effective and sustainable government

The successful provision of government services depends on the sustainability of government finances. As outlined in Section 2.3, NSW Government revenues are dependent on a strong economy and if productivity growth does not increase from current levels the fiscal gap will become unsustainable.

The gap arises because expenditures are projected to rise faster than revenues. Health, transport and education are the primary contributors to rising expenditure. Left unaddressed, this growing fiscal gap will result in ever-increasing debt and deficits, thereby eroding the NSW Government's capacity to provide the range and quality of services that the community expects.

The challenge for governments over the coming decades is to prevent an unsustainable fiscal gap from emerging. Improving government regulation, infrastructure and service provision influences the flexibility, resilience and productive potential of the economy. This in turn will support business investment and growth and allow the NSW Government to deliver services more effectively and sustainably.

No one left behind

Enabling everyone to participate to their full potential leads to a more productive economy, and the OECD has outlined how inequality can directly affect long-term productivity (Cingano, 2014). Lower-income or otherwise disadvantaged households can have greater difficulty investing in their own human capital and reaching their full potential.

The costs and benefits of productivity reforms can, however, have distributional impacts. The benefits can be broadly dispersed across the community and therefore less apparent, while the disadvantages can be concentrated and more strongly felt by those affected communities. In developing and implementing reform proposals it is important to consider distributional impacts, including adverse impacts on least well-off sectors and community groups. Where possible, the NSW Government should consider measures to address these as part of a detailed reform design and implementation. This will help manage transitions and ensure broader community support.

Introducing reforms as a package can alleviate distributional impacts. If designed carefully, reforms can spread economic benefits across the economy and minimise instances of communities being disadvantaged.

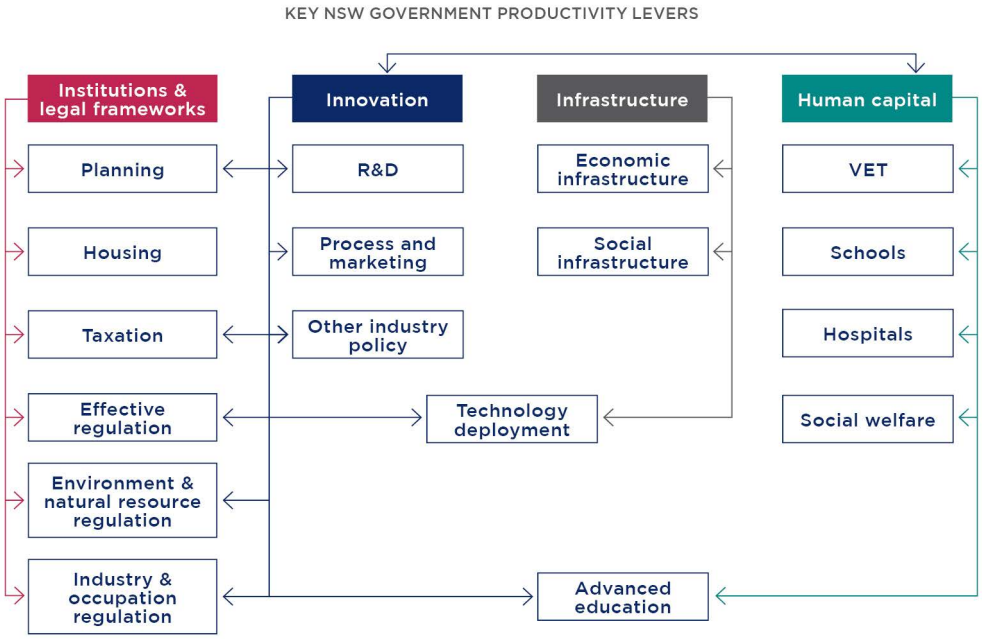
3.2 Productivity levers

The Commission has identified four functional areas of NSW Government policy influence on the economy to develop the framework in Figure 3.1:

- functions that are part of the NSW Government regulatory and institutional framework
- functions that are infrastructure-investment related
- functions that are innovation related
- influences on human capital.

The Commonwealth Government and local government also have important roles to play. For example, the Commonwealth Government has responsibility for federal taxes, financial market regulation, competition policy, primary health care, and macroeconomic policy.

FIGURE 3.1: NEW SOUTH WALES PRODUCTIVITY FRAMEWORK



3.3

Developing a productivity reform agenda

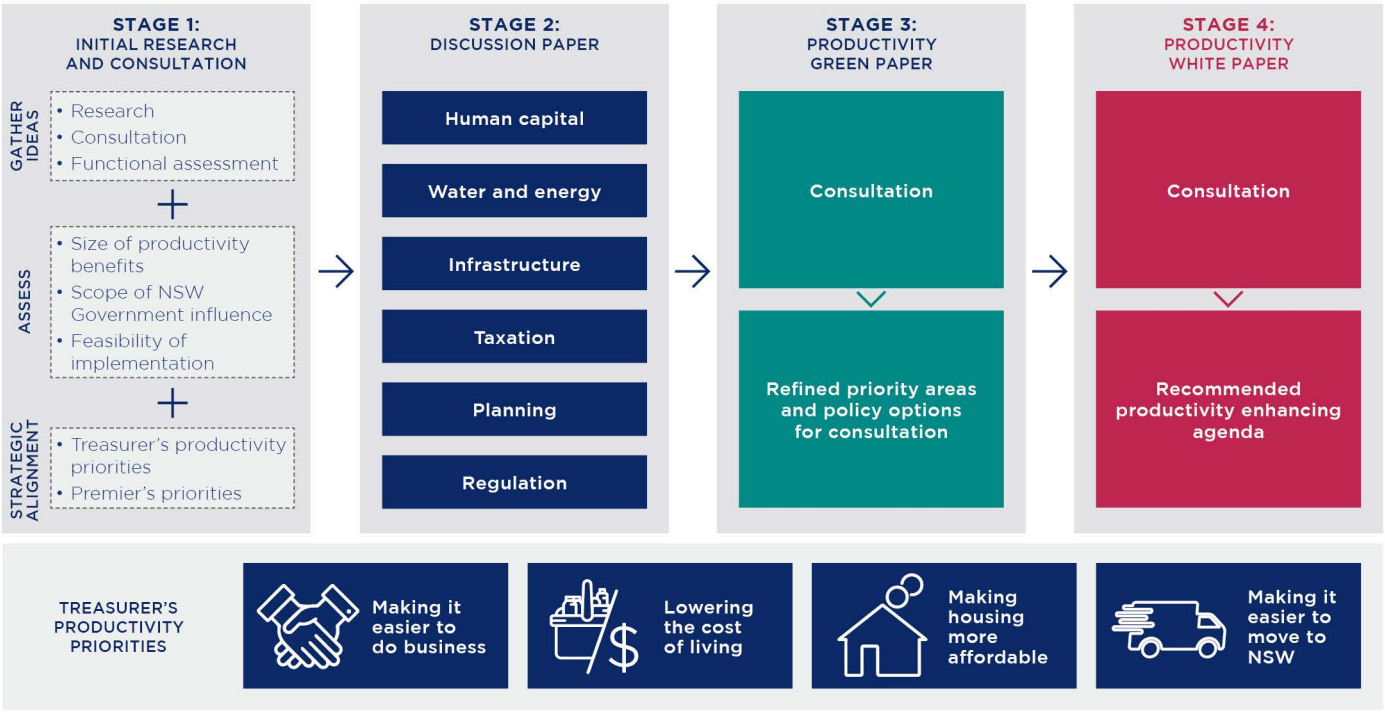
In considering productivity reforms for New South Wales, the Commission has examined the State's productivity record, including comparisons with other jurisdictions, and previous research and reports. It has also engaged extensively with business representatives, government agencies and other stakeholders. Given the broad range of possible reform areas, the Commission has been selective about what is included in this paper.

Recognising this, priority areas and problems have been included in this paper based on:

- size of the potential productivity benefits
- scope of the NSW Government to influence change
- value of inclusion in a productivity agenda (e.g. where an area is currently being addressed through an existing review or recent policy further consideration may not be required)
- feasibility of addressing the problem
- strategic alignment with the four Treasurer's productivity themes and other NSW Government priorities (e.g. Premier's Priorities).

Figure 3.2 provides an overview of the process underway to develop a Productivity Green Paper and subsequent Productivity White Paper. Six draft priority reform areas have been identified for feedback and are explored in detail in the remainder of this paper. This process is kickstarting a conversation about the choices we can make now to support sustainable long-term growth.

FIGURE 3.2: OVERVIEW OF THE PRODUCTIVITY WHITE PAPER PROCESS



Building human capital for a modern and evolving economy

Key points

Why we need to focus on human capital

- Technological innovation, demographic changes, increasing global competitiveness and shifting consumer preferences will continue to affect the skills required by the economy.
- These 'mega-trends' could deliver significant productivity gains if we can effectively adapt. Segments of the population, however, risk being left behind if we do not address shortcomings in key policy areas influencing human capital development.
- Key issues to address include: falling school education outcomes, improving the ability of the Vocational Education and Training (VET) system to deliver the skills businesses need, reducing regulatory barriers to employment, and enabling effective life-long learning.
- The rollout of the National Disability Insurance Scheme (NDIS) coupled with an ageing population is likely to drive demand for workers in the care sector, while rising female workforce participation will drive demand for childcare services and require increased workplace flexibility.

Conversation starters

- The NSW Government is responsible for key policy areas influencing the development of human capital over the lifetime of a worker. These include schools, VET (including apprenticeship and traineeship programs), and occupational regulation such as licencing requirements.
- NSW school performance has been declining, as worsening scores in reading, mathematics and science indicate. This is concerning as these are the foundational competencies necessary for acquiring advanced skills.
- The NSW VET system has been examined on numerous occasions, revealing common sets of issues. There are likely benefits from making information more easily available to prospective students, providing alternative pathways to certain professions, more targeted funding and simplifying the qualifications system.
- Human capital continues to be developed over working life. Legislation and regulatory settings have significant influence on a worker's productive capacity (particularly on the scope to apply and improve skills). Key examples include New South Wales' occupational licensing regimes.
- There is some underutilisation of human capital in the health and care sector, stemming from regulatory and cultural barriers. This may compromise the ability for the sector to adequately respond to rising demand for key services.

4.1

Role of human capital in productivity growth

Human capital refers to the factors that shape the labour force's productive capacity and employability. It broadly encompasses the stock of labour force skills, abilities, knowledge and networks. Human capital merits considerable attention in forming a productivity agenda, with evidence showing higher levels of productivity associated with a well-educated and healthy labour force. The Commonwealth Productivity Commission has estimated that attaining a bachelor (or higher) degree means 40 per cent higher earnings relative to a person with a year 11 education or less. Moreover, workers with chronic illnesses earn an estimated 1 to 5.4 per cent less than their healthy counterparts (Forbes et al, 2010).

Human capital development influences productivity in numerous ways, for instance by:

- driving learning and the application of knowledge that promotes economic growth; and
- supporting the adoption and diffusion of technology throughout the economy.

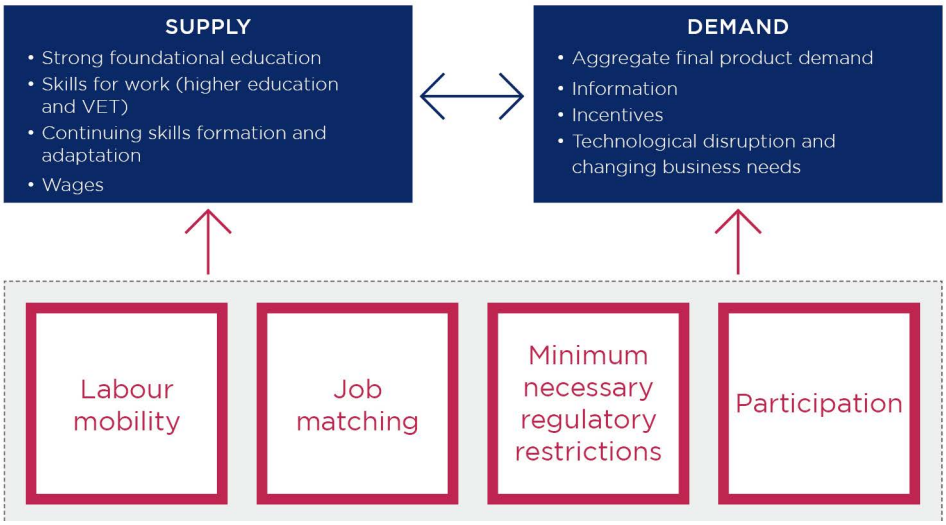
The key institutions responsible for forming human capital include the state's schools, universities and vocational educational and training providers. Beyond these key areas, human capital development also depends on policy and regulatory settings across diverse sectors of the economy, in order to:

- match jobs with skills
- ensure skills develop in line with business needs and
- enable upskilling to respond swiftly to changes in the economy (see Figure 4.1).

Social and cultural factors similarly shape human capital. For example, there is increasing evidence of the important relationship between business management practices and productivity (Department of Industry Innovation and Science, 2018).

These include a broad array of activities such as human resource management, data use, and strategy development. This suggests that an ability to learn, practice and pass on managerial skills that draw from global best practice is an important contributor to boosting productivity, particularly for private businesses.

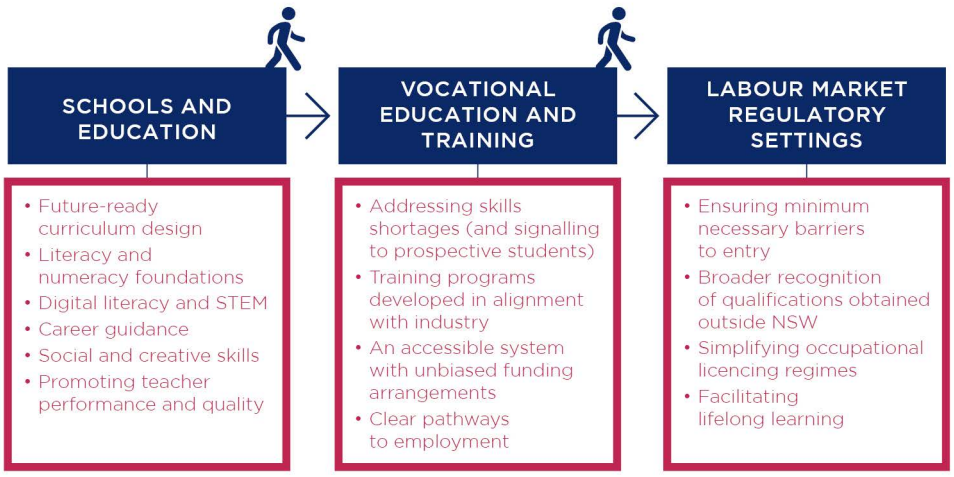
FIGURE 4.1: ASPECTS OF A WELL-FUNCTIONING LABOUR MARKET



The NSW Government controls several key policy areas spanning the 'life-cycle' of a worker, allowing it to influence and shape human capital:

- **Schools:** the NSW Government designs the curricula and sets the standards for all schools. Schools play a pivotal role in providing foundational competencies (such as numeracy and literacy) that are essential to the later acquisition of skills in preparation for the workforce.
- **Vocational Education and Training:** the NSW Government sets policy over the VET sector and operates Technical and Further Education NSW (TAFE NSW), the State's largest training provider. VET is distinct from higher education, which is largely a Commonwealth responsibility, in that it typically provides technical skills including those required for trades careers such as cooking, hairdressing and plumbing. A key VET policy lever for the NSW Government is in determining the training courses where students can access subsidised fees.
- **Occupational regulation:** the NSW Government regulates certain occupations for a variety of policy objectives. Regulations typically include establishing a minimum qualification for certain professions or attempts to influence or monitor market entrance (for instance, through occupational licensing regimes). Depending on their design, occupational regulations may work towards encouraging or discouraging productivity.
- **Supporting a coherent and navigable pathway through education, training and employment:** this contributes to productivity by ensuring that choices promote aspiration and personal wellbeing, while flexibly providing the skills the NSW economy needs. An important component of this is supporting a culture of lifelong learning, which facilitates the ability to change profession or re-skill mid-career (for instance, in the event of technological advances or changing industrial practices).

FIGURE 4.2: SCOPE OF NSW GOVERNMENT INFLUENCE ON HUMAN CAPITAL DEVELOPMENT



Source: NSW Treasury.

4.2

Problem definition: Human capital

Mega-trends posing labour market challenges: technology, demographic changes and shifting preferences

Global megatrends such as technology and the rise of Asia are changing the nature of work and having broader impacts on the labour force. Local factors and trends are also shaping labour markets. These include demographic changes (an ageing population) and shifting consumer preferences. Key challenges lie in ensuring that human capital can adapt and make the most of these changes.

Automation, artificial intelligence and other technological advances are among the greatest influences in changing the way we live, work and communicate. They will continue to have a major impact on the workforce, posing challenges to existing channels of human capital development. Despite considerable uncertainty and some predictions that technology will lead to widespread worker displacement (see CSIRO, 2019b for an overview), many economists consider these predictions overly pessimistic and unlikely to eventuate (see, for example, Productivity Commission, 2017a). Throughout history, economies have been able to adapt to technological progress. Labour market regulation throughout time has seen obsolescence of certain jobs (such as switchboard operators and typists), and emerging demand for new kinds of skills.

The effects of technology will not be uniform across employment sectors. Some occupations are likely to remain relatively unchanged into the future owing to the irreplaceable reliance on 'human' or cognitive input, such as those in the care and other services sectors. Many other employment sectors, such as finance and law, are expected to change significantly as technology plays a greater role. Jobs growth is likely to continue, but there needs to be a focus on significantly changing skillsets to reap the productivity benefits of advances in technology.

Other changes are also impacting the NSW workforce. An ageing population and the rollout of the National Disability Insurance Scheme is driving demand for workers in aged and health care. The Department of Jobs and Small Business (2018) estimates that employment of aged and disability carers will increase by almost 40 per cent over the next five years. Female workforce participation is likely to remain at historically high levels, sustaining (and potentially increasing) demand for childcare services.

Rapid growth of the 'sharing' and 'gig' economy, the Asian middle-class, and a shift in consumer preferences towards services will accelerate a shift towards a higher-skilled workforce. ABS data shows that the share of employment in skill level 1 occupations (generally requiring a university education) increased from 23 per cent in 1988 to 32 per cent in 2018 (ABS, 2018).

Responsive labour markets and a more flexible VET system will support the development of human capital and allow New South Wales to adapt to these changes. Some workers will have the opportunity to transition into new jobs required by the economy. In this way, technology will improve productivity rather than displace workers, leading to higher incomes and greater worker satisfaction. Moreover, the economy will be better able to adapt to change in consumer preferences and production pathways.

Failing to adapt to an evolving economy poses significant risks. The State's competitiveness would be compromised, as economic opportunities move to other states or offshore. There is also a risk of rising inequality and a splintering of the labour force across the skill distribution of jobs. Manual (and often low-paid) jobs in low productivity sectors are expected to increase, while semi-professional jobs are expected to hollow out. Meanwhile, growth in highly skilled roles is expected to continue. Those with lower skills and who perform routine or manual tasks are most at risk. We need to consider how to create higher value jobs in low-productivity, manual sectors to ensure fair access to the benefits of technology so that no one is left behind.

4.3

Lifting school performance and education outcomes

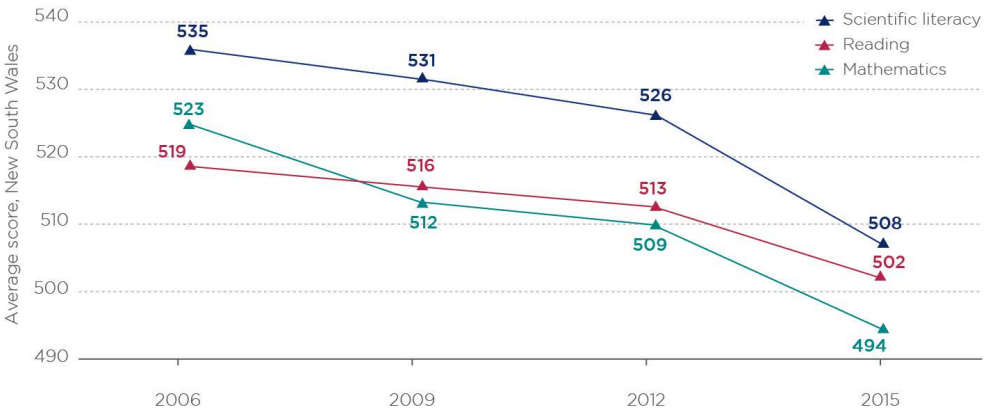
Schools play a key role in the development of human capital. Reading, mathematics and science are widely regarded as core competencies and a sound grasp of these subjects profoundly affects students' ability to acquire skills later in life.

A range of indicators are used to measure education outcomes. They need to be carefully interpreted, however, as they are often not robust or systematically undertaken at sufficient scale for jurisdictional comparisons. The National Assessment Program – Literacy and Numeracy (NAPLAN) consists of a series of tests used to assess students' reading, writing, language (spelling, grammar and punctuation) and numeracy. In 2019, baseline scores in writing for Year 7 and 9 students declined nationally, while Year 9 students' scores were stagnant in all other areas. However, there were marked improvements in Year 5 numeracy, Years 3 and 5 reading and spelling, and Year 3 grammar. This measure is useful for monitoring a particular student's performance over their school years, but it is difficult to use it to systematically assess performance across jurisdictions and other countries.

The OECD's PISA test is a more comprehensive measure of performance comparing countries and states.[1] It indicates that performance in NSW schools in more traditional subjects has been in decline since around 2006 (see Figure 4.3). New South Wales is not alone, however. This trend is borne out nationally, with PISA results showing that Australian school performance has been worsening over time both in absolute terms and relative to other countries.

In reading, mathematics and science, the share of high performers has decreased, while that of low performers has increased. Worsening scores in maths and science deserve particular attention as the value of these fundamental cognitive skills is likely to increase in future workplaces.

FIGURE 4.3: AVERAGE PISA PERFORMANCE – NEW SOUTH WALES



Source: OECD.

1 The OECD's Programme for International Student Assessment (PISA) is the international standard for benchmarking literacy and numeracy. Every three years, PISA tests 15-year old students from all over the world in reading, mathematics and science. PISA results indicate how well students master key subjects in order to be prepared for real-life situations in the adult world. The most recent testing was conducted in 2018. However, results were not publicly available at the time of this report's publication. (PISA website)

Schools foster social inclusion and address entrenched disadvantage, and school performance and educational outcomes are key determinants of social and economic mobility (Mendiola et al, 2015). Declining test scores indicate that the education system could be improved to better provide pathways into further education and sustainable employment. An effective school system could help to minimise disparity in the employment outcomes among various groups (such as women with young children, older women, disabled people, and Indigenous people), addressing entrenched intergenerational disadvantage and ensuring all sectors of society benefit from economic reform (OECD, 2017). For instance, the 2016 Census revealed that the NSW Indigenous population is still less likely to be in the labour force than non-Indigenous people. Of the population aged 15 years and above, 43.0 per cent of Indigenous people are not in the labour force compared with 35.9 per cent of non-Indigenous people (ABS 2076.0).

The NSW Government is making significant efforts to boost school performance. In 2019, the Premier announced a priority of 'bumping up education results for children', with a target of increasing the proportion of public-school students in the top two NAPLAN bands by 15 per cent by 2023. Under the new National School Reform Agreement (Gonski 2.0), the NSW Government will also commit at least an extra $6.4 billion to public schools to 2027 (NSW Government, 2019). Implementing and evaluating these efforts will assist with identifying other options to improve NSW student outcomes and performance.

Another recent policy debate involves improving teacher quality, which is key to better student performance and productivity (Grattan, 2019a), and the NSW Government is currently acting to improve the quality of our teaching workforce.

The OECD has cited teaching quality as the biggest influence on student outcomes outside of family and background characteristics (OECD, 2005). There are also a range of 'non-economic' benefits of high teacher quality including wellbeing, health and reduced crime rates. The Grattan Institute has highlighted the main mechanisms by which the quality of teachers and effectiveness of teaching can be improved:

- improve the quality of applications to the teaching profession
- improve the quality of initial education and training
- develop teachers' skills once they enter the profession and are working in our schools and
- promote, recognise and retain effective teachers and move on ineffective teachers who have not been able to increase their effectiveness through development programs.

In September 2018, the NSW Government announced the implementation of higher standards for teaching graduates seeking employment in the public school system. In addition to higher academic performance (a minimum 'credit' average upon completion of a teaching qualification), graduate teachers will also be required to satisfy new requirements in cognitive and emotional intelligence. The NSW Government has also implemented processes for identifying high-achieving graduates for priority placement in permanent positions (Department of Education, 2019). These efforts are designed to raise the prestige of teachers and attract high-achievers to the profession. Evidence shows that high achievers make better teachers and have a greater ability to raise student performances (Grattan, 2019a).

Education is an important area of focus for the NSW Government's move towards Outcomes Budgeting. This will work towards meeting the NSW Government's priorities by mapping State spending across 46 State Outcomes. Four of these outcomes are directly relevant to human capital (Figure 4.4) and will prioritise providing the highest-quality education no matter where you live or what your circumstances are (NSW Government, 2019).

FIGURE 4.4: NSW GOVERNMENT OUTCOMES BUDGETING

STATE OUTCOME	DESCRIPTION
Education foundations for success	Providing a high standard of education for children and young people through the State's public-school system, and providing support to non-government schools.
Best start in life for young children	Regulating and overseeing the delivery of accessible and high-quality early childhood education services.
Equipping teachers with the best skills for educating our young people	Improving teacher quality through the regulation and accreditation of school and early childhood teachers by the New South Wales Education Standards Authority (NESA).
Skilled and employable workforce	Contributing to jobs growth by delivering a highly skilled workforce that meets the current and future requirements of NSW business and industry.

Discussion questions

- How can the NSW Government improve student outcomes and the performance of NSW schools?
- What are the core competencies a modern school system should provide, given the increasing digitalisation of the economy?

4.4 Improving Vocational Education and Training

The VET system provides a diverse range of occupational skills and competencies across the economy. Universities play a similarly important role in preparing post-school students for the workforce, but that sector is largely a responsibility of the Commonwealth Government.

To meet the economy's current and future needs, the VET system needs to provide skills in line with industry standards to an appropriate number of students. Some effort in workforce planning is also necessary (despite the difficulty of predicting future skill requirements) to avoid major skills shortages, which in turn informs VET policy. Future challenges for the VET sector lie in adapting to an evolving economy increasingly characterised by technology and frequent market disruption. These trends mean workers will require multiple skillsets over the span of their careers to remain employable and productive. As such, retraining and upskilling will be inevitable for many. VET reforms should increasingly focus on providing flexible and transferable skillsets and normalise the concept of 'life-long learning' to facilitate and encourage workers to remain skill-relevant.

Annual statistics from the National Centre for Vocational Education Research show that around half of all traineeships and apprenticeships commenced are not completed (NCVER, 2019). The reasons behind this high rate are unclear. There is merit in focusing on apprenticeship and traineeship programs in NSW, given that longstanding skills shortages typically lie in trade-related occupations.

The VET system in New South Wales is complex, due in part to shared responsibilities between the State and Commonwealth governments (as outlined in the National Agreement for Skills and Workforce Development). Like primary and secondary education, there are both public and private VET training providers. State and Territory governments are mostly responsible for the delivery and operation of VET (for instance, the NSW Government operates TAFE NSW, the state's largest VET provider).

Commonwealth involvement in the sector lies largely in regulation (including setting standards for qualifications) and oversight. Key Commonwealth agencies include the Australian Skills Quality Authority (ASQA) and the Australian Industry and Skills Committee. COAG and the Industry and Skills Council (made up of Commonwealth, State and Territory government industry and skills ministers) are responsible for providing leadership and direction over the sector. See Figure 4.5 for a broad summary of the responsibilities over VET.

FIGURE 4.5: COMMONWEALTH AND NSW GOVERNMENT RESPONSIBILITIES OVER VET

COMMONWEALTH	NSW	JOINT RESPONSIBILITY
• Funding contributions to support states and territories to provide VET, with additional assistance for national priority areas • Regulation and registration of Registered Training Providers, qualification and quality assurance through ASQA • Specifying standards for educational qualifications through the Australian Qualifications Framework	• Providing the majority government funding for VET in New South Wales • Operation of TAFE NSW, New South Wales' largest VET training provider • Provision of VET advice and information to prospective students through Training Service NSW • Determining VET programs eligible for subsidised fees through 'Smart and Skilled'	• COAG Industry and Skills Council responsible for industry competitiveness, productivity and labour market pressures • Australian Industry and Skills Committee develops and approves national training packages with industry advice

There have been several VET system reviews in recent years.[2] Of particular note, an expert review on behalf of the Commonwealth Government by the Honourable Steven Joyce (Strengthening Skills: Expert Review of Australia's Vocational Education and Training System, 2019) was completed earlier this year. Currently, a review of the Australian Qualifications Framework (AQF) commissioned by the Commonwealth Government is underway and is due for completion in late 2019 (review panel chaired by Professor Peter Noonan). The Commonwealth Productivity Commission also focused extensively on the VET sector in the five-year productivity review (Productivity Commission, 2017).

There is broad agreement across these reviews on the need for VET reform and scope to more closely align training programs in the VET sector with the needs of students and industry (rather than the training provider). The Joyce Review identified six broad issues in the VET sector, as reported by those participating in the review:

- Continuing variation in quality between providers, and concerns about the relationship between the regulator and providers
- A cumbersome qualifications system that is slow to respond to changes in industry skill requirements
- A complicated and inconsistent funding system that is hard to understand and navigate, and is not well matched to skills needs
- A lack of clear and useful information on vocational careers for prospective new entrants
- Unclear secondary school pathways into the VET sector and strong dominance of university pathways
- Access issues for Aboriginal and Torres Strait Islander Peoples and 'second chance' learners seeking skills that will help them obtain and stay in meaningful work.

2 These include the Business Council of Australia 2017, Productivity Commission 2017, 2017a, CEDA 2017, Jobs for NSW 2016, Dawkins et al 2019, and the OECD 2018.

Other issues reported by Joyce relate to public attitudes towards the VET sector, which have worsened in recent years. Reasons include poor provider behaviour, unduly short courses and variability in training quality. In addition to funding bias, longstanding cultural bias against VET (in favour of universities) has also been linked to the lower number of students aspiring to VET careers.

The Commission's understanding of the issues in the VET sector (detailed in the next section) have been informed extensively by these reviews and its own analysis. With broad agreement on areas of underperformance and the direction of reform, an implementation strategy to bring the findings and conclusions of these reviews to fruition would be timely. VET reform must also consider the social, economic and geographic context in which people live and work. There is increasing evidence demonstrating the significant link between students' context and their aspirations, capabilities and behaviour.

The current system is complex and funding is not well directed

The VET system is based on competencies and qualifications nationally recognised within the Australian Qualifications Framework (AQF). This has the advantage of flexibility, as there is scope for the length of training to be adapted to students' prior knowledge and experience. It is not clear, however, if there are enough pathways between professions, particularly for those seeking a career change later in life.

The system is also complex, with a high number of qualifications and competencies. There are currently around 17,000 units of competency contributing to around 1,470 qualifications, and competency units and qualifications are infrequently phased out.

Service Skills Organisations (which serve as representatives of industry) compile qualifications and competencies to form Training Packages to meet industry needs. A Training Package does not suggest how a learner should be trained, it represents the group of qualifications required to perform effectively in a certain industry (ASQA, 2019). There are currently 68 nationally recognised Training Packages, developed with industry input.

The NSW Government shapes the VET sector by directing funding support (in the form of fee subsidies) to qualifications on the 'Smart and Skilled' skills list. These courses are expected to offer the best job prospects, and provide career paths and opportunities for higher learning.

The Skills list currently outlines 790 eligible qualifications and there is no cap on the number of funded places for any eligible qualification. Given the breadth of the funding available, participation in VET likely reflects student demand for training, rather than the needs of the economy. Prospective VET students may benefit from a more refined list to clearly indicate the skills that will lead to employment.

Improving information quality to help students make better career choices

Prospective students rely on good information regarding courses and training when deciding to pursue higher education. Reviews of the VET sector have noted scope to improve the quality and accessibility of information to students. For instance, the Joyce Review concluded that:

> "although a great deal of information is published, it is fragmented across different websites, is not always complete and is difficult to navigate. Stakeholders continue to report that it is difficult to find reliable information."

Improving the quality of skills information is important for students and this could be supported by data analytics. There are already systems in Australia for identifying current occupation-based skill shortages, but more regular exercises for considering national skills needs are required.

High rates of incompletion among VET students may be attributed to poor availability of information to prospective students. Students may be insufficiently informed about training programs prior to starting and consequently do not complete their qualifications because of dissatisfaction.

The NSW Department of Education's Pathways for the Future project is analysing pathways young people take through high school, tertiary education, the workforce and social participation to better understand the factors that influence education and employment outcomes. This information can help, along with the Smart and Skilled Student Outcomes Survey, to:

- identify obsolete qualifications and training
- better allocate funding to areas of need
- improve public information allowing comparisons of Registered Training Provider performance
- identify competency pathways for occupations
- identify pathways to further study and employment prospects, and
- improve information on how to transition a skillset into a full qualification.

Improving flexibility and responsiveness of VET qualifications and certifications

The current review of the AQF further highlights the emerging consensus that the economy would benefit from a more fit-for-purpose and responsive VET sector. There are signs that the current system should be more responsive to the dynamics of the economy. Training Packages (described in the previous section) are highly prescriptive and can take several years to update (PC, 2018). As a result, VET programs are often out-of-date and do not provide skills that match current business needs. In response, employers, as the major 'customers' of the VET system, are increasingly relying on unaccredited training as a source of trained workers. In line with broad economic trends, the demand for certain skills can be cyclical (for instance the construction and mining booms). A VET sector with the flexibility to swiftly respond to these trends and efficiently provide skills will allow workers to take advantage of employment opportunities and businesses to access an appropriately skilled labour force.

A key issue is the lack of a cohesive and dynamic relationship between the VET and industry sectors. As a result, the contents and changes to training packages are insufficiently informed by industry. This includes information on employers' 'use' of qualifications (that is, the relevance of skills taught) and students' post-VET employment outcomes. A useful test of this is, for example, the extent to which employers make a certain qualification requirement for a position, even though it is not a legal requirement.

Moreover, students and employers would benefit greatly from a VET system that provided general skills that are becoming more valued in the workplace (particularly in the services sector). These include interactive skills (for instance interpersonal and social skills), teamwork, and communication. Basic technological and digital literacy, resilience, adaptability, the capacity to acquire knowledge, and problem solving are also of increasing value.[3] Such skills are often complementary to technology and are not currently captured in units of competency in a consistent way in the VET system.

As reskilling and upskilling becomes the norm, the system will have to support periods of training while individuals remain in the labour market, with flexible modes of delivery accessible at any stage of life. Training providers will have to increasingly consider ensuring that course content can be delivered in a flexible and accessible way.

3 World Economic Forum 2018, Future of Jobs Report: 2018, Geneva.

Improving the quality of training providers and assessment tools

The Australian Skills Quality Authority is the national regulator of Registered Training Providers (RTPs), accredited VET courses, and institutions and courses for overseas students. The overall quality of the training the VET system delivers depends on a range of regulatory issues, including:

- adequate definition of units of competency
- appropriate combination of competencies for certification
- course design
- course delivery including the quality of the trainer, and
- competency assessment.

The quality of trainers and assessors is a key issue both for the quality of training delivered and assessment of training (Department of Education and Training, 2016). While trainers are required to have a Certificate IV in Training and Assessment, there are issues with poor delivery and assessment for this qualification. Trainers may have outdated industry knowledge, or there may be difficulty attracting professionals with the requisite industry knowledge.

Given the crucial role of assessments in demonstrating a competency, the validation of RTP assessment practices is important. Both the Commonwealth Productivity Commission and the Joyce Review have highlighted the need to introduce independent validation assessment outcomes, including external accreditation, as is already the case for some industries such as the electrical and plumbing licensing systems.

VET qualifications risk losing credibility and value to employers if the assessments required by training providers are insufficiently rigorous and fail to genuinely validate student competency and learning outcomes.

Funding and fee arrangements are biased against VET in favour of higher education

Both VET institutions and universities play distinct roles in providing tertiary education and preparing students for participation in the economy. A typical choice of school students is to pursue a career pathway via either VET or a university. This decision should be informed by students' aspirations, interests and abilities, while broader considerations include expected salary, career progression and opportunities in the location they want to live in.

Governments also play a role in influencing this choice and provide other incentives to students, for instance through fee settings and capped places. Despite the discretion students have in making this choice, current funding and fee arrangements may be distortionary, resulting in a sub-optimal distribution of students among the VET and higher education sectors.

Students can receive an income contingent loan for any undergraduate bachelor's degree course from a public university for the full cost of the course, with no loan fee payable (known as the FEE-HELP). By contrast, income-contingent loans are only available for diploma or higher-level VET courses at certain approved providers, for selected courses, with a cap on the loan amount and a 20 per cent loan fee for many students.

Better integration of VET and higher education

The VET and higher education systems typically operate independently. The two systems confer different sets of qualifications and prepare students for career pathways in distinct areas of the economy. There is, however, widespread support for better integration of VET and higher education while maintaining their distinctive features. Dawkins et al (2019) argues that "Australia needs a more comprehensive, coherent and interconnected tertiary education sector that makes better use of both VET and higher education".

Addressing disadvantage

Foundation skills are essential for employability and social engagement, and the most effective way to build them is in the workplace. A recent OECD report found about one fifth of the Australian working-age population have low literacy and/or numeracy scores. These adults are less likely to participate in education and training, and therefore more likely to be working in elementary positions (OECD, 2017a).

Reforms to the VET sector could help address disadvantage and promote social mobility. As has been done in the higher education sector, sufficient accessibility to income-contingent loans on a sector-neutral basis should be made a priority so financial circumstances are no longer a barrier to VET training. Consideration should also be given to post-VET outcomes. Achieving the best training outcomes requires wrap-around support and coordination of employment services. Gaps in service delivery for vulnerable cohorts should be identified and addressed.

Discussion questions

- Do the issues and challenges identified in this section reflect the challenges facing the VET sector in delivering skills for a modern economy? What can be done to address these challenges?
- How could governments raise the profile of VET and shift cultural attitudes towards the sector?

4.5

Ensuring labour market regulation works towards building human capital

Occupational regulation can have a significant impact on the utilisation and formation of the stock of human capital. While our schools and the VET sector play a critical role in providing the foundational skills necessary for professional life, human capital needs to be developed after entering the workforce. Ideally, occupational regulation should allow for the continuous skills maintenance and upgrading of human capital while facilitating smooth adaptation to inevitable market changes and advances in technology.

Occupational regulation may encourage or hinder development of human capital. There are several reasons why governments regulate certain occupations. Policy objectives typically include consumer protection, occupational health and safety, and industry confidence. These regulations can benefit consumers by minimising the risk of unqualified and inappropriate players in the market. They also provide a mechanism for government to monitor activities and take action against misconduct.

While these objectives may be reasonable, governments should ensure that the regulations put in place to achieve them are of overall net benefit to the economy. Despite reasonable intentions, excessive or poorly designed regulation risks hindering the development of human capital (such as skills and competencies) and not fully harnessing labour-force capacity. Requirements that are overly stringent also disincentivise market entrance and result in reduced market competition and consumer choice. The consequences are then ultimately borne by consumers, who pay more for (or forego) goods and services.

It should be noted that not all occupations are subject to regulation, while some are regulated at the Commonwealth level. Areas of NSW Government labour market regulation with human capital impacts include:

- issuing occupational licences that grant holders the right to employment
- setting minimum qualifications to enter certain professions
- recognising occupational licences and qualifications attained outside New South Wales, and
- mandating continuous professional development for certain occupations.

In setting these policies, the NSW Government should aim for an optimal balance between ensuring a healthy degree of competition and the various regulatory objectives, as detailed above.

Barriers to entering certain labour markets

Some labour market regulation can be characterised as a 'barrier to entry'. These are occupation-specific requirements that must be fulfilled and are typically outlined in legislation. They essentially serve to control (or monitor) the flow of workers moving into certain professions. The main way this is achieved is via occupational licensing regimes, and legislated qualification requirements.

As a general principle, statutory requirements for occupations should be the minimum necessary for the NSW Government to achieve its policy objectives while ensuring that labour supply is adequate, and competition is not unreasonably stifled. Requirements that are overly onerous can impose significant costs, such as higher consumer prices resulting from a lack of competitiveness between suppliers.

Previous reviews and reforms to certain labour market regulations (in the form of removing or lowering barriers to entry) have delivered significant benefits to the NSW economy. In 2014, the NSW Government commissioned the Independent Pricing and Regulatory Tribunal (IPART) to undertake a review of the NSW licensing regime as part of its broader scope to reduce red-tape. IPART's recommendations have been enacted in several areas such as for property valuers and travel agents.

Under the *Travel Agents Act 1986*, all travel agents in New South Wales were previously required to be licensed and lodge annual returns with the Travel Compensation Fund. IPART recommended repealing this Act to remove an unnecessary regulatory burden on the industry. These costs were calculated at between $19.6 million and $25.3 million annually (NSW Parliamentary Debates, 2014).

The need to license and specifically regulate travel agents had become redundant due to a range of factors, including increased use of credit cards and the process of chargebacks where goods and services are not provided, protections provided under general consumer protection legislation (namely, the Australian Consumer Law) and the introduction of an industry accreditation scheme by the Australian Federation of Travel Agents.

Despite these efforts, many similar rules and regulations remain for several professions in New South Wales (for example, fencers). These may represent unreasonable barriers to entry. As well as reducing market competition, these regulations may compromise human capital development as there are fewer opportunities to apply and develop skills and earn a living in particular occupations.

Box 4.1 Better Business Reforms

In 2018, the NSW Government introduced a broad package of Better Business Reforms. One of the key reforms was introducing a choice of one, three or five-year durations for those applying for or renewing a licence with NSW Fair Trading. This reform enables licence holders to choose a duration that works best for their business and their budget. The IPART Licensing Final Report recommended that licence durations should be the maximum possible, subject to the expected frequency of change to the elements of the licence. A longer duration implies less administration for regulators and lower compliance burdens for licensees. It is estimated that implementing these licences will save licensees over $20 million per year across the various licensing schemes administered by NSW Fair Trading.

Other reforms have removed duplicated reporting requirements for conveyancers and real estate agents. Since 1 July 2019, auditors can use NSW Fair Trading's new online platform, 'Auditors Report Online', to lodge trust account audit reports. The requirement for conveyancers and real estate agents to both submit copies of these reports has also been removed, representing a further reduction of unnecessary administrative costs.

Mutual recognition of licensed occupations

Occupations that carry potential consumer risk are often licensed, but Australian jurisdictions vary in the way they license such occupations. Mutual recognition arrangements are designed to establish a framework for assessing equivalent licences across jurisdictions, and for individuals to have their licence recognised in other jurisdictions. In this way, mutual recognition can improve labour mobility and better match jobs with available skilled labour.

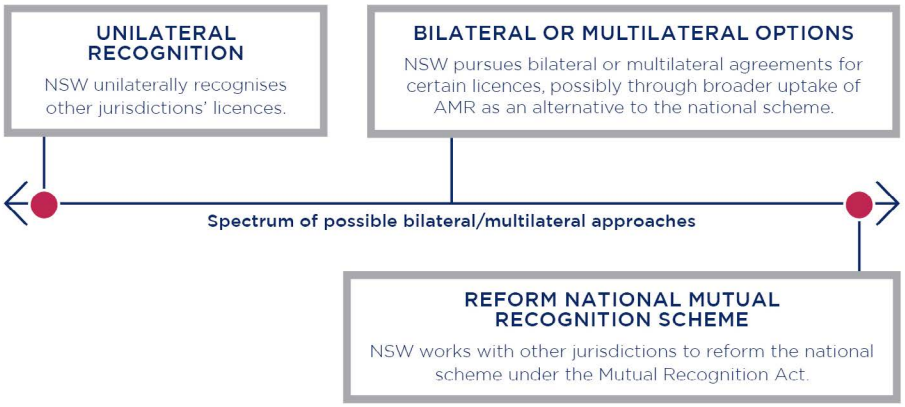
The *Mutual Recognition Act 1992* (Commonwealth) establishes a national mutual recognition scheme for occupational licences in Australia. This scheme entitles individuals to apply for mutual recognition of any occupational licence in a second jurisdiction if it covers substantially the same activities as in their home jurisdiction.

Separately, there are a range of automatic mutual recognition (AMR) schemes in Australia. AMR is distinct from the national mutual recognition scheme and operates analogously to the arrangement for Australian driving licences. That is, AMR schemes allow an individual to work in another jurisdiction temporarily without needing to apply for a new licence. AMR is established by enabling legislation that deems a licence from another jurisdiction equivalent to the home state's licence. East coast jurisdictions have AMR arrangements in place for electricians, and all jurisdictions have AMR arrangements for veterinarians. AMR schemes can function particularly well for some types of workers and occupations, and could be explored further to complement the national scheme.

The principles behind the Commonwealth *Mutual Recognition Act* remain sound, but there are several flaws with existing administrative arrangements. In particular, the role of Ministerial Declarations could be clarified. Declarations mostly cover groups of licences and require ministerial sign-off, making the process of updating them cumbersome. Because of these administrative difficulties, Declarations have not been updated in full since 2009. The inflexible nature of Declarations may be both undermining the purpose of the Act in promoting labour mobility, and potentially threatening consumer outcomes because in some cases jurisdictions are obliged to recognise registrations from other jurisdictions based on old licence standards. Balancing consumer protection issues is now crucial given current community concern about building quality.

As well as reducing market competition, these regulations may compromise human capital development as there are fewer opportunities to apply and develop skills and earn a living in particular occupations.

FIGURE 4.6: OPTIONS TO PURSUE WIDER RECOGNITION OF OCCUPATIONAL LICENCES IN NSW



Source: NSW Treasury.

Review of Continuing Professional Development for licensed occupations

Several licensed occupations require licence holders to complete Continuing Professional Development (CPD) as a condition of licence renewal, consisting of a specified level of training activity relevant to their profession. CPD is mandated with a view to "maximising consumer protection outcomes, maintaining public confidence by ensuring that industry participants are continually updating their skills, and reducing disputes" (NSW Fair Trading, 2013). In New South Wales, the main occupations with CPD requirements are building (general builders and swimming pool builders), and property (such as real estate agents and strata managing agents).

As part of its special review of business licensing conducted in 2014, IPART broadly concluded that CPD was a common source of unnecessary regulatory burden across a range of licences. CPD requirements were found to impose significant costs, particularly for small businesses, creating a barrier to entry. Several stakeholders reported that "CPD requirements are often unnecessary, out of date, and unrelated to the objectives of the licence". IPART notes that other states do not have these mandatory requirements.

IPART has recommended examining other CPD models that deliver meaningful training to ensure quality of service, without adversely impacting consumer outcomes. For instance, Victoria operates a voluntary model of CPD for builders. Despite abolition of mandatory CPD in 2004, participation in training activity among builders remains high (75 per cent in 2012). IPART highlights that a voluntary scheme would enable market participants to differentiate themselves from others (by selecting training suited to their interest).

Discussion questions

- How can labour markets facilitate the need for future workers to continually undergo retraining or upskilling in response to technological advancements and innovation?
- How should occupational licensing regimes deliver their objectives without imposing unnecessary regulatory burden?
- What do best practice CPD arrangements look like?
- How could mutual recognition arrangements be improved to better facilitate interjurisdictional labour flow?

4.6

Better matching healthcare work with skills and qualifications

The education and training of nurses and other allied health professionals has improved dramatically over past decades, in line with new treatment techniques and use of technology. Their roles and responsibilities have not changed to reflect this, however, and many health professionals direct their valuable skills toward work that less qualified workers could do. This has led to the exit of large numbers of highly skilled individuals from the health industry as they are unable to advance professionally. Research conducted by the Grattan Institute (2014) found that between 15 and 30 per cent of the work performed by health professionals (including nurses and physiotherapists) could be shifted from their current workforce group to another workforce group. This suggests we need a better match between the skills of health professionals and the tasks they perform.

NSW Health has made some progress in improving health workforce productivity. Examples include the introduction of clinical support officers to support nurses in administrative roles and the use of enrolled nurses to perform certain functions. This has allowed the nurses to direct their skills to where they are most productive. Exploring further opportunities to support health practitioners to work at their full scope of practice may be possible, including through addressing barriers related to regulations, culture and tradition (see Box 4.2). This could improve the quality of customer service in the health system.

Box 4.2 Maximising workforce capacity: nursing practitioners

Nursing practitioners are advanced practice registered nurses qualified at the Masters level to initiate diagnostic investigations, prescribe medications and make referrals. Since first authorised to practice in New South Wales in 2000, nurse practitioners have developed an increasing presence in primary care. Nurse practitioners have the potential to improve access to health care, provide flexible and responsive care, and decrease service costs. Yet barriers have prevented many from working at the full scope of their practice. Such barriers may be regulatory (for example eligibility for payment under the Medicare Benefits Schedule) or cultural (for example, in some cases nurses may not be treated as part of a team delivering integrated care).

Discussion question

- What regulatory and cultural barriers could be preventing health professionals from optimal performance?

Reliable, sustainable and productive use of our water and energy

Key points

Why we need to focus on water and energy

- Water and energy markets are key determinants of productivity because they are central to the living standards of households and underpin production for firms. At the same time, water and energy policy needs to take account of sustainability objectives.
- A range of State Government departments, independent regulators, and state-owned corporations are crucial for reliable, sustainable and productive water and energy markets.
- There is an increasing need to carefully manage water resources in the face of a growing population and increased climate variability.
- Delivering secure, affordable and high-quality water and wastewater services will require having the right governance frameworks in place to plan for the future, considering a wide range of investment options to meet demand, and ensuring high-quality services in regional areas as well as our cities.
- The past decade has seen significant network investment, rising commodity prices, and plant closures affecting wholesale prices in the National Electricity Market. State initiatives such as the Network Reform Program are putting downward pressure on prices, but there is scope for further gains in efficiency.
- Investment in new long-term generation capacity is presently constrained by ongoing uncertainty over emissions reduction for the sector.
- Natural gas is likely to be needed to meet peak demand as intermittent renewable energy generation expands and coal generators close. However, despite New South Wales' substantial gas reserves, there are barriers to efficient exploration and production.

Conversation starters

- Governance of the rural and urban water sectors is complex. Functions are spread across government departments, independent regulators, and state-owned corporations. This can create overlap and gaps in roles and responsibilities, and coordination problems.
- Households in regional New South Wales are facing higher bills for water and sewerage services than those in metropolitan areas, due to the challenges of largely council-run local water utilities.
- Sustainable growth in our cities and regions can be achieved through traditional supply augmentation approaches, but water recycling and greater efficiency can also be cost-effective.
- Better electricity network asset utilisation, increased demand management, and emissions policy certainty could all spur investment and contain electricity prices for consumers.
- An improved regulatory framework for energy, including gas, has the potential to generate budget savings while better supporting sector productivity.

5.1

The role of water and energy in productivity growth

Natural resources are critical inputs into production across our economy. These resources need to be managed efficiently and sustainably to balance the needs of different sectors, while ensuring policy is predictable. Population growth creates challenges for resource use, as does increasing climate variability.

Government has a role in managing a wide range of resources including forests, waterways, and minerals. In this chapter, we focus on water and energy resources. These have been identified as priority areas for productivity-enhancing reform due to their crucial role in supporting production for industry, as well as the living standards of households.

State governments play an active role in water and energy market management and regulation and could pursue a range of reform options that substantially improve productivity. Reform could also ensure alignment with broader social and environmental objectives. Achieving higher productivity and more sustainable environmental outcomes can be complementary objectives, given a more productive economy implies producing the same amount of output with fewer input resources.

5.2

Problem definition: Water

Population growth and increasing climate variability pose challenges for water management in New South Wales

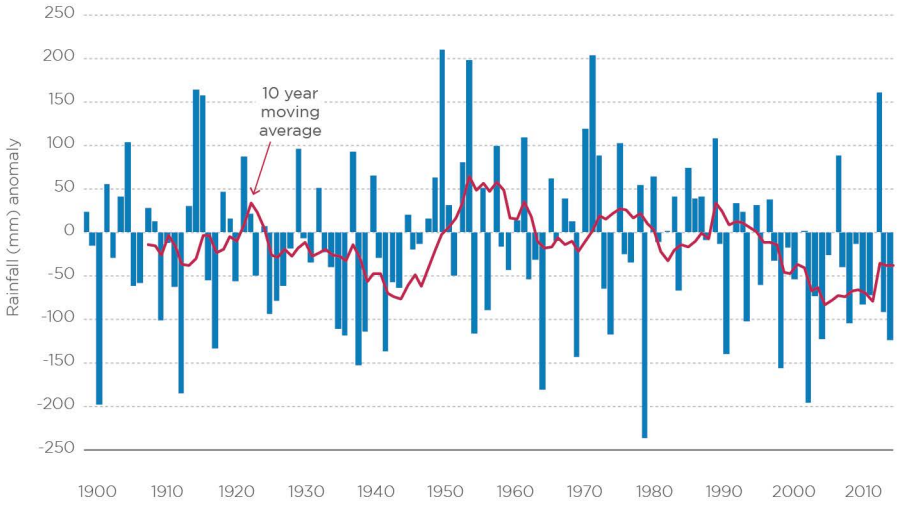
Efficient and high-quality water services will support higher productivity by lowering costs for producers and consumers, facilitating better environmental outcomes, and underpinning healthier communities.

The State's population has grown at an above-trend rate over the past decade, and solid population growth is likely to continue. The population is forecast to reach 9.9 million by 2036, while Sydney is forecast to reach 6.8 million (DPE, 2016, see also Section 8.2).

This is putting pressure on our water resources and means New South Wales will need to make some important decisions to secure cost-effective future supply over the coming years. Moreover, it means we need to carefully manage our existing water infrastructure and resources, to ensure we use them as efficiently as possible.

Increasing climate variability also poses a growing risk to water security and these impacts are already being felt. The Bureau of Meteorology and CSIRO's 2018 State of the Climate report (CSIRO, 2018) shows that the duration, frequency and intensity of extreme heat events has increased across Australia, while rainfall has declined in south-eastern Australia over the past few decades (see figure 5.1), resulting in reduced streamflow.

FIGURE 5.1: RAINFALL ANOMALY IN SOUTHEASTERN AUSTRALIA DURING THE SOUTHERN WET SEASON (APRIL-NOVEMBER)



Source: Bureau of Meteorology, Climate change – trends and extremes.
Note: rainfall anomaly is the difference between the level of rainfall in a particular year and the long-run average annual level of rainfall.

Cool-season rainfall is projected to decline further across New South Wales over the current century, and this means more time spent in drought, according to Australian national climate projections (CSIRO and Bureau of Meteorology, 2019).[1] The current drought in NSW demonstrates these risks starkly.

In the face of these challenges, New South Wales will need to manage its water resources carefully in coming decades.

5.3

Improving governance in the rural and urban water sectors

Water management has improved, but there is room for further improvement

Water management has received significant attention in recent years, and this has prompted a range of government reviews and policy responses.

In 2017 Ken Matthews AO led a review into water management and compliance issues in New South Wales (Matthews, 2017). A major outcome of the Matthews Review was the creation of a new independent Natural Resources Access Regulator (NRAR) to regulate the water sector. Water NSW had earlier taken over compliance functions from the former Department of Primary Industries Water Division, following a public sector restructure in 2016. The Matthews Review and a 2018 Ombudsman Report found that this restructure was poorly managed and led to a weakening of compliance activity (NSW Ombudsman, 2018).

The creation of the NRAR has gone a long way to remedying governance issues related to regulatory and service delivery roles sitting within the same government entity. Nonetheless, the Ombudsman has highlighted the need for ongoing action from government, including ensuring the NRAR has proper resourcing, and that future public service restructures are managed in a way that does not compromise good governance.

1 Regional analysis in the national climate projections includes three 'super cluster' regions that overlap with New South Wales – Eastern Australia, Southern Australia and Rangelands. In all of these regions, winter rainfall is projected to decline and time spent in drought is projected to increase over the course of the century.

Important reforms are now underway to further improve governance, for example through the NSW Government's Water Reform Action Plan. One area that could benefit from further work concerns the roles and responsibilities of NSW and Commonwealth Government agencies in water management, and how to optimise coordination between agencies. For example, though NRAR has been formed as a new regulator, Water NSW retains critical information functions such as administering changes to water licences and managing metering infrastructure, which are crucial to effective compliance activity.

Finally, New South Wales could benefit from a longer-term strategic plan for water management covering both regional and metropolitan New South Wales. The two key challenges to water resources from population growth and increased climate variability mean there is a growing need for longer-term strategic direction for water management, to ensure water security and efficient use of water resources. Relatedly, it will be important to regularly assess and model the impacts of different climate and population scenarios on water resources. This was highlighted in the 2018 State Infrastructure Strategy (INSW, 2018), with the Government supporting a recommendation that New South Wales assess its climate science capability.

Strong institutions and processes for water planning will promote the best possible investment decisions

Population growth creates the need for periodic major investments in water infrastructure. Robust water planning processes are therefore crucial to enabling the best possible investment decisions to meet economic, social and environmental objectives. This, in turn, requires well-defined and transparent governance arrangements.

New South Wales has improved governance in urban water markets over the past few decades, for example by corporatising major utilities and establishing independent economic regulation through IPART. There is, however, potential to further clarify roles and responsibilities, better integrate water and land-use planning, and improve transparency in the water planning process.

Urban water planning functions are currently dispersed across government departments, major state-owned corporations, and IPART. New South Wales produces a relatively comprehensive Metropolitan Water Plan every few years, however the Commonwealth Productivity Commission has noted that plans can lack transparency about how water planning decisions are made, particularly around technical assumptions underpinning investment decisions (PC, 2017d).

There is also scope to better align water planning and land-use planning. One significant challenge to achieving this is coordinating system-wide water planning conducted at the State Government level with land-use planning at State and local government levels. Recent machinery-of-government changes following the 2019 NSW election have gone some way to improving governance by uniting metropolitan and regional water functions in a single division in the Department of Planning, Industry and Environment (DPIE). Further work could build on this progress.

Another key question relates to the role of State-Owned Corporations (SOCs) in water planning. As major service providers, Sydney Water and Hunter Water are, and should be, key players in water planning. However, roles and responsibilities can sometimes be unclear, and as such the distinction between policymaking and service-delivery roles can become blurred. Concerns about unclear roles and the responsibilities of urban water utilities across Australian jurisdictions were raised by participants in the Productivity Commission's 2018 National Water Reform Inquiry (PC, 2017d).

Victoria is a potential model in this respect, with the Government setting policy objectives and performance measures, and SOCs conducting planning to align with these. The Government and the regulator ultimately still make decisions on major investments. A high level of customer engagement is also a feature of the Victorian model.

Improved water planning could enable increased uptake of integrated water cycle management (IWCM) solutions alongside traditional supply augmentation options. IWCM is about a whole-of-system approach to urban water management, as opposed to traditional approaches that focus on singular objectives such as delivering potable water services (drinking water). IWCM can involve measures such as wastewater recycling and stormwater harvesting for local use, for example to water green space.

That being said, IWCM approaches can benefit from scale and are often place-dependent. As such the Commonwealth Productivity Commission has suggested the need for place-based IWCM plans in areas where they are likely to be most effective such as greenfield and major infill developments (PC, 2017d). Sydney Water is currently working on developing IWCM plans for growth areas in collaboration with the Greater Sydney Commission.

IWCM is most feasible when considering the benefits holistically in response to specific economic, environmental, and social policy objectives. Further clarifying roles and responsibilities and policy objectives in urban water markets will help facilitate IWCM uptake where it is cost effective.

New South Wales has made a range of significant supply augmentations in recent decades, notably the construction of the Sydney Desalination Plant during the Millennium Drought. The State will likely need to make further large water infrastructure investments over the next decade. Clear and consistent roles and responsibilities and a transparent appraisal of all investment options will be crucial to ensuring community confidence in water planning. Large supply augmentations and integrated water cycle approaches are both part of the solution and need to be assessed holistically to determine the most cost-effective investment mix.

Discussion questions

- How could New South Wales improve governance and institutional arrangements for water management?
- How could the State improve water planning and what are some possible ways to:
    i. clarify the roles and responsibilities of SOCs, government, and regulators
    ii. increase integrated water cycle management approaches where they are cost-effective?

5.4

Improving service delivery in regional areas

Regional local water utilities are often unable to achieve scale efficiencies, and many rely on State government subsidies

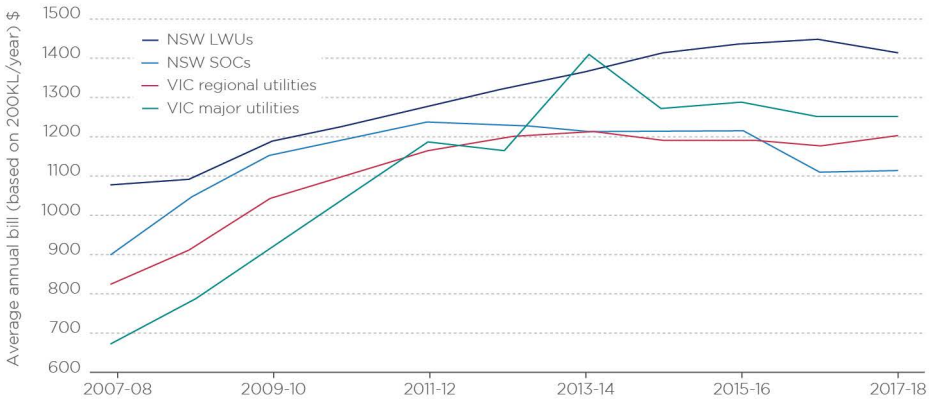
New South Wales is relatively advanced compared with other Australian jurisdictions in the delivery and regulation of urban water services. However, regional service delivery could be improved.

Regional water and wastewater services are delivered by local water utilities (LWUs). There are 92 LWUs in New South Wales, primarily run by local councils. LWUs lack the scale efficiencies of large urban utilities like Sydney Water and Hunter Water, with more than half of LWUs having fewer than 5,000 connections. As a result, many LWUs are not viable without NSW Government capital grants.

LWUs face additional challenges such as difficulties recruiting skilled staff and pricing structures built around cross-subsidisation of other local council services.

Urban National Performance Report (NPR) data shows that households in parts of regional New South Wales serviced by LWUs required to submit NPR data (those with more than 10,000 water supply connections) faced bills on average $282 per year higher than households in metropolitan New South Wales in 2017-18, and $197 higher than households in regional Victoria (Figure 5.2).

FIGURE 5.2: WEIGHTED AVERAGE BILLS ACROSS NSW AND VICTORIAN REGIONAL AND METROPOLITAN UTILITIES



Source: 2017-18 Urban National Performance Report. Note: figures are the average annual bill for water and sewerage services based on 200kL/year, overall average is weighted by customer numbers for each utility.

Water quality issues are also a concern, and more than half of LWUs required to submit data did not have an externally assessed risk-based drinking water management plan, according to the 2017-18 NPR.

A number of major reports have highlighted issues with LWUs, including the Productivity Commission's 2017 National Water Reform Report and 2011 Urban Water Sector Report, and the 2008 Armstrong Report into Secure and Sustainable Urban Water Supply and Sewerage Services for Non-Metropolitan New South Wales.

Evidence on the performance of LWUs suggests there is scope to consider reforms.

Discussion question

- How could the efficiency of local water utilities be improved to increase water security and quality, and lower bills for regional communities?

5.5

Expanding the role of water recycling and greater efficiency

Recycled water can be a viable option to meet future demand, but there are barriers to overcome

Continued growth in the State and our major cities is increasing the demand for water and putting pressure on the capacity of our existing wastewater system.

Recycling options currently meet a small portion of total demand across New South Wales and in Sydney. Sydney Water currently produces roughly 43 gigalitres (GL) of recycled water per annum, of which around 10 GL replaces potable water. The majority of the current small-scale recycled water schemes are used for irrigating public green spaces or industrial uses. Recycled water can be a cost-effective option, particularly in urban areas, and offers significant benefits to businesses and households including:

- limiting wastewater discharge and potentially deferring investment in other major supply infrastructure (such as dams or desalination) and wastewater infrastructure
- diverting water for environmental use, and
- irrigating community spaces and improving liveability.

Box 5.1 Water recycling in Western Australia

Western Australia is a good example of an Australian jurisdiction that is relatively advanced in water recycling.

The Western Australia Water Corporation has a sophisticated water recycling program, which aims to recycle 30 per cent of the State's wastewater by 2030.

The first stage of water recycling in Western Australia involves treating household waste to a quality where it can be used for a range of non-potable purposes such as irrigation, industrial processing, and supporting the environment.

Some of the treated wastewater undergoes further treatment and is then pumped back into the ground to recharge aquifers. Groundwater supplies over 40 per cent of Western Australia's drinking water, so some of the highly treated wastewater is eventually reused as drinking water. This is a form of indirect potable reuse.

Indirect potable reuse has proven to be more viable globally than direct potable reuse. Major cities such as London and Los Angeles are planning or implementing strategies to increase reliance on indirect potable reuse.

In a sense, Sydney already has some indirect potable reuse. Treated wastewater is released into the Warragamba Dam catchment (albeit in small quantities) by large towns including Goulburn, Lithgow and Bowral, and eventually finds its way into Sydney's drinking water supply.

However, there is currently no system-wide approach for recycling wastewater in NSW, and the vast majority of our wastewater is not reused at all. This presents a significant opportunity to help secure our future water supply, especially for areas located further from the coast where desalination is less viable.

The current drought has triggered the NSW Government to consider a new round of supply augmentations, including commencing planning to double the capacity of the Sydney Desalination Plant. While desalination is an option to augment supply, it is only one of a range of investment options and is less viable in areas further from the coast. Alternatives to additional desalination broadly include new dams, efficiency saving measures, and water recycling.

Water recycling need not involve direct recycling of wastewater for potable use. Non-potable water recycling options could include ensuring that major greenfield or infill developments have appropriate infrastructure to enable recycling for uses such as watering gardens and washing clothes. Having the right infrastructure in place for non-potable recycling would also provide an opportunity for a potential longer-term transition to direct or indirect potable reuse.[3]

Achieving system-wide (as opposed to location-specific) impacts from water recycling will require removing barriers to uptake, and integration with the land-use planning system, including strategic plans for key development precincts. A recent Frontier Economics review (Frontier Economics, 2019) identified some regulatory barriers and the Government is currently working to implement supported recommendations. However, coordinating water recycling with the planning process is likely to be another key barrier (as discussed in the section above). The next Sydney Metropolitan Water Plan provides an opportunity to address these coordination issues.

Community acceptance of recycled water options is crucial. Government can play an important role in engaging the community on options, noting large-scale water recycling has proven viable in major cities such as London, Los Angeles, and Perth (see box 5.1).

3 Direct potable reuse refers to treating wastewater to a high level of quality and delivering it directly as drinking water. By contrast, indirect potable reuse involves releasing treated water into another 'natural' water source (such as a river system or aquifer) before its final treatment and reuse as drinking water.

Discussion questions

- What are the barriers to New South Wales achieving larger-scale and cost-effective water recycling?
- How can these be addressed?

Water efficiency and demand management can complement measures to increase supply

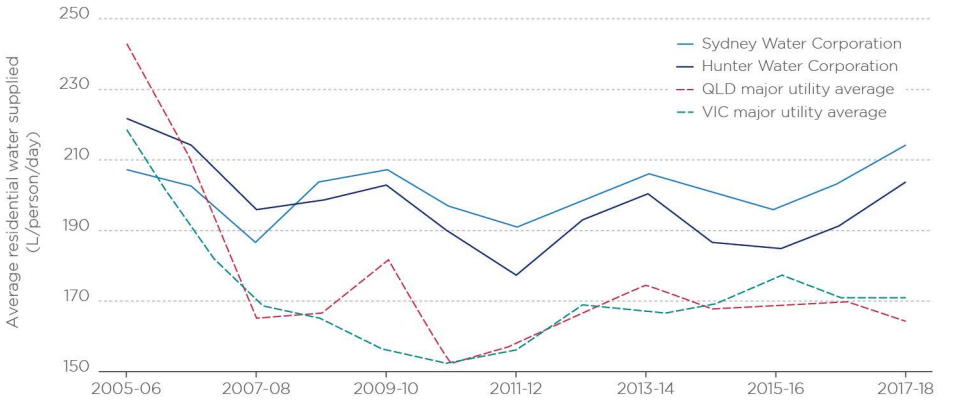
New South Wales will need new sources of supply over coming decades for its growing population. But managing demand and achieving water efficiency are also important to ensuring our water resources remain sustainable.

There is scope for New South Wales' major utilities to better manage leakage (water lost from pipe infrastructure) and promote greater water use efficiency among their customer bases.

Reducing leakage can be cost-saving for utilities, up to a point known as the 'economic level of leakage' – where the cost of reducing leakage further equals the value of the water saved. Sydney Water's most recent Conservation Report suggests it is above its estimated economic level of leakage (Sydney Water, 2018). That is, there is scope for it to achieve cost savings through maintenance work to reduce leakage. Reducing leakage can also temporarily defer the need for major additional supply investment.

New South Wales also has a comparatively high level of water usage per person. Water use efficiency among Sydney Water's customers was 213 litres (L) per person per day in 2017-18, 42 L per person per day higher than the average for major Victorian utilities (see figure 5.3).

FIGURE 5.3: AVERAGE WATER USE PER PERSON PER DAY, NEW SOUTH WALES UTILITIES AND AVERAGES FOR OTHER STATES



Source: 2017-18 Urban National Performance Report.

Achieving water efficiency in New South Wales has historically relied on changing consumer behaviour and rolling out more efficient technologies. This is because consumer bills reflect the long-run, rather than short-run marginal cost of water, meaning prices do not vary based on short-run scarcity such as during periods of drought. Queensland and Victoria have successfully maintained water use efficiencies achieved during the Millennium Drought, and New South Wales can likely learn lessons from these States. NSW could also consider how to build on the successes of the Building Sustainability Index (BASIX) efficiency scheme, which sets targets for water and energy efficiency.

Discussion question

- How can government achieve greater water use efficiency by households and businesses, particularly in metropolitan New South Wales?

5.6

Problem definition: Energy

The State has the opportunity to drive reform in this space

Power to legislate for energy policy remains with state parliaments, pursuant to s.51 of the Australian Constitution. This is generally coordinated with the Commonwealth and other states and territories through COAG Energy Council as the Australian Energy Market Agreement (AEMA). All jurisdictions are parties to the gas provisions, and all except Western Australia and the Northern Territory are parties to the electricity provisions.

New South Wales consumers source their electricity from participating retailers in the National Electricity Market (NEM), a wholesale market covering Queensland, New South Wales, Victoria, South Australia, Tasmania, and the ACT. The NEM is governed by the National Electricity Law (NEL), which sets out the National Electricity Rules (NER).

The institutional framework comprises the following:

- the Australian Energy Market Commission (AEMC) – rule maker and policy advisor
- the Australian Energy Regulator (AER) – regulator and rule enforcer
- the Australian Energy Market Operator (AEMO) – operator of the NEM.

Other institutions support this framework. The Australian Competition and Consumer Commission (ACCC) and the National Competition Council (NCC) ensure third-party access to network infrastructure. The ACCC also assesses energy-related mergers and enforces consumer protections under the *Competition and Consumer Act 2010* (Commonwealth). IPART monitors and reports on the performance of transmission and distribution network businesses and retail energy markets in New South Wales.

An incomplete electricity reform narrative

The current structure of the electricity market in the eastern states dates to the 1990s. In New South Wales, beginning in 1995, generation and transmission assets were split into separate entities, adopting private sector models of governance. In 1998, the NEM was formed as a wholesale market for electricity. It now comprises the (interconnected) electricity grids of Queensland, New South Wales, Victoria, South Australia, Tasmania, and the ACT. Generated electricity is transmitted through this grid to three distribution networks in New South Wales, covering different parts of the State. Ausgrid covers eastern Sydney, Central Coast and the Hunter; Endeavour covers Western Sydney, Southern Highlands and Illawarra, and Essential Energy covers the rest of the state (95 per cent of land mass). Private retailers sell electricity to end consumers through these network companies

Between 2010 and 2016, generation, transmission, and retail businesses were transferred to the private sector, as was a share of the State's distribution holdings. Today, New South Wales only retains sole ownership and control of Essential Energy and minority shares in Ausgrid and Endeavour. Electricity retail contestability was introduced in 2002, with prices deregulated in 2014.

These initiatives were significant, however, recent independent reviews have highlighted the need for further reform in view of developments over the past decade, including:

- rising electricity prices
- worldwide innovation, particularly in renewable energy
- the need to integrate energy and greenhouse gas abatement policies because of the impact of fossil fuel generation on climate, and
- the role of digital technology in managing demand to best use existing assets and reduce the need for future investment.

Box 5.2 Electricity pricing and factors contributing to the household bill

Broadly, retail prices will reflect the following cost components:

- **Wholesale costs** are determined in the NEM, as connected generators sell electricity into the grid through a bidding process overseen by the Australian Energy Market Operator (AEMO). A 'dispatch price' is determined every five minutes, and six dispatch prices are averaged every half-hour to determine the 'spot price' for each NEM region. NEM financial transactions are determined by spot prices.
- **Network costs** reflect recovery of earlier capital expenditure on infrastructure of network businesses known as their 'regulated asset base' (RAB). This includes transmission towers and distribution poles and wires to transport electricity from generators to end consumers. The Australian Energy Regulator supervises New South Wales network businesses.
- **Environmental policy costs** include the Commonwealth Renewable Energy Target and the NSW Climate Change Fund.
- **Residual costs** include retailers' costs and margins, and any estimation errors.

Wholesale costs accounted for an estimated 32 per cent of the State's average residential retail bill in 2018, network costs accounted for 47 per cent, environmental costs for five per cent, and residual costs accounted for 16 per cent (AEMC, 2018).

Retail electricity prices have risen over the past decade

Electricity prices have risen sharply in New South Wales over the past decade (ABS, 2019). The Australian Energy Markets Commission (2018) Price Trends Review found that average residential retail electricity bills have risen from less than 20 cents per kilowatt hour to 30 cents in the past decade. This is due to a range of factors, some involving policy decisions and others outside the influence of policy makers. These are outlined below.

Wholesale costs

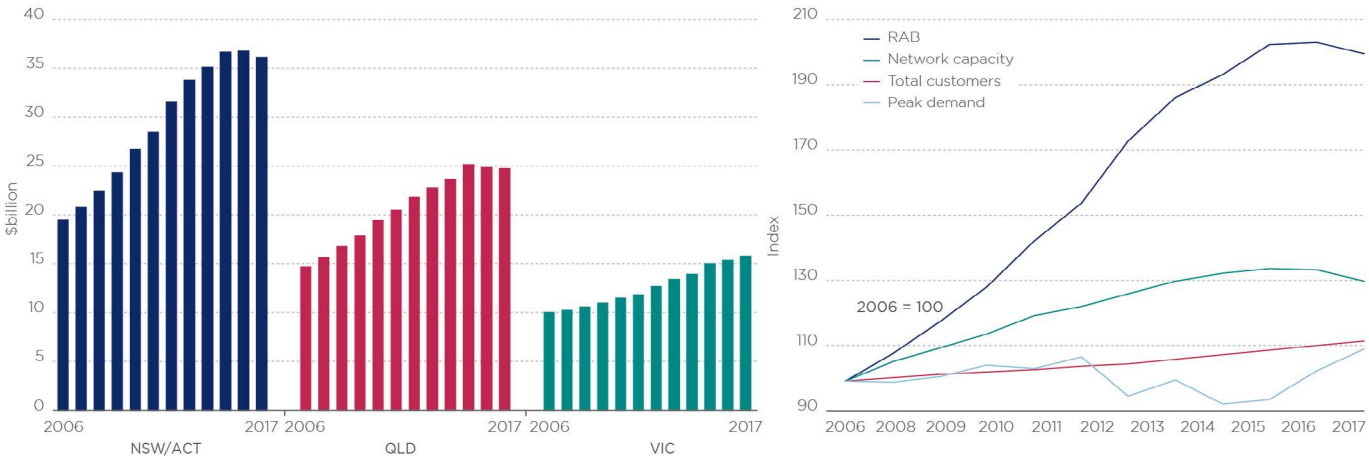
Wholesale costs have risen significantly across the NEM in recent years. This is largely attributable to two factors. The first was the closure of two coal-fired power stations – Northern in South Australia in 2016 and Hazelwood in Victoria in 2017. These generators were no longer viable because of asset life and maintenance costs. The closures have increasingly resulted in gas (which is more expensive) being the marginal, price setting generation source in the NEM. The second was rising gas and black coal prices. The Grattan Institute estimates the impact of closures and rising commodity prices contributed, respectively, to 60 per cent and 40 per cent of the spike in the value of wholesale prices between 2015 and 2017 (Grattan, 2018b).

In the medium term, upward pressures on wholesale prices have been identified, including growing demand and supply shocks arising as coal generators progressively close, including Liddell in 2023 and Bayswater and Eraring in the 2030s (AEMO, 2019). Further prices pressures are presently arising from a lack of investment caused by ongoing uncertainty about electricity generators' greenhouse emissions reduction responsibilities (discussed below). This is a factor affecting wholesale costs that could be remedied by policy change.

Network costs

New South Wales experienced substantial investment in new network capacity between 2005 and 2012 and new reliability standards were introduced in 2005 in response to power outages. Distribution networks then applied to regulators for revenue allowance to cover the additional capital and operating costs associated with the new standards. The increases in the regulated asset bases of all network companies, including how this compares with market demand measures and network capacity, is depicted in Figure 5.4. Data for Queensland (which also adopted new standards) and Victoria (which did not) are included for comparison purposes. These costs were ultimately passed through to consumers, even though they exceeded underlying determinants of network capacity and demand drivers. The Commonwealth Productivity Commission (2013) found rising network costs added $654 to the average annual New South Wales residential electricity bill between 2008 and 2013.

FIGURE 5.4: REGULATED ASSET BASE BY STATE/TERRITORY, 2006-2017 (LHS); INDEX OF NSW NETWORK CAPACITY, NETWORK DRIVERS, AND REGULATED ASSET BASE (RHS)



Source: AER 2018. Note: measure of network capacity is total zone substation transformer capacity, RAB measured in real 2019 dollars.

A range of organisations including the Commonwealth Productivity Commission (2013), IPART (2016), the ACCC (2018), and the Grattan Institute (2018) have been highly critical of this earlier over-investment.[4] The precise level of over-investment is difficult to establish, although it could be inferred by re-estimating the value of the regulated asset bases of network businesses based on the efficient cost of output produced since reform began in 1995.

The impact of network costs has moderated more recently thanks to the Network Reform Program, running from 2011-12 to 2015-16. This initiative successfully avoided expenditure of $7 billion for the former Networks NSW (Ausgrid, Endeavour Energy, and Essential Energy). IPART estimated network costs on the average residential bill had fallen by 20 per cent between 2013-14 and 2018-19 (IPART, 2018). Reductions in the order of 20 per cent over a similar period were similarly supported by the ACCC. However, the ACCC also found that New South Wales customers continue to pay for over-investment of $100 to $200 per household each year (ACCC, 2018).

Environmental policy costs

The proliferation of Commonwealth and New South Wales renewable energy schemes have added considerably to average household electricity bills over the past decade. Even after price impacts of the feed-in tariff for rooftop solar photovoltaic, the Solar Bonus Scheme, were removed in 2016, the Australian Energy Market Commission (AEMC) has estimated environmental programs contributed $93 to the average New South Wales residential bill in 2018-19:

- Commonwealth Renewable Energy Target – $62
- NSW Climate Change Fund – $14
- NSW Energy Savings Scheme – $7.

These impacts on bills underline the need for efficient outcomes that do not place undue costs on electricity consumers.

The efficiency and equity implications of excessively high electricity prices is detailed in Box 5.3.

Box 5.3 Implications of excessively high electricity prices

As noted above, some element of price rises in New South Wales over the past decade is attributable to efficient market responses to changing circumstances. Nevertheless, inefficient regulations and energy programs should be avoided and, to the extent they have had adverse price impacts, mitigated where possible.

There are implications for the efficiency of the sector and equity between consumers if adverse price impacts are allowed to go unmitigated. Some communities, businesses, and households could choose to leave the grid if cheaper energy options are available. This could involve an upfront cost in installing on-site alternative energy generation facilities (particularly solar photovoltaic and batteries) while avoiding costs for electricity no longer drawn off the grid.

Those consumers with sufficient funds might find this affordable. But those without ready cash remain on the grid within an ever-diminishing pool of consumers that continue to repay the cost of historic capital expenditure and energy programs.

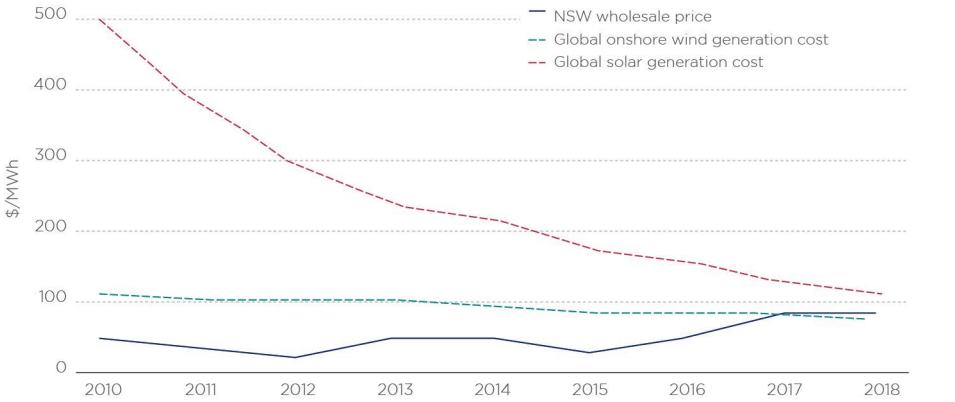
4 Over-investment would have occurred to the extent these improvements were made without reference to consumer willingness to pay for reliability.

5.7

Lowering prices through investment certainty

The global transition towards a lower-carbon economy is already underway and is being largely driven by innovation. Solar photovoltaic, in particular, is falling rapidly in cost, in absolute terms and relative to onshore wind and fossil-fuel sources. Both renewable sources are increasingly cost-competitive with the primarily coal-based generation mix in the NEM (see Figure 5.5).

FIGURE 5.5: RENEWABLE GENERATION IS LARGELY COST-COMPETITIVE IN THE NEM



Source: AER, RBA, International Renewable Energy Agency, NSW Treasury, note: figures are annual average

While it has comparative advantage in coal and gas, Australia's energy sector is also well-positioned for the transition to an increasingly carbon-constrained market. This is largely due to an abundance of sunshine, wind conditions, and the low cost of land outside of metropolitan areas. This task has been hampered, however, by a decade of uncertainty at the Commonwealth level about emissions reduction targets for the energy sector and the specific design of policy.

The energy sector has been seeking certainty regarding emissions reduction through a policy instrument that allows for a market-based response. COAG's 2017 Independent Review into the Future Security of the National Electricity Market (the Finkel Review) received public submissions, including from firms operating in the sector. These reveal an industry consensus favouring an efficient policy mechanism to provide the appropriate emissions reduction market signal. Submissions from Energy Australia, Origin Energy, and the Business Council of Australia all nominated uncertainty over emissions reduction policy design as a brake on new investment. Each identified an emissions intensity scheme for the sector as a potential way forward (Energy Australia, 2017; Origin Energy, 2017; BCA, 2017).

New South Wales has already adopted strategic priorities in the Climate Change Policy Framework, including the objective of moving toward net zero emissions by 2050. If the Commonwealth is not prepared to coordinate emissions policy for the energy sector, New South Wales could consider its own initiatives to reduce uncertainty and meet its 2050 target. This could have significant benefits, particularly given the State's central geographic position within the NEM. This raises important issues of policy design, with the Finkel Review's proposals outlined in Box 5.4 below. The NSW Government could also evaluate alternative approaches to reducing uncertainty while avoiding explicit emissions reduction commitments.

Box 5.4 Finkel Review emissions reduction policy options

Emission Intensity Scheme (EIS)

An EIS targets the volume of emissions per unit of energy generated. This would set an emissions intensity baseline for the whole electricity generation sector. Generators with an emissions intensity below the baseline would receive credits, free at creation. Those with an emissions intensity above the baseline would be required to purchase and surrender credits in proportion to how far their emissions intensity exceeds the baseline. All generators, existing and new, would be required to participate in the scheme.

Clean Energy Target (CET)

A CET would provide an incentive for all new generators to produce electricity below a specified emissions intensity threshold. All fuel types would be eligible to enter the generation sector in New South Wales provided they met or were below the emissions intensity threshold. Generators would receive certificates for electricity produced based on the level it is below the intensity threshold. New eligible generators would receive certificates for all electricity generated, while existing eligible generators could receive certificates for any electricity they produce above their historic output. Electricity retailers would be obliged to purchase and surrender certificates to demonstrate that a pre-determined share of their electricity came from low-emissions generators.

Whatever approach is adopted, greater certainty would be superior to the current situation. The relationship between policy certainty, higher investment, and lower wholesale electricity prices is explained in Box 5.5 below.

Box 5.5 Why would certainty help drive down wholesale electricity prices?

Earlier efforts at applying a greenhouse gas emissions reduction mechanism to the NEM at the Commonwealth level in 2009, in 2012, and again in 2018, arguably fell victim to perceived negative impacts on consumers. A pricing mechanism that captures the environmental cost of carbon emissions would necessarily make fossil fuel energy generation less competitive with renewables, thereby driving a change in the energy mix. On the other hand, this would drive up overall electricity costs because fossil fuel energy has been the cheapest form of generation in the NEM.

Since the earlier initiatives of 2009 and 2012, this narrative has changed. The business-as-usual approach to energy policy imposes an ongoing state of uncertainty on the NEM. This is because a credible emissions reduction policy is expected, but the exact design of that policy and the stringency of the emissions trajectory is not known. Submissions to the Finkel Review indicate, in the view of the energy sector, that 'the cost of sustained policy inaction is now higher than the cost of efficient and durable policy action' (Australian Energy Council, 2017). This was reflected in modelling of future price scenarios for the Review, which found emissions reduction mechanisms would generate lower prices than a business-as-usual scenario (Finkel et al, 2017).

Practically speaking, a risk premium in project finance costs is now being applied to energy generation, consistent with the cost of uncertainty for individual generation types. This risk does not discriminate; it is being applied to both investment in new capacity and refurbishment of existing capacity (Finkel et al, 2017). Conversely, the risk premium could be removed or reduced if the sector is given clear emissions reduction requirements.

Discussion question

- How can New South Wales work to reduce uncertainty in electricity generation and emissions reduction requirements and thereby improve the investment outlook?

5.8

Efficiently determining electricity reliability standards

Reliability is a key issue for electricity consumers and policymakers and is a concept distinct from security.

- **Energy security** is defined by the International Energy Agency as 'the uninterrupted availability of energy sources at an affordable price'. Long-term security mainly deals with timely investments to supply energy in line with economic developments and sustainable environmental needs. Lack of energy security is associated with the negative economic and social impacts of either physically unavailable energy or prices that are overly volatile (IEA, 2019).
- **Energy reliability** relates to the probability the installed capacity to produce and transport electricity (including generation and demand response) will be sufficient to meet the actual or anticipated demand. The reliability standard under the National Electricity Rules requires meeting at least 99.998 per cent of forecast customer demand each year.

Similarly, it is important to distinguish between different forms of reliability:

- **Generation reliability** is the ability to dispatch sufficient power to meet consumer demand at all times, particularly in peak periods. The intermittent nature of renewables means having sufficient dispatchable electricity is essential to meeting peak demand. These include, for example, peaking plants (e.g. natural gas), battery storage capacity, and pumped hydro.
- **Network reliability** is the ability to transmit and distribute generated power to end consumers without incident. This was a major issue in the power outages that occurred in New South Wales and Queensland in 2005 and in South Australia in 2016.

While communities are naturally sensitive to electricity reliability, there is a risk of excessive emphasis over sector efficiency. Experience shows remedial expenditure following outage incidents has been excessive.

The cost of reliability standards and their impact on retail bills should be set against the value consumers place on reliability. Research by Energy Consumers Australia indicates that more customers are concerned about the price they pay for electricity than its reliability. About 70 per cent of customers are happy with the reliability of their electricity, but only about 40 per cent are happy with the overall value for money (Energy Consumers Australia, 2018).

The Commonwealth Productivity Commission advocated for a coherent, national, outcomes-approach to network reliability in 2013. It's proposal was for the regulator to impose penalties (rewards) for businesses failing (exceeding) a reliability performance target, based on consumer willingness to pay for reliability. This, a purely outcomes approach, could be implemented by the AER through its revenue determinations for transmission and distribution network businesses in the subsequent determination period.

By contrast, the National Energy Guarantee emphasised reliability of dispatchable energy, proposing obligations on energy retailers, detailed in Box 5.6 (next page). COAG Energy Council ministers endorsed the reliability component of the NEG in June 2019 for near-term implementation.

Box 5.6 National Energy Guarantee reliability provisions (Energy Security Board, 2018)

The NEG reliability component requires the AEMO to forecast annually whether each NEM region is likely to meet the reliability standard over a 10-year period. Where gaps are identified, the market would have the opportunity to invest to resolve it. In the event of a gap persisting, the AEMO will be able to apply to AER to trigger the so-called Retailer Reliability Obligation.

Under the terms of the obligation, retailers can be required to demonstrate future compliance by entering into sufficient qualifying contracts for dispatchable capacity (including demand response). This would cover their share of system peak demand at the time the gap emerges. In the event of a gap continuing, AEMO can use its Procurer of Last Resort function to close it, at a cost that retailers identity as responsible for the outstanding gap.

Moreover, the AEMO will now publish a register of intended generator closures to provide adequate timing signals for new generation to come online, implementing one of the Finkel Review's recommendations.

The AER is presently examining consumer willingness to pay for reliability, including for outages in peak periods. Their estimates are expected in December 2019. In 2018, the ACCC advocated the repeal of existing state reliability standards not determined according to WTP, with reliability settings transferred to the AER (ACCC, 2018).

Discussion questions

- What is the best framework for future evaluations of generation and network reliability?
- What additional measures, if any, can we take to cost-effectively improve reliability?

5.9 Improving asset utilisation and demand management

An ongoing weakness of retail electricity markets is that consumers do not face the actual costs of supply in peak periods. This is because prices do not fully adjust to reflect relatively scarce generation capacity at these times. Network capacity, moreover, has to be built to ensure peak demand can be met without incident. These costs are spread across all consumers (with the exception of some large industrial and commercial users that are exposed to spot prices).

Cost-spreading has both efficiency and equity implications:

- by building network capability for peak periods, there is substantial underutilised and unutilised capacity in the off-peak, which might not reflect consumer willingness to pay, and
- consumers that can afford air-conditioners benefit from investment driven by peak seasonal demand in the summer months and are effectively subsidised by those that cannot afford air conditioning.

These issues could be addressed by demand management that takes advantage of digital, among other technologies.

Discussion question

- How could electricity demand management be further improved in New South Wales?
- Are there further steps we can take to achieve greater efficiency in network businesses and environmental programs in New South Wales?

5.10 Ensuring secure and reliable supplies of gas

Natural gas is an abundant fossil fuel energy source in Australia. Most produced gas is converted to liquefied natural gas (LNG) for overseas markets; the balance is transmitted domestically for use as energy for heating or for electricity generation. Gas accounts for approximately 12.3 per cent of registered electricity generation capacity in New South Wales (AEMOa, 2019a). New South Wales has significant contingent gas resources but negligible current production, making it reliant on other states for gas supplies (AEMO 2019).

Demand from both domestic users (including gas-fired electricity generators) and overseas customers has caused significant increases in domestic gas prices. The closure of the Northern and Hazelwood coal-fired plants in 2016 and 2017 and expansion of intermittent renewable energy generation has increased reliance on gas as a source of peak electricity supply.

Coal remains the dominant generation fuel in New South Wales, but as coal generators reach the end of their technical lives and are retired, alternative combinations will be necessary to ensure generation reliability. Projections from AEMO's 2018 Integrated System Plan (ISP) found the most cost-effective replacement of this capacity is a portfolio of renewable generation, batteries, and flexible 'peaking' thermal capacity from gas generation (AEMO, 2018b).

On 28 March 2019, AEMO released its 2019 Gas Statement of Opportunities (GSOO). The GSOO forecasts gas supply and demand for the East Coast of Australia. The 2019 GSOO forecasts no supply shortfalls over the next five years, but anticipates a shortfall in gas supply from 2024. This could be mitigated by some combination of establishing LNG import terminals, expanding domestic New South Wales production, and upgrading pipeline infrastructure (AEMO, 2019c).

In June 2018, the Minister for Planning declared the proposal for a Port Kembla Gas Terminal to be Critical State Significant Infrastructure. The import terminal received planning approval on 24 April 2019. If it proceeds, it will facilitate the import and re-gasification of LNG for input into the New South Wales gas transmission network and the NEM. The project Environmental Impact Statement claims the terminal could provide for more than 70 per cent of the State's gas needs.

Nonetheless, is desirable to identify new sources of domestic gas production given significant reserves within the State. Moreover, there is potential to remove regulatory barriers to gas production and alternative gas sources such as hydrogen.

Discussion question

- What initiatives could we consider for removing barriers to gas exploration and production?

5.11

Streamling energy regulatory arrangements

The State's regulatory activities are currently dispersed across a number of agencies:

- DPIE conducts licence accreditation for service providers
- NSW Fair Trading conducts licence accreditation for electricians and gas installers, enforces compliance with Distributed Energy Resources product standards and consumer law, and conducts community education and awareness campaigns, and
- IPART enforces compliance with technical and reliability standards for electricity and gas network businesses.

There is scope to consolidate some, or all, of these functions into a single agency, to enable clearer lines of responsibility and accountability in government. Consolidation would also allow government to coordinate regulatory functions such as licensing, compliance and community campaigns. These activities are often interrelated and there would likely be benefits from greater strategic oversight of them.

Discussion question

- How could we improve the New South Wales energy regulatory framework?

Smart ways to get more from our infrastructure

Key points

Why we need to focus on infrastructure

- Economic and social infrastructure are key enablers of productivity. They underpin production, enable consumption, and build human capital.
- Ongoing population growth means growing demand for infrastructure.
- The NSW Government does not have unlimited fiscal capacity to fund new infrastructure. Better use of existing assets and management of demand will be critical to meeting future service needs.
- Addressing infrastructure challenges will ensure individuals remain well connected to jobs and services, and businesses have adequate access to skilled labour and production inputs.

Conversation starters

- Choosing the right infrastructure at the right time, and coordinating with growth in jobs and housing, is a major challenge for the NSW Government.
- Congestion is among the most pressing issues, costing Sydney residents an average of $1,350 annually (2015). These costs are expected to rise to over $2,000 per resident by 2030. Building new roads alone may not solve congestion, meaning we need to explore other options.
- Crowding on the rail network in peak times can cause delays, reduce reliability, and affect network operations.
- Smart infrastructure offers opportunities to improve asset management by leveraging data to improve efficiency.
- The NSW Government can use innovative service delivery models to meet customer needs and improve service quality.

6.1

The role of infrastructure in productivity growth

Economic infrastructure such as roads, rail, water, and energy underpin services that support production and enable consumption. Social infrastructure such as schools, cultural facilities and sporting facilities support productivity by building human capital and community wellbeing. Investing in the right infrastructure can improve productivity by providing access to markets and services, making production more efficient and promoting competitiveness.

Governments provide infrastructure to address market failures and ensure that quality essential services are available to all, especially in remote locations which may be costly to service, or to groups less able to pay. Public transport and water are typical examples of this. In other areas, government infrastructure delivers positive social benefits through buildings such as schools and hospitals.

The private sector plays an important role in public infrastructure. It may, for example, construct, operate, maintain, and finance public infrastructure under a range of contractual arrangements such as public private partnerships. The private sector may also provide public services under government regulatory oversight.

In regional New South Wales, infrastructure provides access to markets for regional industries and supports the security and delivery of essential services such as water and energy. It also supports high-quality education and health services. Efficient infrastructure is essential for the liveability and productivity of regional communities.

Greater Sydney accounts for around two thirds of the State's total employment and contributes around three quarters of economic output (SGS Economics and Planning, 2018). Well-functioning infrastructure is critical to linking Sydney's workers with jobs and enabling the productivity benefits of urban agglomeration, such as lower transport costs and denser markets (see also Section 8.1). Infrastructure Australia (2015) has estimated that infrastructure makes a greater direct economic contribution to Greater Sydney than any other Australian city – $42.8 billion in 2011, projected to rise to $79.8 billion in 2031. This measure of direct economic contribution does not include indirect benefits (e.g. the benefits of agglomeration), suggesting infrastructure's total economic contribution is far greater.

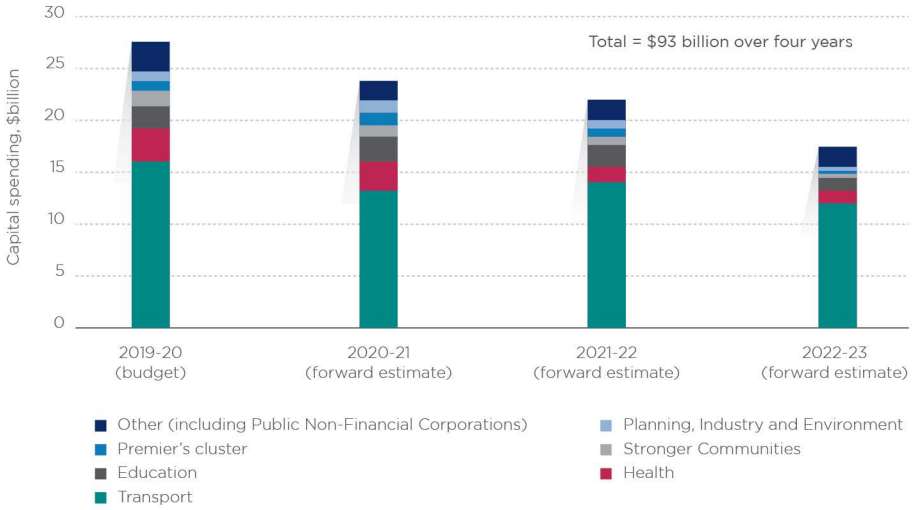
6.2

Problem definition: Infrastructure

New South Wales is making large infrastructure investments, but demand will continue to grow

The NSW Government is delivering a record infrastructure program. Expenditure is budgeted at $27.7 billion for 2019-20 alone and $93 billion over the four years to 2022-23. Proceeds of past asset sales are supporting service improvements and city-shaping investments in roads, rail, hospitals, schools and other infrastructure across the State's cities and regions. The largest share of expenditure is in transport, which will account for 59.7 per cent of total public capital expenditure over the next four years (see Figure 6.1).

FIGURE 6.1: NSW GOVERNMENT CAPITAL EXPENDITURE

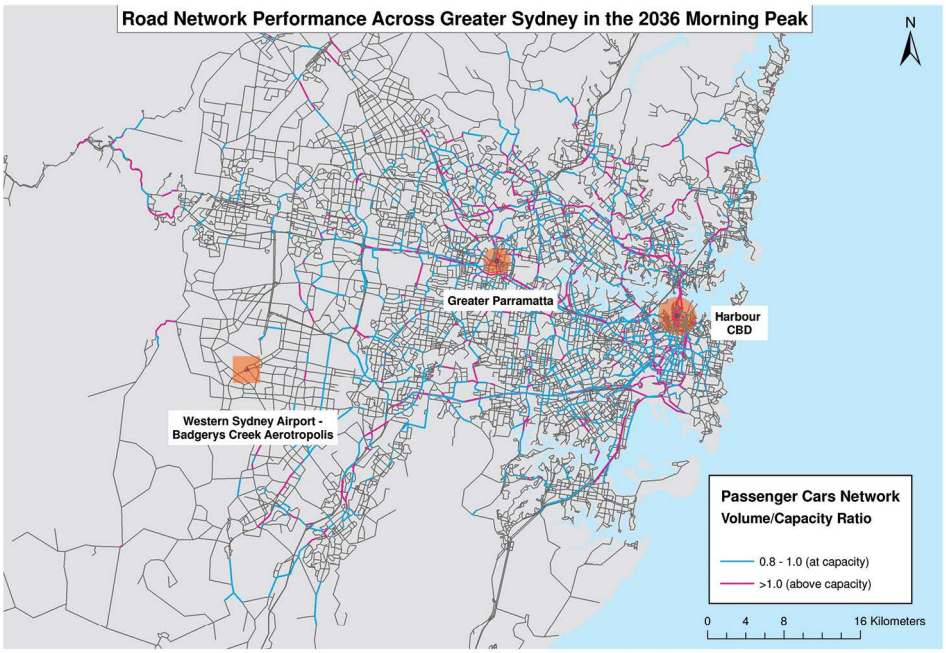


Source: NSW Government (2019). Note: does not include off balance sheet expenditure.

Infrastructure demands will continue to grow in line with the State's population, which is expected to reach 9.9 million by 2036 (DPE, 2016). Sydney alone will grow to 6.8 million people by 2036. Particular pressures emerge from:

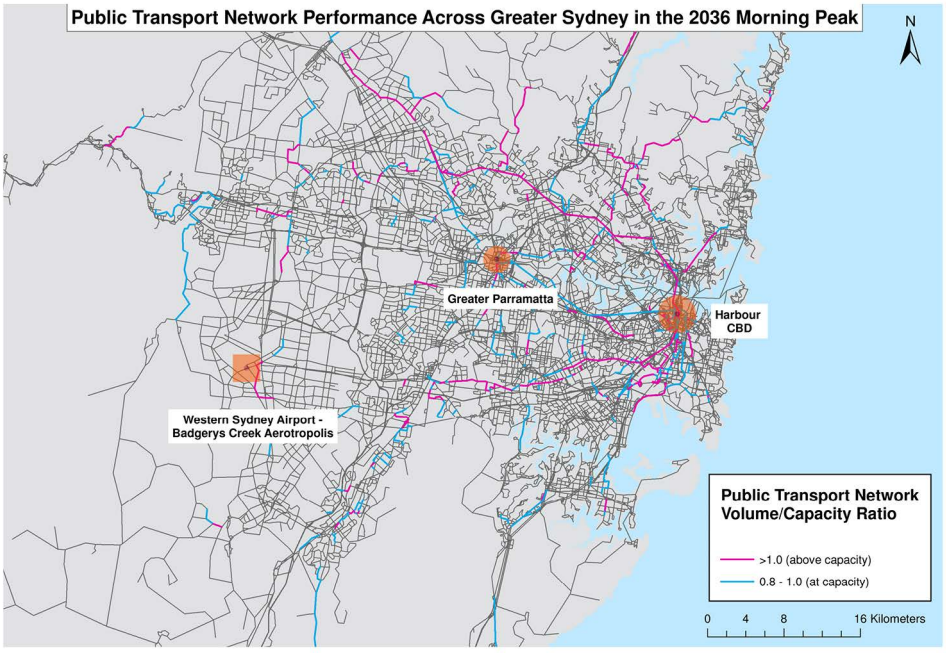
- Increased patronage of the rail network. The number of train trips are forecast to rise by 113 per cent between 2016 and 2036, an increase of more than 1 million extra trips each day (INSW, 2018). Significant parts of the network are expected to be above capacity (see Figure 6.3).
- Increased use of private vehicles. The number of daily car trips are forecast to increase by 30 per cent between 2016 and 2036, bringing total car trips to 12.1 million a day (INSW, 2018). This will put significant strain on road network performance (see Figure 6.2).
- Growth in school student numbers. It is estimated that an extra 7,200 classrooms will be required over the next 30 years (Department of Education, 2017) to support student numbers.
- Infrastructure upgrades to support priority development areas and precincts, including the Western Sydney Aerotropolis and Greater Parramatta and Olympic Park.

FIGURE 6.2: PROJECTED ROAD NETWORK PERFORMANCE – 2036



Source: Transport for NSW.

FIGURE 6.3: PROJECTED PUBLIC TRANSPORT NETWORK PERFORMANCE – 2036



Source: Transport for NSW.

Increasing demand pressures emphasise the need to improve use of existing infrastructure and the delivery of new infrastructure. Infrastructure Australia expects cost pressures to emerge from three key factors (Infrastructure Australia, 2019):

- rising delivery costs, due to high property acquisition costs within Sydney, supply constraints in the construction market, and environmental and planning compliance costs
- rising expectations of the level, quality and personalisation of services, leading to growing and changing demands on public infrastructure,
- the age of current infrastructure, leading to increased maintenance costs and/or declining infrastructure performance.

The 2018 Greater Sydney Region Plan: A Metropolis of Three Cities, the State Infrastructure Strategy 2018-2038, and Future Transport 2056 set a vision for a Greater Sydney of three distinct cities – the Eastern Harbour City, Central River City and Western Parkland City – where residents live within 30 minutes of jobs, education, health facilities, services and leisure spaces. Bringing jobs, housing, and services closer together can provide significant productivity benefits. That being said, the three cities vision also represents some significant infrastructure challenges.

Service demand will continue to rise with population growth, while the State faces medium- to long-term fiscal pressures, projected in the 2016 Intergenerational Report. As identified in the 2018 State Infrastructure Strategy, these factors increase the importance of careful prioritisation and sequencing of new projects while ensuring best utilisation of existing assets (INSW, 2016). Failure to meet infrastructure service needs will reduce the productivity and liveability of New South Wales.

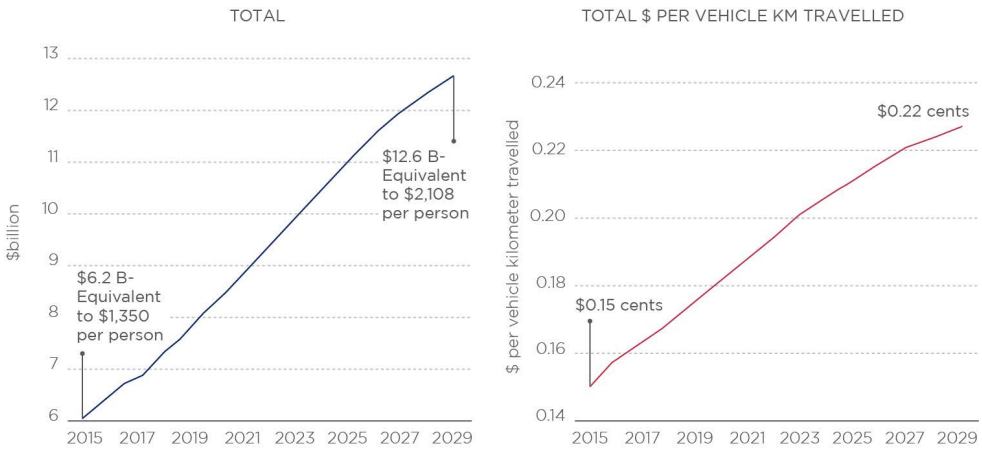
Transport infrastructure enables the movement of commercial vehicles and freight, and individuals for work and lifestyle purposes. It is particularly important for productivity and achieving agglomeration benefits. Cities and towns with inefficient transport and inaccessible services or employment decrease the attractiveness of New South Wales as a place to live and work, which has flow-on implications for investment and productivity.

The most obvious consequences of increased transport demand will be more congestion and further impacts on productivity. Road congestion increases the time individuals need to travel, reducing their access to jobs and services and decreasing quality of life. It also increases costs for businesses in delivering goods and services to markets, making our cities less desirable destinations for potential investment. Moreover, congestion increases fuel consumption, air pollution, and creates stress for travellers owing to decreased travel time reliability.

The cost of congestion is the single greatest challenge facing our cities, according to Infrastructure Australia (2019), making transport among the highest-priority areas of reform. Even taking account of a significant public investment pipeline, Infrastructure Australia have revised upwards their forecasts of the cost of congestion in the Sydney, Hunter and Illawarra regions. The 2019 Urban Transport, Crowding & Congestion Report estimated that road congestion will cost the economy $15.7 billion in 2031, around $1 billion higher than previously forecast. The report estimates that the proportion of an average trip duration spent on congested roads will increase from 60-80 per cent in 2016, to 70-90 per cent in 2031.

The Bureau of Infrastructure, Transport and Regional Economics (BITRE) have similarly modelled the economic costs of congestion and found that avoidable costs of congestion in Sydney are higher than in any Australian city. Left unaddressed, these costs are projected to rise significantly over the next decade (see Figure 6.4).

FIGURE 6.4: AVOIDABLE COSTS OF CONGESTION IN SYDNEY



Sources: Based on Bureau of Infrastructure, Transport and Regional Economics (2015).

Crowding on the public transport network also creates costs. It can cause delays by increasing boarding times, and can affect reliability across the network (INSW, 2018). Public transport crowding in Sydney, the Hunter and the Illawarra created costs of $68 million in 2016, according to Infrastructure Australia (2019) with costs projected to increase to $223 million by 2031. Moreover, it fuels the need for further infrastructure investment to expand capacity and meet peak demand.

Beyond the direct costs of crowding and congestion, limited access to housing, jobs and services can contribute to disparities in social and economic opportunities, which in turn contribute to entrenched disadvantage and inequality.

Better and smarter infrastructure investment and management

Infrastructure NSW has examined these challenges in detail in Building Momentum: State Infrastructure Strategy 2018-2038 (SIS, INSW, 2018). It identified six strategic areas of priority related to existing infrastructure and new investments, with a range of recommendations to support productivity improvements (see Table 6.1 below).

TABLE 6.1: INSW STATE INFRASTRUCTURE STRATEGY THEMES AND PRODUCTIVITY

SIS 2018-2038 STRATEGIC OBJECTIVE		PRODUCTIVITY LINKAGE
1.	Continuously improve the integration of land use and infrastructure planning	• Effective linkages between land use, infrastructure, and planning brings workers closer to jobs and manages frictions associated with employment growth. • Improved integration contributes towards reduced costs through improved coordination, staging and sequencing.
2.	Planning, prioritisation and delivery that makes the best possible use of public funds	• Selecting the right projects maximises the overall benefit of public investment including productivity, liveability, and sustainability.
3.	Optimising the management, use and performance of existing assets	• Building new assets to meet demand is not always feasible, making it important to make the most of existing assets to help alleviate infrastructure pressures.
4.	Ensuring that existing and future infrastructure is resilient to natural hazards and human-related threats	• Natural disasters and other shocks can lead to a loss of services and production and increase costs to government to repair and replace assets.
5.	Improving state-wide connectivity and realising the benefits of technology	• Digital connectivity and innovation can improve service quality and efficiency.
6.	High-quality consumer-centric services and innovative service delivery models.	• Effective regulation and the application of commissioning and contestability can drive competition, innovation and productivity.

The NSW Government is already working towards implementing recommendations in the SIS. Key activities to date include:

- a new whole-of-government Asset Management Policy to support better management and use of existing assets
- a 10-point commitment to the construction sector (NSW Government, 2018), developed to support value-for-money procurement and major project delivery through enhanced collaboration with the private sector
- significant strategic work by Infrastructure NSW in relation to smart cities to realise the benefits of technology through infrastructure, and
- developing new guidelines for resilient infrastructure to support preparedness for climate change and natural disasters.

Implementing these initiatives is important to ensure productivity gains, however, continued improvements will also be needed. The remainder of this Chapter explores additional opportunities to improve productivity.

6.3

Maximising value from investments

Project prioritisation and sequencing is critical

Infrastructure investments will only enhance productivity if they increase efficiency and support new economic opportunities. Some investments support productivity growth by responding to a particular problem or demand pressure.

Large, city-shaping investments can enable growth and jobs by influencing the location of businesses and housing. The challenge for project selection is to provide an appropriate balance between incremental and city-shaping investments that maximise public value through robust prioritisation and sequencing of a limited pool of investment (see also Section 6.4 in relation to place-based planning). Poor project selection can crowd out spending on projects that would deliver greater productivity benefits.

The Commonwealth Productivity Commission (2014) found that governments can make less than optimal decisions regarding the what, where and when of infrastructure project delivery. Contributing factors may include a government bias towards large, city-shaping investments that deliver lower returns than smaller, more incremental improvements (Productivity Commission, 2015) such as building expensive new roads rather than smaller projects to address congestion 'pinch points'.

Another possible factor is the announcement of projects prior to completing detailed businesses cases. These can lead to large and persistent cost overruns, meaning the public does not get as much value from public infrastructure investment as it should (Terrill, 2016). Ensuring full consideration and adequate funding of ongoing operational and maintenance costs is also a key challenge when making investment decisions.

Multiple experts have identified strong governance, alongside a transparent and robust cost-benefit analysis, as mechanisms for improving public value in project selection. Infrastructure Australia (2018), for example, has stressed the need for more transparent decisions, public release of analysis supporting those decisions, and for all available options to be considered, including solutions that make better use of existing infrastructure through technology and data.

Improving existing infrastructure and demand management

Selecting the projects that will drive productivity benefits requires an early focus on the issue the project intends to address and a full consideration of all available alternatives. This could include demand management and solutions.

Incremental improvements, such as use of technology to increase the utilisation of existing assets can also be a productivity-enhancing, value-for-money investment. An example is Transport for NSW's More Trains, More Services initiative (see Box 6.1), which aims to increase services on existing rail lines.

Box 6.1 More Trains, More Services

More Trains, More Services combines digital signalling, station upgrades, and new trains to enhance the capacity, reliability, and resilience of the existing rail network to meet future growth. The NSW Government announced an $880 million investment in the Digital Services Program in June 2018 and a further $1.2 billion in infrastructure upgrades in the 2019-20 Budget as part of the next phase of More Trains, More Services. These investments are expected to unlock additional network capacity by enabling more trains to run on existing lines in peak times. This will improve service reliability while reducing operating and maintenance costs.

Similarly, the roads portfolio features a wide range of investment opportunities that provide substantial social returns by targeting areas of most significant network stress. This could include projects designed to relieve stress points or creating additional clearways to make all lanes available to motorists during peak times. These projects deliver highly favourable cost-benefit results for two reasons. Firstly, costs are contained by concentrating investment in specific geographic areas, and secondly, relief is provided directly at areas of network stress.

In the health sector, investment in preventative and primary healthcare initiatives can be more cost-effective in improving health outcomes than further increases to hospital capacity. The Integrated Care Program provides an example of how different types of investment can lead to reduced demand for hospital services (see Box 6.2).

Box 6.2 Integrated care in New South Wales

Integrated care places the patient at the centre of care, providing comprehensive wrap-around support and enabling individuals to access care when and where they need it. Delivering integrated care is one of three strategic directions outlined in the NSW State Health Plan: Towards 2021. Its implementation is supported by a range of investments and system reforms, most recently the NSW Health Strategic Framework for Integrated Care. Examples of integrated care initiatives include:

- case management for people with multiple and complex care needs
- care coordination for vulnerable families, and
- care coordination, care navigation and health coaching for people at risk of hospital admission.

Recent data suggests that integrated care is achieving positive results in New South Wales. Early evidence shows:

- a decrease in emergency department visits for patients enrolled for at least 12 months, and
- a reduction in the number of days patients spend in hospital for those enrolled for at least 12 months.

The resilience of infrastructure to natural hazards will increase with the frequency and intensity of extreme weather events. Natural hazards can impact the ability of assets to deliver, having flow-on effects through the economy. Taking natural hazard resilience into account as part of project planning and selection (including adaptation and resilience options) can ensure these risks are identified and mitigated. Further details of relevant considerations and approaches are provided in the newly developed Guidelines for Resilience in Infrastructure Planning (Frontier Economics, 2019).

The NSW Government has strengthened its processes

The NSW Government has made significant improvements to its project selection processes in recent years. The new processes include:

- the Infrastructure Investor Assurance Framework, administered by INSW, which applies risk-based project assurance to capital projects valued at over $10 million
- the ICT Investor Assurance Framework, administered by the Customer Service cluster
- Infrastructure NSW publishing business case summaries (for large projects)
- a new Asset Management Policy (see Section 6.7)
- a requirement that projects funded through Restart NSW demonstrate that benefits outweigh costs.

Discussion questions

- How can infrastructure investment governance and transparency be further strengthened?
- What types of targeted service improvements and demand management solutions could be considered to maximise value from our infrastructure?

Planning for growth that gets the most out of our investments

A key role of the State and local governments is strategic planning for new and growing communities to ensure New South Wales remains productive and liveable into the future. This includes:

- outlining a vision for how regions and sub-regions can meet community needs while accommodating growth
- updating local environment plans to zone sufficient land to accommodate community growth
- investing to support growth as it occurs in economic infrastructure such as water and wastewater facilities, roads, and rail, and services such as schools, hospitals and police stations.

Addressing coordination failure is also important in planning for additional population growth. Strategic planning targets coordination failures in the private sector. Businesses, prospective residents and housing developers may be unwilling to locate to areas without understanding the nature and extent of future developments, or the location of key infrastructure and services.

There are also challenges in strategic planning in ensuring coordination within, and between, tiers of government. Major infrastructure is generally planned and delivered by state governments while smaller works are often the responsibility of councils. Further, strategic plans are executed by the Minister for Planning, while councils often serve as consent authorities for all but the largest developments.

Governments can reconcile these issues and promote efficient outcomes by:

- strategically planning land use and infrastructure from a 'place'-based perspective as opposed to a conventional project-specific or cluster-specific level
- focusing on outcomes for a place (e.g. accessibility to services, or space for collaboration) as opposed to conventional outputs (i.e. completion of a project alone)
- providing greater visibility on the staging and sequencing of investment and land-use decisions to the market and communities affected
- seeking opportunities to co-locate and innovate in service delivery using infrastructure and non-infrastructure solutions, and
- planning to 'future proof' our cities (e.g. corridor preservation).

Issuing strategic plans can significantly affect land values, due to their function in both regulating land use and resolving coordination failures. For example, land will typically appreciate when rezoned or designated for high-density purposes. Land values are often the most significant expense item in delivering new infrastructure. Governments can provide infrastructure at lower costs by:

- securing the necessary land before projects are announced and/or strategic plans are executed (thereby pre empting the increase in land values) and
- applying infrastructure contributions to land within a project service catchment, thereby moderating increases in land values while also helping to fund the project.

Each approach requires carefully coordinated strategic planning with infrastructure planning and delivery. Better coordination can also realise benefits that exceed the sum of individual initiatives. For instance, construction of a new school must be accompanied with water and wastewater facilities. Coordination of a school construction with water infrastructure delivery can cut costs across both projects.

The NSW Government has already taken steps to improve the effectiveness of its strategic planning processes. For Sydney, it has issued a hierarchy of strategic plans, starting with the Greater Sydney Region Plan: A Metropolis of Three Cities, District Plans, and Local Environment Plans (currently under preparation). These land use strategies cross-reference INSW's State Infrastructure Strategy and sector-specific strategies, such as Transport for NSW's Future Transport 2056. Taken together, these documents outline a vision for how Sydney and wider New South Wales will develop over coming decades.

At a precinct level, the NSW Government will conduct strategic planning in the Greater Parramatta and Olympic Peninsula (GPOP) using a pilot Infrastructure Compact approach. This will bring together infrastructure delivery agencies across government to align the staging and sequencing of infrastructure delivery with future housing, jobs growth and wider place-based outcomes in mind. The lessons learned from this pilot will inform the rollout of the piloted model into other geographic areas, including the Western Parkland City, centred around the new Western Sydney Airport and planned Aerotropolis. Coordinated strategic planning for the Western Parkland City will further need to incorporate the requirements of the Western Sydney City Deal. This deal, which was agreed upon by eight local councils, the NSW and Commonwealth Governments, outlines key commitments from each tier of government.

Better coordinated strategic planning can support an area's economic development by enabling businesses and industries that best utilise local strengths and endowments. The NSW Government has already undertaken significant work identifying these strengths across regions through the Regional Economic Development Strategies (REDS), encompassing all the State's regions outside Greater Sydney, Newcastle and Wollongong. There are currently no REDS for Western Sydney.

Discussion question

- How can we improve strategic land use planning and coordination with major infrastructure delivery?

6.4

Getting the most out of our existing assets

Road use varies by time of day and week, and in peak periods can exceed the capacity of the road itself. Congestion arises because each individual motorist does not take into account the costs their decision to drive at a particular time imposes on other motorists. This is reflected in the high estimated economic costs of congestion, in Sydney in particular.

Building new roads alone will not solve congestion

Sydney is Australia's most congested city. As outlined in Section 6.2, the issue is likely to get worse in coming years, adversely affecting productivity and the liveability of our urban areas.

Increasing the physical capacity of current roads (for instance, by road widening or adding clearways) and constructing new roads is one response to congestion. In the long-term, however, additional capacity reduces travel costs, inducing more road use. This will not permanently alleviate congestion because there is a limit to how far road capacity can be increased (Terrill, 2017). Moreover, new roads typically come at significant cost to government, particularly in well-established areas.

This suggests that the NSW Government could explore options for effectively using current road space, including how to influence demand for road space. These options could be considered in the context of the entire transport system, the topography of Sydney, its land uses, and impacts on those with limited means.

Better use of road space through digital technology

Technology can better utilise road space by managing traffic flows and volumes and improving incident response times. For example, the M4 Smart Motorway, due for completion in 2020, will use real-time information, communication and smart traffic management systems to smooth the flow of traffic and ease congestion. Agile solutions such as this have been identified in Future Transport 2056 as a first order response to managing congestion and performance variability.

Considering how road space is allocated between different modes

Allocating scarce road space between transport modes, including buses, light rail, pedestrians, and cyclists, is another important consideration efficiently using road space. Private vehicles, relative to passenger volume, take up significantly more road space than other vehicles. For example, a bus passenger takes up 0.8 square metres per occupant, compared with 9.7 square metres for an average car (Institute for Sensible Transport, 2018). Giving priority to more space-efficient transport modes on congested roads is one option for more effective use of congested roads. Research has found these initiatives can provide benefits to the wider community (see Fleming et al, 2013).

Managing customer road demand during peak times

Government's role in influencing demand for road use

TABLE 6.2: ANNUAL ROAD FEES AND CHARGES LEVIED BY GOVERNMENTS (AVERAGE PER NSW DRIVER)[2]

CHARGE TYPE	$2016-17
Fuel Excise (Commonwealth)	652
Vehicle Registration and Weight Tax (NSW)	451
Licence Fees (NSW)	31
Stamp Duty (NSW)	153
Other taxes[3] (Commonwealth)	326
TOTAL	1,613

Source: NSW Treasury analysis, BITRE 2018 Australian Infrastructure Statistics – Yearbook 2018, and BITRE (2017) Information Sheet 84 Drivers Licences in Australia

Direct charging for road use has been limited to toll roads, while congestion alleviation has not historically been an explicit aim of road-related fees and charges. Overall, road-related revenue has typically exceeded annual spending on roads.

The Commonwealth's fuel excise is the most significant of these fees and charges, accounting for about 57 per cent of all road-related revenue in 2015 (PC, 2017a). This is the only motor vehicle charge that is proportionate to road use and is levied per litre of petrol sold at a flat rate of 41.8c per litre, as of August 2019 (ATO, 2019). This allows fuel excise to function as a proxy for road-user charging, since motorists' contribution to government revenue is commensurate with fuel purchased (an approximation of distance travelled). However, the ability of fuel excise to manage demand and congestion is limited as it does not adequately reflect the additional cost of driving on congested roads. Survey findings also suggest that most motorists have little or no awareness of the current arrangements in road-related charging, limiting effectiveness in influencing consumer choice (Transurban, 2016).

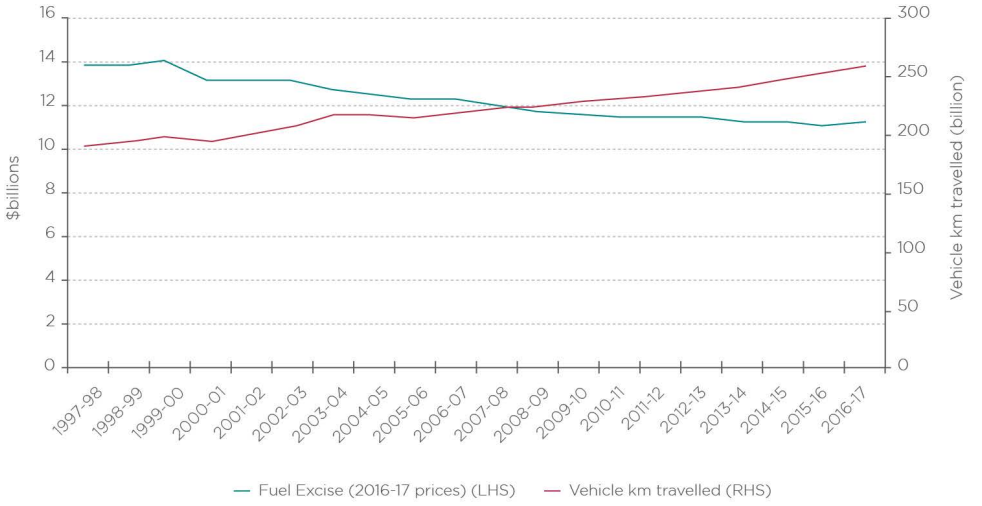
Major sources of road-related revenue are declining

Year-on-year fuel excise revenue is in steady decline despite an increase in total distance travelled (see Figure 6.5).

2 Note that amount paid in tolls is not reported in this table. Most revenue raised from tolls flow to the private operators of toll roads.

3 Includes the Commonwealth GST, Fringe Benefits Tax and Luxury Car Tax.

FIGURE 6.5: DECLINING FUEL EXCISE REVENUES



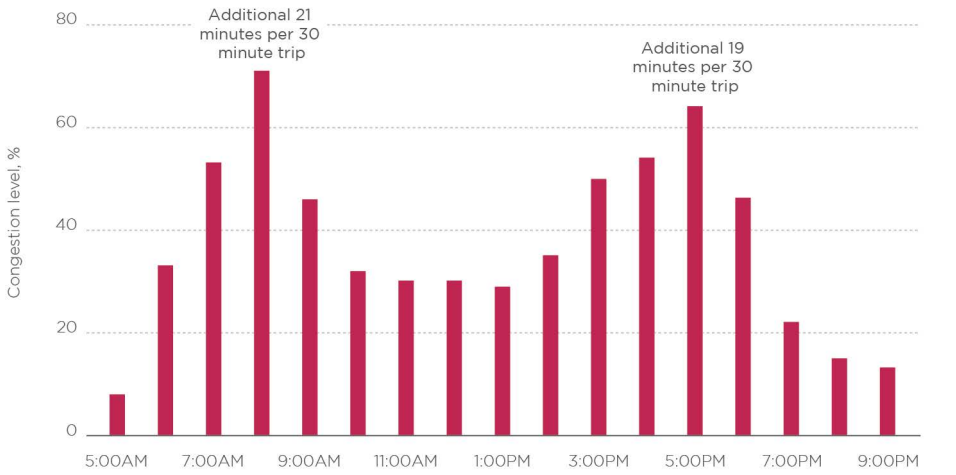
Source: Bureau of Infrastructure, Transport and Regional Economics, Australia Infrastructure Yearbook 2018, and NSW Treasury.

This decline in revenue is largely due to the 2001 decision to suspend CPI indexation of fuel excise, which was introduced in 1983. Indexation was restored in 2014 and is effected twice a year. Other factors have contributed to this decline. These include the increasing fuel efficiency of new motor vehicles, uptake of electric and hybrid vehicles (which consume less or no fuel), and changing transport habits. This trend is projected to continue into the foreseeable future, particularly given increasing growth in the electric vehicle market. These major shifts may indicate a timely opportunity for government to restructure road-related fees and charges.

Effective demand management requires a time and location-specific solution

Congestion tends to occur intermittently throughout the day and at certain locations. Traffic data measuring congestion shows two distinct peaks in Sydney throughout the day. Roads are typically congested during morning and evening peak times, when there are large volumes of motorists travelling to and from work or school (see Figure 6.6). As a general rule, when traffic on heavily congested roads falls by 5 per cent, traffic speeds increase by 50 per cent. That is, only modest reductions in car volumes are required to greatly improve traffic speeds.

FIGURE 6.6: SYDNEY CONGESTION LEVEL BY TIME OF DAY (WEDNESDAY)



Source: TomTom Traffic Index (Sydney).
Note: Congestion level as a percentage of additional travel time due to traffic.

Similarly, not all roads experience congestion. Spatial analysis by Transport for NSW shows that projected road capacity performance in Sydney varies across the network (see Figure 6.2). Moreover, peak-time congestion may only be an issue in one direction and not the other.

The numerous tolls charged on Sydney's privately-operated roads provide a stronger price signal. While they can be expected to have a much greater impact on road use than other taxes, fees and charges, this impact is not concentrated in peak periods because these charges do not vary by time and day other than for the Sydney Harbour Bridge.

In Melbourne, where congestion is also rising, there have already been trials of alternative models of road funding (see Box 6.3).

Box 6.3 Transurban trial of Road-User in Melbourne

Transurban trialled Australia's first user-pays road charging scheme in Melbourne in 2016. The trial sought to:

- gauge motorists' knowledge and understanding of current road-funding arrangements
- assess attitudes and behavioural changes towards a user-pays system, and
- determine whether technology is a barrier to implementing a practical user-pays system.

The trial involved 1,635 motorists and five user-pays charging options. Three of these were usage-based models: charge per kilometre; charge per trip; and flat rate. The other two were congestion-based, which tested motorists' response to cordon (around Melbourne CBD) and time-of-day pricing. The per kilometre charge was the most popular of the usage-based options, probably because of its simplicity. The study suggested that public appetite was moving towards a more direct and transparent way of paying for road use – 60 per cent of participants preferred a user-pays model over the existing arrangements. Cordon charging was the most effective of the congestion-based models, with material reductions in decisions to enter the cordoned area. Most participants (84 per cent) were also comfortable with using GPS tracking devices in their vehicles as a means of facilitating road-user charging, citing trust in their ability to accurately measure distance.

Source: Transurban (2016).

Discussion question

- What further options should the NSW Government consider to alleviate congestion?

Meeting peak public transport demand

Infrastructure requirements for the rail network can be extremely costly. These needs cater for peak demand, implying spare capacity during off-peak times. If peak train users do not face the costs of meeting peak demand, the overall costs of the network will be driven up. The Opal scheme for the Sydney network does impose a higher charge during peak times (there is a 30 per cent discount for journeys commencing during the off-peak period), reducing peak demand and better utilising existing capacity. A recent study of the elasticity of demand for public transport found that a 1 per cent increase in peak adult train fares for trips between 3-8 kilometres leads to a 0.1 per cent decrease in peak adult journeys (CEPA, 2019). Peak fares are, however, well below operating costs for the peak rail network.

Increased use of data and improving the availability of information to nudge customer behaviour away from peak times is another demand management option. For example, Box 6.4 outlines how Transport for NSW is using real time public transport data to provide better information to customers, giving them more certainty and control over trip planning and managing peak demand.

Box 6.4 Using real-time public transport data to influence behaviour and manage peak demand

Transport for NSW has demonstrated the effectiveness of using digital technology and data to modernise public transport delivery and manage peak demand across the network. This has enabled TfNSW to better meet customer expectations for accessible information detailing service timing, capacity, frequency and service disruptions.

Trip planning facilities have been enhanced by real-time information on exactly where and when a customer's train, metro, bus, ferry or light rail service will be at the customer's point of departure. This information has been made accessible via a number of platforms, many of which are owned and operated by TfNSW, including transportnsw.info, the Opal Travel App and Transport Bot on Facebook messenger. Data sharing has additionally allowed customers to access this information through external platforms including virtual assistants (such as Google Assistant and Amazon Alexa), as well as data feeds on the Open Data platform to third-party products (such as TripView and NextThere).

Discussion question

- What measures could we explore to reduce pressure on rail infrastructure during peak periods?

Improving asset management capability

The NSW Government expects to spend $4.2 billion on maintenance in 2019-20 for its $355.9 billion (as at 30 June 2019) public asset base (NSW Government, 2019). Expenditure on maintenance is expected to rise due to a growing and ageing asset base (Infrastructure NSW 2018).

Improvements in asset management can have a significant impact on both cost and productivity outcomes. For example:

- Data can be used to better predict and target maintenance, making expenditure more efficient and reducing the required service downtime for maintenance. For example, RMIT University is developing a machine learning platform that uses Internet of Things data to forecast asset deterioration.
- Assets can be 'sweated' through different or more intensive uses, such as commercial usage opportunities.
- Capital maintenance strategies can help to ensure that asset maintenance expenditure supports long-term productivity improvements and social benefits.

Infrastructure NSW and NSW Treasury have developed a new Asset Management Policy in response to recommendations from the SIS. The Asset Management Policy will support adoption of a whole of government and whole-of-lifecycle approach to asset management. This aims to reduce the costs of ownership, help manage risks and improve the resilience of assets. There is a current focus on developing an Asset Management Assurance Framework to assess maturity and performance of asset management practices, including social, economic and environmental performance. The Framework will also consider a whole-of-government approach to asset solutions, particularly place-based investments.

Technology and data-driven financing and business models

More infrastructure will be delivered with 'smart', sensor-based technology as infrastructure design and technology develops. These sensors produce granular information on their performance and operations. For example, pressure sensors in water distribution pipes, along with smart meters in homes and businesses, can reveal information about water leakage and consumption patterns. Likewise, sensors on bridges can monitor structural health and inform capital spending.

This kind of information can be leveraged, alongside other data, to support new models of financing and operation that can improve operational efficiency, attract new financing and develop new revenue streams. Adriaens (2019) points out a range of potential applications, such as:

- smart stormwater controls that use water quantity and quality data to better manage drainage and discharge
- variable interest rate bonds, informed by sensor measurements and engineering models that underpin performance-based yields, which could be an attractive financing instrument to the market that helps bridge funding gaps
- infrastructure-derived data, which could be sold to third parties to generate new sources of revenue (subject to appropriate regulatory and privacy protections).

Discussion question

- How could agencies use data and 'smart' infrastructure to improve asset management?

6.5

Exploring innovative service delivery models

There are many innovations that can improve productivity and the quality of service delivery for customers. This section contains a selection of ideas on areas that merit further exploration.

Cost-saving reform in public transport service delivery

A 2015 study by the Centre for Independent Economics (CIE) estimated that New South Wales' rail operating costs are approximately 30 per cent above efficient costs, and that State Transit Authority metropolitan bus services are approximately 20 per cent above efficient costs. The CIE estimated that this equates to a difference between actual and efficient costs of $703 million each year for rail and $118 million for buses. Improved efficiency would enable the delivery of more, higher-quality services within the existing budget envelope.

New models of health delivery

Demand for health services is expected to grow by 50 per cent over the next 20 years (INSW, 2018). Health is already the largest recurrent expense for the NSW Government. The 2016 Intergenerational Report projects that costs will grow by 6 per cent annually over the long term, mostly in the hospital system (NSW Government, 2016). Infrastructure NSW (2018) identified the need to support new models of care, including community, home-based and virtual care, in addition to hospital investment. New models that deliver preventative and primary care can generate better outcomes through early intervention while improving the efficiency of the overall system by avoiding costly hospital visits.

Health capital spending is forecast at $10.1 billion over the four years to 2022-23 (NSW Government, 2019). Investment in health is necessary to meet demand for healthcare services, but this growth will place significant pressure on the NSW Budget. The success of Denmark in reducing the amount of public hospitals and increasing health sector productivity provides an example of how new models of care can improve both health outcomes and productivity (see Box 6.5).

Box 6.5 Healthcare reform in Denmark

Denmark undertook major structural reforms to its health system in 2007. The reforms were designed to:

- create larger administrative units to support larger hospitals and quality improvements
- centralise specialised care in fewer hospitals
- increase efficiency through administrative rationalisation
- strengthen governance.

The hospital structure changed from 40 public hospitals covering 82 locations in 2007 to only 21 hospitals covering 68 locations in 2016. This was facilitated by a trend towards out-of-hospital care and specialised treatment centralised at a few hospitals. Many hospitals have been transformed into 'health centres' that provide routine primary health care services outside the hospital system.

Hospital productivity has increased by more than 2 per cent per year since the reforms were introduced, while costs have been stable. Quality has been promoted through quality assurance programs. Analysis has shown that waiting time trends are stable and quality data generally shows improvements. However, there has been some criticism that people in remote areas feel left behind and hospital staff are under increased workload pressure.

Sources: Vrangbaek, K; Christiansen, T and Vrangbaek, K (2018).

Better use of technology through the increased uptake of telehealth can alleviate pressure on existing infrastructure and improve service delivery productivity. The benefits of increased uptake of telehealth services include:

- reducing the length of hospital stays
- improved health outcomes from not being in hospital, and
- improved health outcomes for discharged patients through improved care and monitoring (and reduced readmissions).

New South Wales has a Telehealth Framework and Implementation Strategy (NSW Health, 2016). Some Local Health Districts have also developed strategies and made significant progress towards telehealth models of care. There could be opportunities to further integrate telehealth into business as usual service delivery and address legal and regulatory barriers to increased uptake (Nous Group, 2015).

Better utilisation of existing land and buildings to meet social housing demand

Well-located social and affordable housing and associated support services are important facilitators of economic participation and social inclusion. It ensures that those most at risk of permanent disengagement from the labour market have access to training and job opportunities. It also helps individuals to feel safe and connected to their communities.

IPART (2017) has identified a gap between rents received and the cost of providing social housing. The current operating model relies on a self-funding approach, including tenant rental income and asset sales to fund capital and maintenance expenditure. New models seeking to enhance use and value of our existing assets could therefore play a key role in meeting social housing demand and supporting economic and social participation.

The Communities Plus Program and meanwhile use are two examples of innovative delivery models focussed on better use of existing assets and land already in use in New South Wales (see details in Box 6.6).

Box 6.6 Models to better utilise existing assets for social housing

The **Communities Plus** program aims to deliver social and affordable housing as part of integrated development across New South Wales. Under the major sites element of the program, the Land and Housing Corporation (LAHC) engages private developers and community housing providers to deliver renewed precincts containing a combination of private, social, and affordable housing on government-owned land under 'Build-to-Sell' or 'Build-to-Rent' models. Social housing properties are then handed over to LAHC as payment for the land under Build-to-Sell. Examples include Ivanhoe Estate, Telopea, Riverwood, and Arncliffe. A Build-to-Rent model is being delivered at Redfern where proponents will enter a long-term lease and collect rental income for the duration in return for building and managing the dwellings on the site.

Meanwhile use leverages vacant land or buildings during the development cycle to deliver innovative short-to-medium term social housing solutions. New South Wales has a number of existing meanwhile use projects. For example, LAHC has leased out a site in Glebe to a community housing provider to deliver transitional housing pending re-development. Another project involves a pilot program that uses void properties owned by LAHC for temporary placement of children and young people in out-of-home care to reduce the need for hotels or motels where limited kinship or foster care options exist.

There may be further meanwhile use opportunities for innovative social housing, as well as opportunities for further waves of the Communities Plus Program, subject to a case-by-case assessment to ensure projects are financially viable and meet customer needs.

Opportunities could include meanwhile use of vacant government owned-land, which has not previously been undertaken in New South Wales. Use of vacant land is more complex and will require feasibility testing, including cost-benefit analysis, which will depend on the length of time land is available. There are, however, numerous Australian and international examples of successful projects that can provide guidance. In Victoria, for example, collaboration between a community organisation, a philanthropic organisation, and government is delivering 57 portable units on vacant land owned by VicRoads.

Better utilisation of schools

NSW Government school enrolments are expected to increase from 800,000 to almost 1 million over the next 20 years (INSW, 2018). This follows three decades of relatively stable school populations. Delivery of infrastructure to meet the needs of the growing school population is guided by the Department of Education School Asset Strategic Plan, which is currently being updated.

A number of approaches have been attempted in New South Wales and other jurisdictions to increase utilisation of school assets, such as:

- staggered recess and lunch shifts
- multi-track schools
- double shift school days
- blended teaching models
- digital learning.

Implementing these options would be challenging, and the likely effects on families, students and teachers need to be carefully considered (e.g. in relation to childcare costs). Options for utilising school assets could also consider the impact of an evolving learning environment to ensure that infrastructure can meet future needs. For example, technology will enable new learning opportunities, both at home and at school. Learning modes and teaching styles are also adapting and changing to support greater levels of collaboration and self-directed learning (see Chapter 4).

Discussion questions

- How can existing innovative service delivery models be further leveraged to improve productivity and customer outcomes?
- What other innovative service delivery models should the NSW Government consider to improve productivity and customer outcomes?

Modernising our tax system to help our economy grow

Key points

Why do we need to focus on taxation?

- State taxation is necessary to fund high-quality services and infrastructure for the people of New South Wales.
- Taxes impose economic costs due to their impacts on incentives. Different taxes impose different levels of economic costs.
- Reducing reliance on inefficient taxes in favour of more efficient taxes could result in substantial productivity gains for New South Wales.
- The 2019-20 NSW Budget announced the formation of the Federal Financial Relations Review, chaired by David Thodey. The Review provides is considering reforms to funding arrangements between the states and the Commonwealth.

Conversation starters

- Transfer duty is an inefficient tax. Residential transfer duty is estimated to cost the economy $2.35 for each additional dollar raised. However, the NSW Government relies on transfer duty for a significant amount of revenue – $7.4 billion in 2018-19.
- Insurance duties add to the cost of insurance and can lead to underinsurance.
- Current motor vehicle taxes and charges do not accurately reflect the social costs of road use.
- Payroll tax can be an efficient tax, but differences between states and territories and the application of thresholds reduces its efficiency.
- The gambling industry continues to evolve and taxation arrangements will need to continue to adapt.
- The role of local government in New South Wales is changing, with widening community expectations for service provision. Local government needs more flexibility to meet these increasing expectations.
- The current rate pegging system is inflexible and has a number of unintended consequences.

7.1

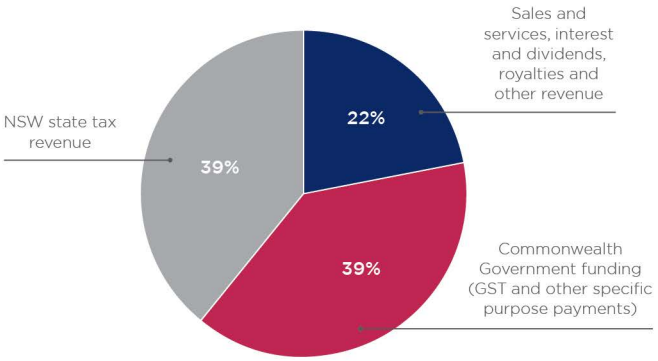
The role of taxation in productivity growth

State taxes fund critical services and infrastructure

Providing high-quality government services and critical infrastructure is essential for a modern state to function effectively. To achieve this, New South Wales requires reliable revenue sources that are adaptable to change.

Total NSW General Government revenue was approximately $81 billion in 2018-19, representing about 13 per cent of NSW Gross State Product (GSP). The breakdown of funding sources is provided in Figure 7.1.

FIGURE 7.1: COMPOSITION OF NSW GENERAL GOVERNMENT REVENUE, 2018-19



Source: NSW Budget 2019-20. Note: projections subject to revision.

Commonwealth funding is subject to agreements with the Commonwealth Government and may require agreement from the other states and territories. There is limited scope to change revenue from the Commonwealth, or sales of goods and services. New South Wales will therefore need to continue relying on state taxation for a large part of its funding and to address its changing needs.

The 2019-20 NSW Budget announced the Federal Financial Relations Review, chaired by David Thodey. It will examine federal financial relations from a state perspective, with an emphasis on federal funding and its interactions with the state tax and revenue systems. The Review offers an opportunity to consider some of the issues raised in this chapter.

Taxes can influence behaviour, resource allocation, and create economic costs

Taxation transfers revenue from the taxpayer to the state. The overall economic cost could, in theory, be zero. In practice, a side effect of many taxes is that they change the incentives that individuals and firms face, which in turn can cause undesirable changes in behaviour and resource allocation. For example:

- income and payroll tax can reduce the after-tax return on labour, causing people to work less
- profit-based taxes can reduce after-tax returns on capital, diverting investment outside the state
- consumption taxes can change the relative prices of goods and services in a way that does not reflect resources used in production, and
- transaction taxes can deter market exchanges that would otherwise be mutually beneficial.

Each of these impacts would be reflected in lower productivity. The result is an economic cost to society, often called a 'deadweight loss' or 'excess burden', reflecting the loss of wealth arising from these behavioural changes.

Not all taxes create economic costs, however. Taxes may, under certain circumstances, be designed to reduce the incidence of behaviour that is costly to society. The Commonwealth's excise duty on tobacco and alcohol are well-known examples.

Taxes may also impose costs on the community through their administrative complexity or lack of transparency. Some of these costs may be reduced by, for example, improving the availability of information. Complexity often arises from the design of the tax itself, however, in which case more fundamental reform is required.

Taxation reform is a major lever for improving productivity

The way taxes are designed (what is liable, who pays, and how they are administered) are therefore important considerations when seeking ways to improve productivity across the economy.

For New South Wales, the tax system should not only provide an adequate and reliable revenue source, but also support strong and sustainable economic growth. At the same time, the tax system needs to be fair and easy to understand and administer.

Productivity can be improved by greater reliance on taxes with lower economic costs while at the same time redesigning, reducing, or eliminating those with higher economic costs. Tax reform can improve after-tax returns on labour and capital, reduce undue distortions in the prices consumers and businesses face, and remove impediments to beneficial exchanges.

Commonwealth Productivity Commission Chairman Michael Brennan recently pointed to taxation as a priority for reform, noting that broader public consensus and political salesmanship will be needed to achieve major tax changes.[1] Decisions remain about what taxes should be prioritised for removal or reform and how revenue impacts should be managed.

Local government could have greater autonomy and accountability

Community expectations of councils have risen in recent decades beyond being merely a provider of generic local services such as roads, waste collection, and water management. Increasingly, council services are extending to aspects of social policy, including physical and mental health and the needs of children, youth, Aboriginal, and migrant groups.

Councils provide detailed accounts of costs, but measures of their service outputs are less readily available. This makes measuring council productivity difficult. Nonetheless, there is scope for better monitoring of council productivity while allowing communities greater autonomy over their desired service levels. Two thirds of council revenue is currently sourced from rates, an efficient revenue source, meaning local government should be included in the tax reform conversation.

1 Quoted in the Australian Financial Review, 13 June 2019.

7.2

Problem definition: Taxation

New South Wales is constrained in the types of taxes it may levy by provisions in the Australian Constitution. In particular, state governments are prevented from levying any excise duties including taxation on the consumption of goods.

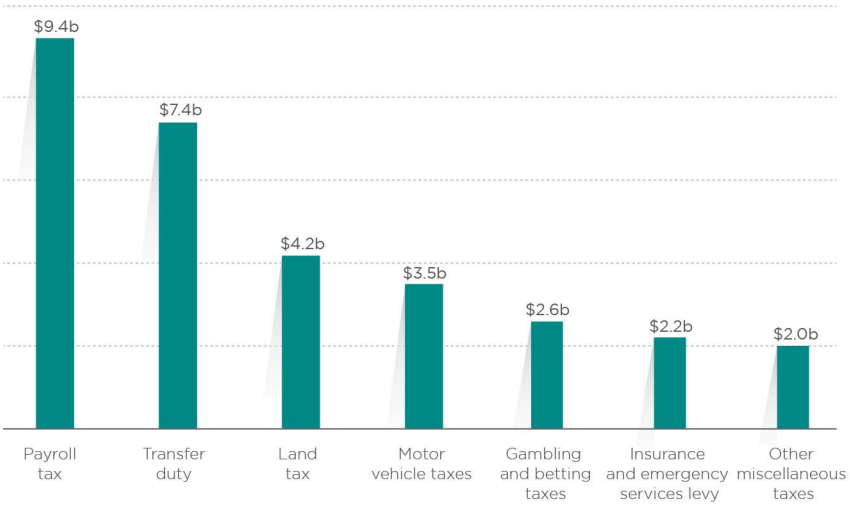
New South Wales levies a variety of taxes (refer to Box 7.1).

Box 7.1 Overview of New South Wales State taxes

- **Property related taxes** –
  - **Transfer duty** is levied on property transactions, including the value of all improvements, buildings and other fixtures to the land. The tax is levied on the person acquiring the property (usually the purchaser).
  - **Land tax** is applied to the unimproved value (ULV) of landholdings (i.e. the value of the land excluding that part of the value due to improvements, buildings and structures) above a certain threshold. Landowners are assessed on all their land holdings at the beginning of each calendar year. Exemptions are available for principal place of residence and primary production land.
  - **Local government rates** like land tax are applied to ULV above a base or minimum amount. Unlike land tax, there is no threshold and exemptions are much less generous. The amount of revenue councils are permitted to raise is limited by a 'rate peg'.
- **Payroll tax** is a tax levied on employers according to the size of their payroll for employees operating in New South Wales above a certain total payroll threshold.
- **Motor vehicle taxes** – The main components are transfer duty levied on the purchaser of a new or used vehicle, vehicle registration and transfer fees, and vehicle weight tax.
- **Gambling taxes** – These are taxes on net revenues from betting or gambling relating to hotel and club gaming devices, lotteries and lotto, casino games, racing and sports betting and other gambling activities.
- **Insurance and emergency services levies** – This includes duties levied on general and life insurance premiums, the health insurance levy, and emergency services levy contributions.
- **Other miscellaneous taxes** – This includes the parking space levy, waste and environment levy, the private transport operators levy, pollution control licence fees and various other taxes.

The amount of revenue New South Wales is expected to collect in 2018-19 from the taxes in each group is summarised in Figure 7.2. The revenue from each of these tax groups since 2001-02 as a proportion of Gross State Product is displayed in Figure 7.3.

FIGURE 7.2: COMPOSITION OF NEW SOUTH WALES TAXATION REVENUE, 2018-19 $ BILLIONS



Source: NSW Budget 2019-20.

FIGURE 7.3: NEW SOUTH WALES TAX REVENUE (PER CENT OF GSP)

Source: NSW Budget Papers (various years), ABS 5220.0.

Figure 7.3 shows how revenue from most of the tax groups has been fairly stable as a proportion of GSP, with the clear exception of property taxes.

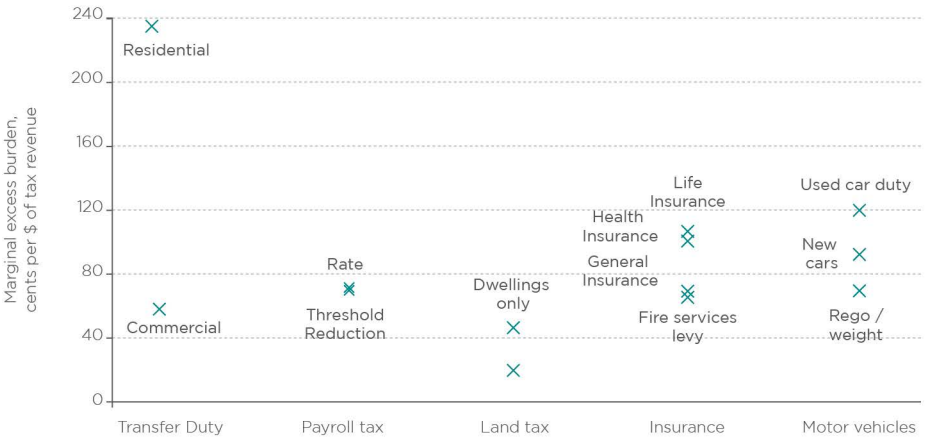
The strong swings in property tax revenue predominantly reflect changing market conditions, particularly for residential property. New South Wales' triple-A credit rating facilitates adjustments in the level of borrowings, supporting the management of these fluctuations.

Tax reform could significantly boost productivity

New South Wales could potentially improve the efficiency of its resource use by changing the mix of taxation.

In June 2018 NSW Treasury commissioned The Economic Impact of the New South Wales and Australian Federal Tax Systems from the Centre of Policy Studies, Victoria University (CoPS). It estimated national impacts and the impact on the NSW economy from different taxes. The main findings for New South Wales are summarised in Figure 7.4.

FIGURE 7.4: ESTIMATES OF ECONOMIC COST OF NEW SOUTH WALES TAXES



Source: CoPS (2018).

All estimates of economic cost reflect, to some extent, the assumptions and simplifications in the models used to estimate them. There is considerable variation between some of the estimates of economic impact provided by different studies [see e.g. KPMG (2010); KPMG (2011); Murphy (2016)]. Nevertheless, the results provide a useful indicator of the broad areas with the largest scope for gains from reform, and the likely magnitude of those benefits.

The analysis highlights how some NSW taxes are more inefficient than others. The results are consistent with two widely accepted economic principles. The mobility principle recognises that the higher the mobility of the tax base, the higher the economic cost of that tax. Land is an immobile base as supply cannot be shifted, whereas capital is a mobile base that will shift to where returns are highest. The narrowness principle recognises that a narrower tax base is generally less efficient as affected individuals can respond to the tax by changing their behaviour to favour untaxed substitutes.

The key conclusions from the CoPS work are that:

- Land tax is, by far, the most efficient New South Wales tax; every additional dollar collected carries an estimated economic cost of 16 cents. This is higher than it otherwise would be because exemptions are provided and the tax-free threshold is high.
- Transfer duty on residential property purchases is extremely inefficient, carrying an economic cost of $2.35 for every dollar of tax collected.
- Insurance and motor vehicle taxes also carry high economic costs.
- Payroll tax is inefficient (although considerably less so than gambling and motor vehicle taxes) because of its effect on the purchasing power of wages. Specifically, this inefficiency arises predominantly from interstate competition as firms seek to relocate operations to more favourable payroll tax jurisdictions. A national, harmonised payroll tax could be much more efficient.

The tax system in New South Wales could be more efficient if it moved toward taxes that carry a lower economic cost. That said, the precise direction of reform and the transitional arrangements need to be carefully assessed. Provided these issues can be worked out, the community could be better off overall.

7.3 Reducing inefficiency in property taxes

Transfer duty can distort decisions about whether to move or change jobs

Transfer duty is charged when a person or business purchases real estate. It applies at a progressive rate with only limited exemptions. The duty is payable by the purchaser within three months of exchange of purchase contracts and the property title cannot be transferred until the duty is paid. This makes transfer duty relatively simple to administer and difficult to avoid.

The imposition of transfer duty has added to the economic costs of those preferring owner-occupying arrangements when they consider whether to relocate. Generally, a person (or business) will decide to relocate when they expect the benefits of doing so to outweigh the financial and non-financial costs. Duty payable can add considerably to relocation costs and, in some cases, turn the perceived net benefit of relocating from a positive to negative. This may lead to a decision to remain, despite the clear economic benefits of moving. Specific cases, and the consequences, might arise as follows:

- 'Empty nesters' may remain in large family homes rather than downsizing to a dwelling that better suits their needs as they age. This restricts the best use of existing housing supply.
- Workers may not move home when they change jobs and/or careers. This can mean unnecessarily long commutes, costing time and adding to road congestion and public transport crowding.
- Workers may avoid changing jobs and/or careers when it may otherwise be beneficial to do so. Reduced labour mobility hampers matching skills with jobs and can lead to pools of unemployment in certain areas and unfilled vacancies in others.
- Businesses may decide against efficient relocations, mergers or restructures. These businesses, particularly small businesses, would then be operating in locations that no longer best meet their needs.

The Commonwealth Productivity Commission's (2014) report on Geographic Labour Mobility found that, regarding the decision for people to move from their homes, "stamp duty imposed on housing purchases stands out as the main transitional impediment". The difference in mobility between home owners and renters in Australia is estimated to be among the highest in the OECD (Andrews et al, 2011 – for further discussion, see Chapter 8).

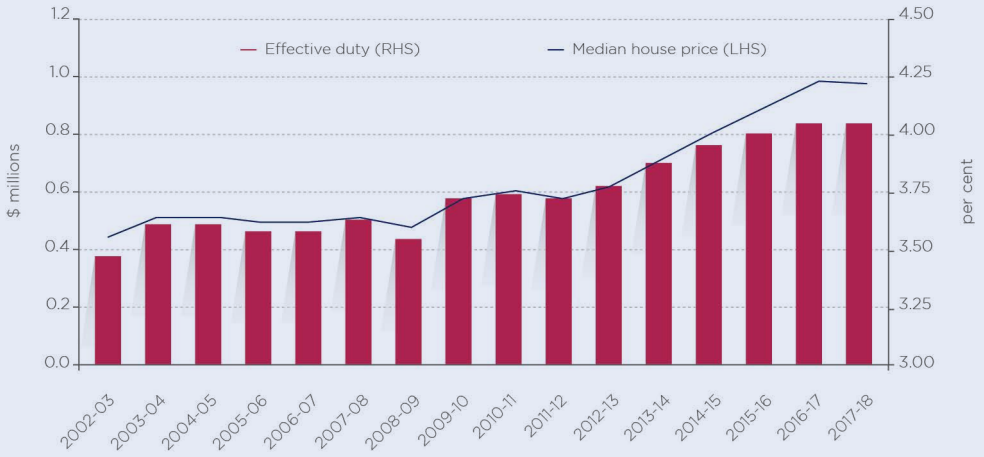
New South Wales has taken some steps to reduce the burden of transfer duty (see Box 7.2) but it still remains one of the largest sources of state tax revenue.

Box 7.2 Indexation of transfer duty in New South Wales

New South Wales became the first state to introduce indexation of transfer duty brackets to the Consumer Price Index (CPI) on 1 July 2019. This is in response to the impact of transfer duty increasing over time in line with increases in properties prices (see Figure 7.5).

The immediate impacts of indexation are modest but will increase over time. If stamp duty brackets had been indexed to the CPI 15 years ago, the amount payable on a $500,000 home would be around $2,000 lower today; the amount payable on a $1.5 million house would be around $6,400 lower.

FIGURE 7.5: EFFECTIVE STAMP DUTY HAS GROWN OVER TIME



Source: NSW Treasury.

Land tax is efficient, but the current base is narrow

Land tax is an annual tax levied on unimproved land value. It applies where the total value of a person's landholdings (as determined by the Valuer General) exceeds the land tax threshold for that year. There are a range of exemptions, including for land used as a principal place of residence, primary production land, cemeteries, retirement villages, hospitals, and for religious societies.

These exemptions, combined with a tax threshold, serve to narrow the land tax base. There are currently only about 170,000 land tax payers in New South Wales out of a total of more than 3 million property owners.

Reducing reliance on transfer duty in favour of land tax would be challenging

The Henry Review (2009), IPART (2008), the Commonwealth Productivity Commission (2017), and a number of other commentators have indicated there would be substantial economic gains from shifting reliance away from transfer duty towards a broad-based land tax. Notwithstanding the substantial benefits, the biggest obstacle to the transfer is the transition. For example, any transfer needs to address impacts such as the financial hardship imposed on those households who have recently purchased a property.

Identifying different ways of transitioning to a tax system where there is less reliance on transfer duty is a critical first step.

Discussion question

- What steps could the NSW Government take to reduce its reliance on transfer duty?

7.4

Improving insurance duties

Insurance duty is a tax placed on the value of premiums. Insurers build the value of the tax into their premiums, thereby raising the total cost of insurance. This price increase may induce some people and businesses to not take out insurance or take out a lower level than they otherwise would. Evidence suggests the responsiveness of expenditure on insurance to a tax increase is large. The Insurance Council of Australia found removal of household insurance duty would result in 24,000 additional NSW households with house insurance. This would represent a reduction of uninsured households of around one-third. It would also result in a further 148,000 households with contents insurance, a reduction of around 15 per cent of uninsured households (Tooth, 2015).

This un-insurance or under-insurance attributable to duties may cause financial stress if an adverse event such as fire, accident, theft, or natural disaster occurs. This, in turn, may lead to:

- a person or their dependents being left without adequate support and relying on state assistance and welfare
- the business itself collapsing, causing a loss of know-how, employment or reduced market competition, and
- a business creditor not being paid, or payment being delayed.

Discussion question

- How can insurance taxation arrangements be improved?

7.5 Improving motor vehicle taxes

Motor vehicle taxes are based on factors such as vehicle weight that do not necessarily align with the social costs of vehicle use. This means people may choose to buy a lighter vehicle that is less safe or does not adequately meet their needs. Meanwhile, the costs of road use, such as congestion at specific places and times, go unaddressed.

Technology that can measure road usage more accurately and inexpensively is currently being developed and could provide opportunities to redesign motor vehicle taxes. Shifts in the motor vehicle industry and transport habits, including the rise of electric and hybrid vehicles, may also provide an opportunity to reassess motor vehicle taxation arrangements. This issue is discussed in more detail in section 6.5 of this paper.

Discussion question

- How could motor vehicle taxation arrangements be improved?

7.6 Simplifying payroll tax arrangements

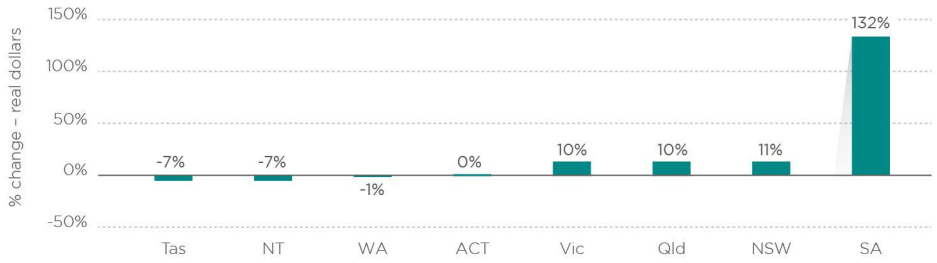
In October 2018, the NSW Productivity Commissioner delivered his final report on the Review of Payroll Tax Administration to the NSW Government. The report included recommendations aimed at enhancing productivity, simplifying administrative processes and reducing the costs to businesses of payroll tax compliance. The NSW Government, in its response, announced it would implement all the Review's recommendations. Payroll tax rates and thresholds were not considered as they were outside the scope of the review.

As noted above, payroll tax is an efficient tax when its impact is considered at the national level. In practice, firms may seek to take advantage of lower effective tax rates by relocating some of their operations to different jurisdictions. This makes payroll tax much less efficient from an individual state's perspective.

Interstate tax competition can result in a 'race to the bottom' as states seek to entice businesses to migrate to its jurisdiction. Four states have significantly increased real payroll tax thresholds in the past five years (see Figure 7.7).

Thresholds also impact the efficiency of payroll tax. A number of studies have suggested that thresholds can provide an incentive to remain small and act as a barrier to business growth (see Henry, 2009 and Murphy, 2006). In New South Wales the current payroll tax threshold is $900,000, and is scheduled to increase to $1 million by 2021-22.

FIGURE 7.7: PAYROLL TAX THRESHOLDS – CHANGE 2014-15 TO 2019-20



Source: NSW Treasury. Note: 2019-20 thresholds adjusted according to CPI to obtain real change.

Discussion question

- How can payroll tax arrangements be further improved and simplified?

7.7 Modernising gambling taxes

Gambling operators and service providers in New South Wales are subject to strict controls to minimise the harm caused to gamblers, their families and society. This means restrictions on licensing arrangements for operators and the products they provide.

Licences typically remain in force for long time periods and, in combination with the legislation, provide the State with rights of inspection, audit, and the power to set thresholds for the proportion of player stakes that must be returned as winnings. Licences often include terms designed to limit competition during the period that the licence is in force. Licensees frequently pay substantial upfront fees (in addition to the gambling or betting taxes levied on their operations) for the privileges conferred on them by the terms and conditions of the licence.

The 'monopoly rights' granted to betting operators through these arrangements allows them to derive revenue in excess of what they could earn in a competitive market. This, in turn, provides the basis for the State to levy high rates of gambling tax on betting operators.

Gambling operators have undermined this system by providing their services to punters online and locating their operations in lower tax states or territories. On 1 January 2019, the State introduced a point of consumption tax that taxes all operators on their net wagering revenue from bets placed by people in New South Wales, regardless of where the operator is located.

Discussion question

- How can gambling taxation and licencing continue to effectively adapt to changes in the industry?

7.8

Enabling councils to deliver better services

The role of local government is changing

New South Wales councils exercise powers devolved to them by the NSW Parliament pursuant to the *Local Government Act 1993* ('the Act'). Increasingly, they also provide services not mandated under the Act. Table 7.1 below shows expenditure by function for 2017-18 across all councils. Although aggregate figures are provided, there is significant variance across individual councils depending on demographics and other factors.

TABLE 7.1: COUNCIL EXPENDITURE BY FUNCTION, 2017-18

SERVICE CATEGORY	EXPENDITURE (PER CENT)
Transport & communications	19
Governance & administration	17
Environment	17
Recreation & culture	16
Water supplies	6
Sewerage supplies	5
Community services & education	5
Housing & planning	5
Public order & safety	4
Economic affairs	4
Mining, manufacturing, & construction	2
Health	1

Source: Report on Local Government (NSW Audit Office 2019)

How to improve residents' visibility of council efficiency and quality of services

While councils provide detailed accounts of costs, measures of their service outputs are less readily available, making it difficult to measure productivity. Nevertheless, it is still possible to monitor how each council is performing. The NSW Office of Local Government (OLG), Department of Planning and Industry, and other agencies receive regular reports from councils regarding their activities, including annual reports and financial audits.

The Commonwealth Productivity Commission's 2017 Shifting the Dial report (PC, 2017a) found that Victoria's Local Government Reporting Framework and 'Know Your Council' website was a model for other jurisdictions:

> 'This type of benchmarking can provide more information that councils can use to identify the scope for improvements, as well as placing greater pressure on them to improve.'

The Victorian model allows users to identify their council's performance against 12 performance benchmarks and compare the metrics against other councils. Measures include governance, health care, roads, waste collection, and planning services.

No performance benchmarks will be perfect measures of productivity. Regular performance reporting, however, could help inform how communities make decisions every four years through the electoral process. Moreover, the OLG could require councils to conduct surveys to gauge community satisfaction with its services and report on how this feedback has been actioned.

Rate pegging limits local government autonomy

Local government rates are the largest source of revenue for councils, currently accounting for approximately 3.5 per cent of Australia's total taxation revenue, while councils collectively are responsible for about 5 per cent of public sector expenditure (PC, 2017a). The remainder of council revenue is made up from user charges and Commonwealth and state government grants.

Box 7.3 How local government rates are set in New South Wales

The *Local Government Act 1993* prescribes how rates should be calculated.

Rate assessments are based on an **ad valorem amount of the unimproved land value** of the rateable property as estimated on a three-year rolling average by the NSW Valuer General. That is, a percentage of the value of the property discounting the value of buildings or other capital.

This may be subject to:

A base amount, a fixed charge that is applied in addition to the ad valorem amount, or

A minimum amount, a fixed charge applied in place of the ad valorem amount in cases where the ad valorem amount would be lower than the minimum amount.

Since the 1970s, the Minister for Local Government has set annual limits to increases in councils' general rate income, which is performed by IPART under delegation. The regulated increase is based on estimated recent changes in the local government (average) cost index (LGCI) less an assumed, or desired, increase in productivity. The rate peg was set at 1.5 per cent in 2017-18, 2.3 per cent in 2018-19 and 2.7 per cent for 2019-20. To allow flexibility into the system, councils can request IPART to allow a Special Variation to the rate peg against the guidelines set by the NSW Office of Local Government. IPART grants Special Variations to councils subject to:

- community awareness of their plans
- a demonstrated need for more revenue
- a reasonable impact on ratepayers
- a sustainable financing strategy
- a record of council productivity improvements.

Rate pegging is designed to control local government costs. The process, however, introduces administrative costs and time delays, which should be assessed against the corresponding benefits.

Further, the merit of rate pegging as a means of containing burdens on ratepayers should be further explored. The NSW Independent Local Government Review Panel (2013) analysed unpegged rates revenues in other states and found no evidence that councils would subject ratepayers to unreasonable increases were pegging relaxed. The 2009 Commonwealth tax review (Henry, et al, 2009) found it tends to reduce overall responsiveness to ratepayers:

> 'If local governments are to be accountable to ratepayers for their expenditures, it follows that they should have full (or at least greater) autonomy over the setting of the tax rate applied to properties in their jurisdiction.'

Democratic accountability imposed by local council elections every four years would provide a check against unjustified rate increases. Moreover, regular performance benchmarking and customer surveys could provide a sufficient basis for resident feedback on service delivery quality.

Conversely, continued rate pegging represents a constraint on local government's ability to respond to increasing expectations for its role as a community service provider.

Rate pegging introduces financial disincentives for councils to accept growth

Population growth can have negative impacts on communities such as road congestion, public transport crowding, and rationing of community services. It can also bring benefits such as new businesses and expanded social networks. Broadly, where growth is accompanied by more costs than benefits, communities have an incentive to resist it. Furthermore, councils' accountability to residents mean it is essential that they have the resources to accommodate demands of growth and allay resident concerns where possible.

The current system of local government funding does not support these outcomes, particularly in areas that are already populated and growth is accommodated by higher population densities. When development controls are relaxed, land values tend to rise, providing windfalls to existing landholders, developers, or both.

At present, however, when councils agree to relax controls under their Local Environment Plans (LEP) and land values rise, the ad valorem rate must fall to remain within the peg of councils' general rate income. Raising additional revenue is not possible without seeking a special variation from IPART.

This means councils do not necessarily benefit from their own administrative decision to amend their LEP. This prevents them from meeting the needs of a growing population and sharing the benefits of growth with residents. This gives councils a strong financial disincentive to accept development-driven growth within their boundaries.

Discussion questions

- Should performance monitoring and benchmarking be adopted for local governments in New South Wales?
- Would regular community satisfaction surveys make councils more responsive to their residents?
- How could councils improve their funding arrangements to provide greater flexibility in meeting their residents' service demands?

Planning for the housing we want and the jobs we need

Key points

Why we need to focus on planning

- Cities are where people live, work and play. But they are also enablers of productivity through:
  - providing more job opportunities
  - giving business access to the best people
  - providing a bigger market for more goods and services.
- A city's dynamics are driven by economic forces, but planning regulation is essential to trading off competing interests and ensuring that cities remain liveable.
- While fostering liveability, the planning system should also support the investment that creates value and makes cities productive.
- The planning system must accommodate the development required to support Sydney's and New South Wales' growing population and the changing needs of residents and businesses.
- There are opportunities to optimise the planning system so it can address current and future pressures while minimising red tape.

Conversation starters

- The zoning system can support improved productivity by better balancing strategic planning and compatible land use aims with flexibility to support business innovation and competition.
- Building regulation has a direct impact on the supply of affordable housing and should enable the building of dwellings that better match the evolving needs of the growing population.
- Existing planning regulation and tax settings constrain the range of rental housing options, reducing both labour mobility and tenure security.
- Public and green spaces help create liveable communities but there are challenges for governments in providing public spaces due to pressures from rapid population growth.
- Funding infrastructure based on a consistent set of principles can help ensure the benefits of that infrastructure are adequately captured and outcomes are equitable and efficient.
- Interacting with the planning system can be time consuming and administratively complex. A range of incremental measures could significantly improve the system's effectiveness.

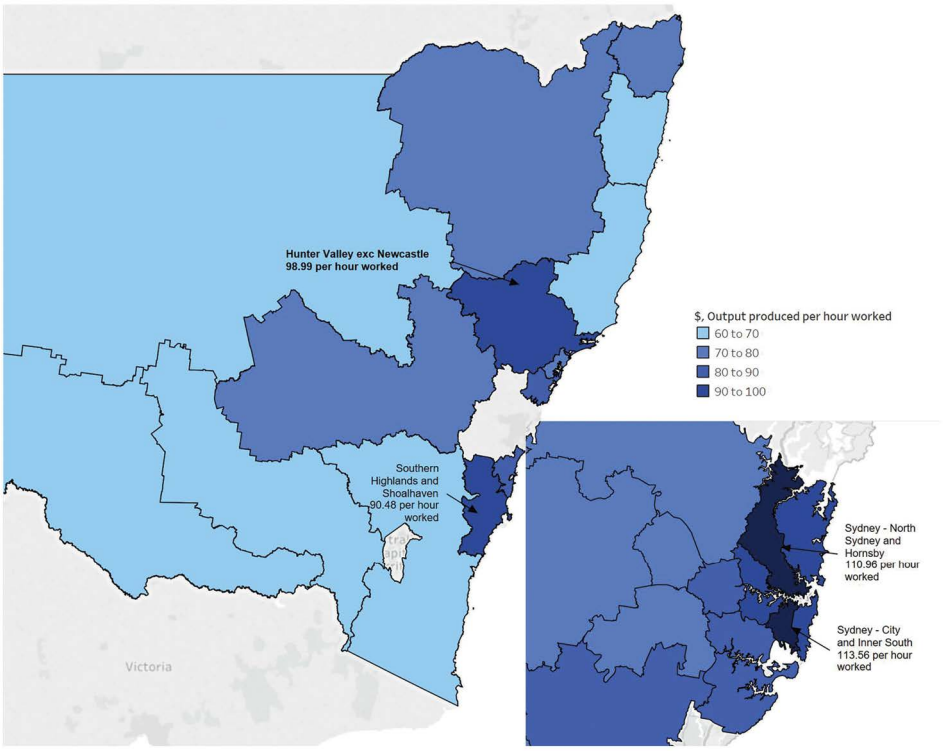
8.1

The role of planning in productivity growth

Cities are key determinants of productivity in modern economies. Labour productivity in Sydney is higher than it is elsewhere in the State: in 2017-18 each hour of work in Sydney produced $95 of economic output compared with $76 for the rest of New South Wales (NSW Treasury; SGS Economics). Furthermore, within cities, areas of higher density generally have higher labour productivity, as shown in Figure 8.1. The most economically productive regions of Sydney were the City and Inner South, and North Sydney and Hornsby, areas that contain the CBDs of Sydney and North Sydney respectively.

Cities support productivity growth through agglomeration, where large numbers of people and businesses are located close to each other. This encourages the clustering of economic activity and creates deep and dynamic labour, producer and consumer markets, as well as economies of scale in infrastructure and service delivery, meaning the range of public and private goods and services available is generally greater than in places with fewer people. Businesses are also attracted to cities because it gives them access to large and diverse markets.

FIGURE 8.1: OUTPUT PRODUCED PER HOUR WORKED, NEW SOUTH WALES AND GREATER SYDNEY



Source: NSW Treasury, based on ABS Census 1991 and 2016.

However, there are costs associated with agglomeration. As cities grow, the price of scarce resources such as land rises, which increases input costs for business and reduces the amount of capital available for other investments. Moreover, higher land prices can lower living standards by driving up the cost of housing, and reduce governments' capacity to provide land-dependent 'public goods' such as green and recreational space.

Other key costs of agglomeration are congestion, which cost Sydney's economy an estimated $6.1 billion in 2015 (BITRE 2015), and air, ground and water pollution (see section 6.5 on the costs of congestion). Generally, cities will support productivity growth where the benefits of agglomeration outweigh the costs. The first key challenge for the planning system is to provide for the benefits of agglomeration while mitigating and managing the costs.

How agglomeration drives economic productivity

The formation and growth of cities is driven by benefits from the economics of agglomeration. With more people and more businesses comes a deep and dynamic labour market, which supports productivity through both specialisation and competition.

The range of jobs available in cities and large towns is generally much larger than in areas with fewer people, and specialisation occurs. Specialisation can occur within firms, where servicing a larger population allows business to create specialised jobs or increase the productivity of existing jobs through economies of scale. Specialisation can also occur across businesses: firms emerge that have a specific, niche product offering. This is more likely to occur in cities with larger populations because even low proportional demand within a large population can still mean a feasible market to service. This drives productivity as firms can access cheaper intermediate goods and services, and consumers can access goods and services that more closely match their preferences.

Greater competition also leads to more benefits of agglomeration. With a larger population, more firms are likely to compete to satisfy consumer preferences and poorer-performing firms are less likely to survive as consumers can go elsewhere. Over time firms that more closely match consumer demand, or do so with greater efficiency, are more likely to grow, thus driving increased productivity.

Competition also occurs in labour markets. With more employment opportunities around, workers are less likely to remain in jobs they find unsatisfactory or underpaid. Similarly, employers will be less likely to retain employees ill-suited to their roles because they have more hiring options. Over time, this supports higher productivity because employees are better matched to employers.

Agglomeration also brings social benefits such as people forming communities of interest and increased social amenity through economies of scale.

While these factors all increase productivity, greater geographic concentration may cause some diseconomies such as increased road congestion, more crowded public transport, more intense use of public spaces, increases in pollution and greater scarcity of land.

Market failure and the complexities of the real world

Of course, the above description simplifies how city economies work. Complexities and rigidities impact the lived experience, and society has developed rules (such as regulation) and norms of behaviour (culture) which affect how cities function. For example, minimum wages and conditions in the labour market seek to address market power imbalances and information asymmetries to ensure workers are empowered to build meaningful and productive lives.

Similarly, the planning system is increasingly important as cities grow because it seeks to address market failure by regulating land usage. Planning rules come into acute focus as the density of cities increases because as land becomes scarcer its value increases along with the potential for conflicts of interest. Moreover, clarity and certainty in planning rules is key to creating the right environment for businesses to grow and invest.

The key function of the planning system is to address market failures and the following are the most common examples:[1]

Externalities

Externalities are costs or benefits imposed on those who are not party to a transaction or activity and therefore may not be reflected in market prices. In land use planning, examples include construction of a new tower that blocks the view from a nearby building, or creates shadows on green space. A key function of the planning system is to address the potential for land use to adversely impact others.

Information availability

There are situations in which market participants:

- do not have the same information as each other (information asymmetry), or
- are dependent on the actions or another party for information (coordination failure).

These situations can inhibit economic activity even where the transaction and activity would otherwise benefit both parties.

The structural integrity of a new building, for example, is generally information that is unavailable to prospective purchasers through a simple inspection. This information asymmetry between the consumer and the builder can allow builders to increase profits by cutting corners. If left unregulated, this could lead to an overall loss of confidence in the market for new apartments, which would reduce housing production. The system of building standards and certification seeks to provide consumers with the confidence that buildings are structurally sound.

Coordination failure can occur where businesses or developers refrain from otherwise productive investments because of a lack of clarity over where other businesses, housing, services or infrastructure will be located.

More generally, when growth in housing, services, jobs and major infrastructure delivery is coordinated there is greater scope for social and economic benefits. Strategic planning addresses this by providing more certainty about how communities will develop, lowering the costs and maximising the benefits of investment.

Public goods

Public goods may not be supplied by private businesses, either at all or in sufficient quantities, because it is either unfeasible or undesirable to price them. Public goods have at least one of two key characteristics:[2]

- non-rivalry, which means additional users do not reduce what is available to other users
- non-excludability, which means it is impossible or unfeasible to restrict access or use.

Open recreational space is a typical example. It is essential for liveable communities, but generally difficult (and undesirable) to limit access, and additional users do not impact the experience of other users (at least up to a point). The planning system, through strategic planning processes, sets rules for the provision of open space, including for transportation needed to service a community.

1 For a comprehensive guide to market failure, see NSW Department of Industry (2017) Market Failure Guide.

2 This is the broader definition of public goods which includes common goods and club goods, which have only one of the two characteristics described respectively.

Equity

Beyond market failures, governments may intervene in markets to promote equity or social objectives. While the market is generally effective in allocating resources, including land, for its most valuable and productive use, there are no guarantees of equal opportunities or outcomes.

Planning regulation is just one tool at the Government's disposal to achieve such aims. But planning restrictions may not be the best option. Allowing the most productive activity to occur and capturing some of the economic benefits to use on social programs or redistribution may often be the most efficient way to achieve equity or other social policy objectives.

Regional economies

Our regional economies make a significant contribution to economic growth and provide a sizeable proportion of New South Wales' exports through resources and primary produce. The planning system must be designed to mediate the needs of cities because this is where the highest potential for land use conflict occurs, but such conflicts are often present in regions in a different form, and the system must accordingly support appropriate policy interventions.

The role of the planning system

A planning system that enhances productivity addresses these market failures and equity objectives through predictable, appropriate and proportional measures that improve the functioning of the market. The objectives of the *Environmental Planning and Assessment Act 1979* are all related to issues of market failure and equity.

A key part of this includes balancing the interests of individuals, businesses, the broader public and the environment. While strategic plans aim to shape cities by addressing coordination failure, they cannot force businesses to invest or relocate. Both capital and labour are mobile, meaning strategic planning, and the planning system in general, will support a productive city only if they support an attractive environment for business investment.

But providing this is only a means to an end. Ultimately, the goal of public policy should be to improve living standards by providing people with an attractive and productive place to live and work. This is best achieved through a regulatory framework oriented around people, places, the environment and community values. This is the basis for dynamic and liveable cities that support productive economies.

8.2

Problem definition: Planning

Our population is growing, our living preferences are changing and the structure of our economy is evolving

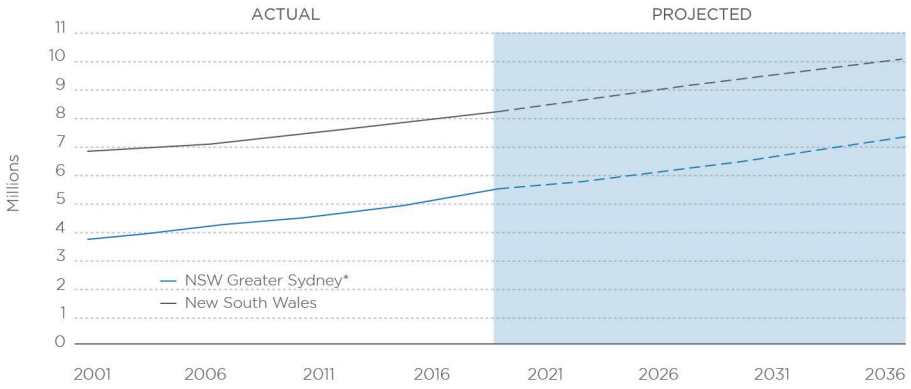
The second challenge is accommodating three key trends that have characterised the development of Sydney and New South Wales more generally in recent years and are forecast to continue for the foreseeable future.

Greater Sydney is growing at a historically rapid pace

Sydney is growing at a rapid pace. The population of the metropolitan area[3] rose by over a million in the 13 years to 2018, and now tops 5.2 million. Moreover, this trend shows little sign of slowing with the population forecast to reach 6.8 million by 2036 (NSW Department of Planning). To date, the planning system has been somewhat effective in catering for this additional demand, with development approvals (submissions for consent to build or alter structures including dwellings and commercial buildings) reaching record levels over the past few years.

Alongside this, debate in the community has reflected a growing concern about accommodating such rapid growth. These concerns are not without basis: the demands of a growing city are significant and governments need to think differently about how we plan for growing communities, especially if we are to address the agglomeration diseconomies outlined in the section above. Sydney risks becoming more congested and less liveable if governments don't address these challenges.

FIGURE 8.2: POPULATION PROJECTIONS – NEW SOUTH WALES AND SYDNEY



*Including Central coast.
Source: ABS 3218.0; NSW Department of Planning Population Projections; NSW Treasury.

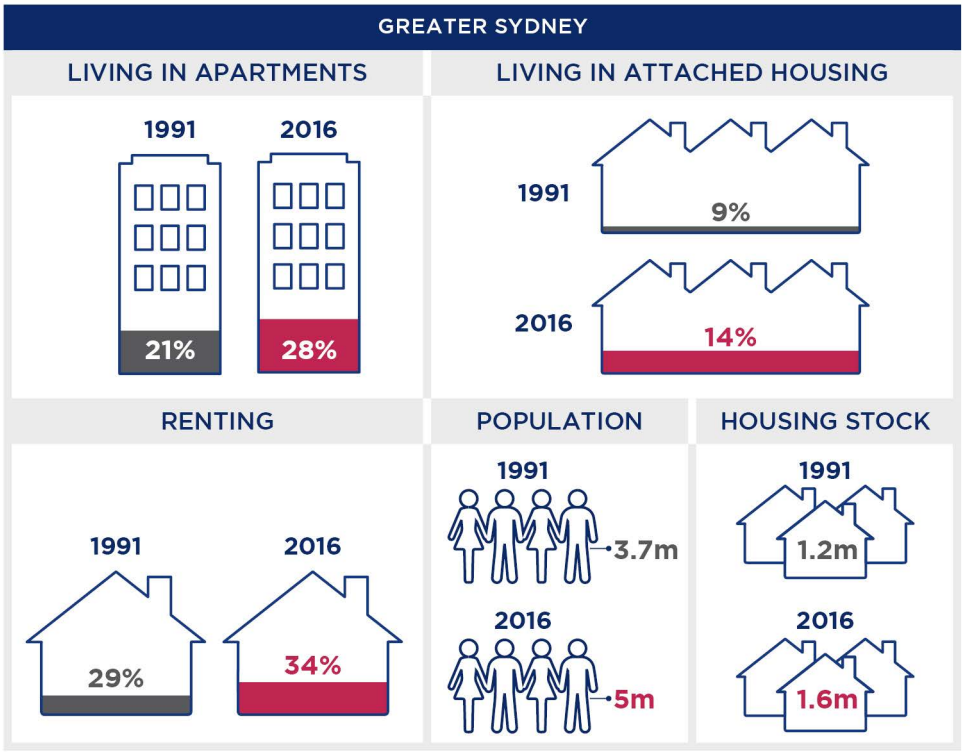
But where government can adapt its processes, update regulatory settings and deliver the infrastructure and services that meet community needs, population growth can provide a thriving international metropolis and harness the productivity potential of a dynamic and bustling city.

3 Including the central coast to align with the ABS definition of Greater Sydney.

The way we live is changing

The second major trend changing the shape of our cities is housing types (see Figure 8.3).

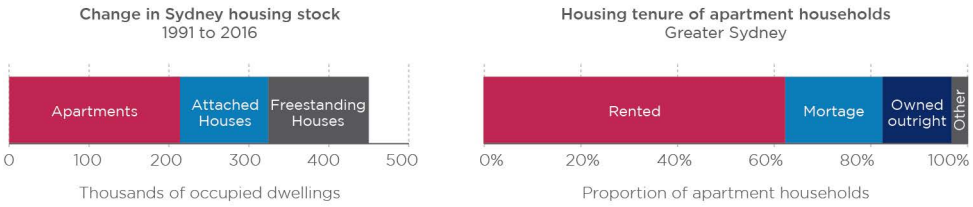
FIGURE 8.3: HOUSING IN GREATER SYDNEY



Source: ABS Census 1991 and 2016; NSW Treasury. Note: Proportion of households in Greater Sydney. There are some minor differences between the 1991 and 2016 definitions of the Sydney/Greater Sydney.

Nearly half the increase in Sydney's net housing stock over the 25 years to 2016 was apartments and 63 per cent of those in apartments in 2016 were renting (ABS Census 1991 and 2016 – Figure 8.4).

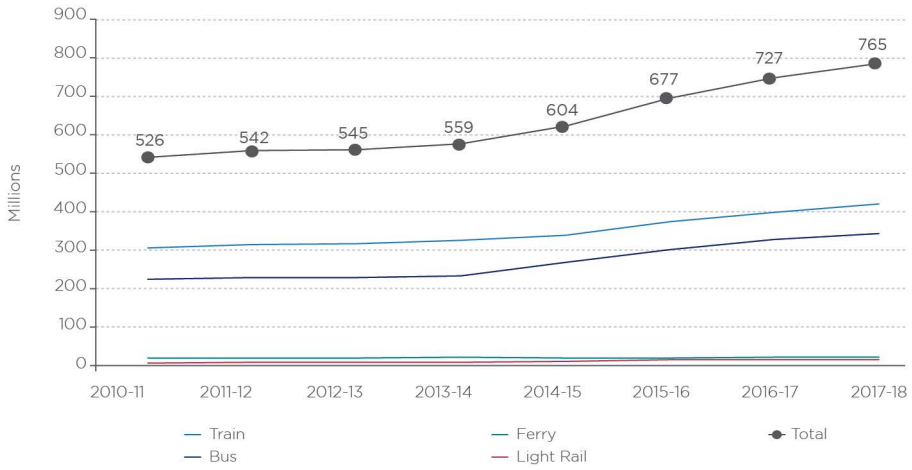
FIGURE 8.4: TRENDS IN SYDNEY HOUSING



Source: ABS Census; NSW Treasury. Note: To enable like for like comparisons with published 1991 data, this refers to occupied private dwellings on census night only excluding visitor and other unclassifiable households.

These trends have significant implications for productivity. A denser city means more goods, services and jobs within closer proximity to more people. It also provides opportunities for economies of scale and scope in public transport provision and can increase the attractiveness of active transport such as walking or cycling. Public transport patronage has already grown by 45 per cent over the past seven years (see Figure 8.5) and, as new infrastructure comes online including the Sydney Metro and the CBD and South East Light Rail, this will likely increase further. Key challenges for public transport provision are addressed in Section 5.7. Moreover, trends in housing tenure suggest more consideration of planning, regulatory and tax settings is required, as is delivering outcomes that strike the balance between tenure security and housing mobility.

FIGURE 8.5: NEW SOUTH WALES PUBLIC TRANSPORT PATRONAGE



Source: Transport for NSW.

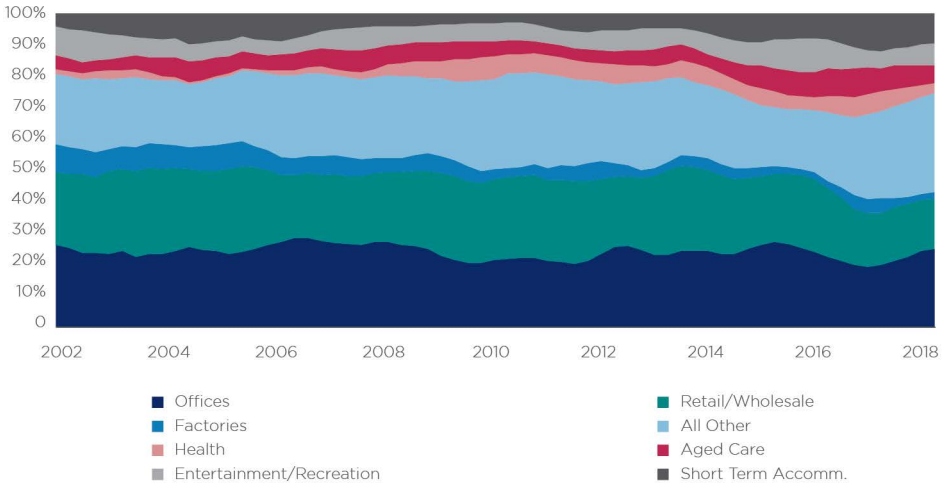
Physical demands of businesses are changing

A third key trend is changes in the types of businesses wanting to locate in Sydney and their land use needs. While the focus of much commentary on planning regulation has been on residential development, the planning system also should support businesses to create new jobs and service consumers' needs both here and in our export markets.

At an aggregate level, there are some signs that the composition of private non-residential building activity is changing (see figure 8.6), although it is not yet clear whether this reflects a permanent trend or cyclical factors. Growing sectors include short-term accommodation, entertainment and recreational facilities, aged care and healthcare facilities.

Construction of buildings to service these sectors grew collectively from 20 per cent of non-residential building between 2001 and 2006 to 29 per cent between 2013 and 2018. Conversely, the construction of offices, retail and wholesale trade premises and factories, while still representing around half of all non-residential building activity, showed a marked decline from 57 to 47 per cent over the same period. Permanent or not, these changes highlight how the building needs of businesses are continually evolving.

FIGURE 8.6: COMPOSITION OF NON-RESIDENTIAL BUILDING COMPLETIONS, NEW SOUTH WALES



Source: ABS 8762.0, 8752.0; NSW Treasury.

Some more granular trends in the built form of businesses are more difficult to ascertain from the aggregate data but are nonetheless subject to the purview of planning regulation. For example, there is anecdotal evidence that changes in meal delivery have led to the emergence of 'dark kitchens' that produce meals for delivery without the need for an actual shopfront. These have different locational and presentational requirements to traditional restaurants. Similarly, in recent years there has been a significant increase in coworking spaces used for multiple business activities (JLL Research 2019).

Changes in businesses' land use requirements are a natural part of an evolving economy and essential for productivity growth. An effective planning system seeks to regulate those changes only where it has identified a market failure or equity objective, and does so in a way that enables and supports businesses to innovate and evolve.

Our evolving regional economies

The structure of our regional economies is also evolving. Research from the Centre for Economic and Regional Development (2017) indicates that the key trend in regional economies is one of narrowing and deepening: a growing dependence on a smaller number of industries. To effectively support productivity improvements in our regions and build on their existing strengths, it is worth considering the regional-specific barriers to growth in those areas.

For instance, there is lower density in the regions so there could be further potential to reduce the requirements of the planning system and to tailor zoning to regional circumstances.

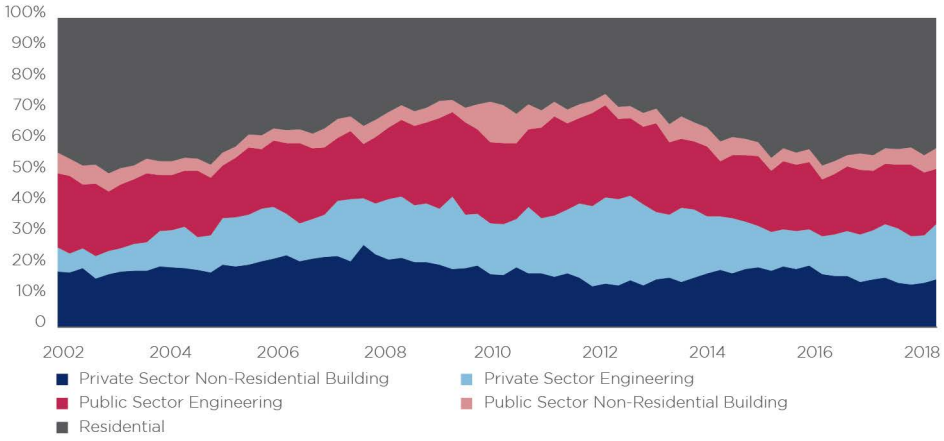
Interacting with the planning system can be time-consuming and administratively complex

A third key challenge is for the planning system to achieve its broader aims with greater efficiency. The most common interaction most people have is through the Development Assessment (DA) process,[4] and a key measure of efficiency is the level of unreasonable red tape, including delays in assessment, and compliance costs. This should be balanced with providing certainty, ensuring the views of the community are considered and developments are assessed to maximise long-term economic and community benefits.

4 Although it is noted that the efficiency of the planning system should not be measured purely through DA assessment timeframes, but should also give regard to strategic planning and other functions.

The construction sector is a significant direct contributor to the NSW economy. The sector completed $66 billion worth of work in 2017-18, equivalent to around 11 per cent of GSP.[5] Figure 8.7 shows the composition of this activity by sector and the type of work completed since 2001. The construction sector is a significant direct contributor to the NSW economy.

FIGURE 8.7: COMPOSITION OF CONSTRUCTION ACTIVITY, NEW SOUTH WALES



Source: ABS 8762.0, 8752.0; NSW Treasury.

While residential construction comprises the most significant individual component of completed work – an average of 37 per cent since 2001 – public sector engineering works (23 per cent), private sector engineering (16 per cent) and private non-residential building activity (18 per cent) are also significant contributors.

Given the significance of this sector to the overall economy, improving regulatory efficiency can yield significant economic benefits. Approval times in New South Wales significantly exceed those of other Australian jurisdictions, according to research conducted for the NSW Productivity Commission by Mecone. The research also suggests that a range of incremental reforms could significantly reduce unnecessary delays while also improving the system's effectiveness. This issue is discussed in more detail in Section 8.8.

Key challenges ahead

These trends represent key opportunities and challenges for our planning system. As the population grows, it needs to support adequate growth in housing stock to meet demand in terms of dwelling types, location, affordability and tenure arrangements. Moreover, the planning system should provide certainty and a regulatory environment that supports new and existing businesses to invest and innovate to create the goods, services, and jobs we need.

Ultimately, Sydney and New South Wales more generally will be successful by facilitating a more productive and dynamic economy, not for its own sake, but to deliver a better quality of life for citizens. Beyond increasing household incomes, a liveable city provides access to quality and useful open space. It supports economic and social participation, the arts and cultural sectors, and the sustainable use of resources, and complements the natural environment that attracts so many people to Sydney, New South Wales and Australia to begin with.

5 Based on ABS Catalogue 8755.0 – Construction Work Done, consisting of Building Work (ABS8752.0) and Engineering Construction (ABS8762.0).

8.3

Unlocking the potential of employment zones

The economy thrives where new businesses can set up operations and begin producing goods and services and jobs, and where existing businesses can evolve to suit the needs and preferences of consumers. That said, there are limits to determining the location of economic activity through zoning and strategic planning, with many international examples such as Silicon Valley or the East London Tech City precinct arising spontaneously. Zoning practices that unnecessarily restrict where businesses can locate and how they can use land risk stifling this process and act as a barrier to productivity growth.

The zoning system is primarily intended to address two categories of market failure: externalities and coordination failures. Firstly, zoning deals with negative externalities by separating incompatible land use. A 24-hour manufacturing facility, for example, can have a significant negative impact on neighbours, such as noise pollution, so zoning ensures it can only be located in specific heavy industrial zones. It should be noted here that there is some overlap between the planning system and the *Protection of Environmental Operations (POEO) Act*, which regulates pollution, which can sometimes result in confusion about what is required and who is responsible for enforcement.

Traffic is another negative externality that can justify zoning separation. For example, if a freight hub is established near a retail precinct with high foot traffic, the interaction of heavy vehicle traffic with pedestrians could compromise public safety and increase congestion.

Zoning is also intended to address coordination failure. It can provide a clear signal to developers, prospective residents and businesses as to how a neighbourhood is expected to evolve over time, and in doing so can affect their decisions over where to locate and the appropriate built form to suit the neighbourhood's characteristics.

Being overly prescriptive, however, can act as a barrier to business innovation and competition and in doing so supresses productivity growth. The Commonwealth Productivity Commission (2017) notes that excessively restrictive zoning "results in higher prices and/or poorer quality and ranges of goods and services for the community".

Councils set zoning in New South Wales through their Local Environment Plans (LEPs), which must be made in the form of the Standard Instrument LEP set by state-wide regulation. The standard instrument specifies 12 different business and industrial zones (see Table 8.1)—including eight explicit business zones –which councils can then modify by adding additional permitted uses and prohibitions. The key control contained within zones is to stipulate the type of permitted land use within the zone. LEPs include additional controls primarily targeted at the intensity of use—the main two being building height and floor space ratio.

TABLE 8.1: BUSINESS AND INDUSTRIAL ZONES IN THE STANDARD INSTRUMENT LEP

ZONE	NAME	DESCRIPTION
B1	Neighbourhood Centre	• Small-scale retail, business and community use to service neighbourhood
B2	Local Centre	• Business, entertainment and community use for neighbourhood and visitors • Employment • Maximise public and active transport usage
B3	Commercial Core	• Retail, business, office, entertainment and community use for local and wider community • Employment • Maximise public and active transport usage
B4	Mixed Use	• Business, office, residential and retail • Maximise public and active transport usage
B5	Business Development	• Business, warehouse and large format retail
B6	Enterprise Corridor	• Businesses along main roads • Employment • Maintain economic strength of centres
B7	Business Park	• Office and light industrial • Employment • Service needs of local workers
B8	Metropolitan Centre	• Business, office, retail, entertainment and tourism for participation in global economy • Intensive land use • Diversity of uses characteristic of global status
IN1	General Industrial	• Industrial and warehouse • Employment • Minimise adverse industry impact on other land uses • Protect industrial land
IN2	Light Industrial	• Light industrial, warehouse and related use • Employment • Minimise adverse industry impact on other land uses • Enable other uses to meet needs of local workers • Protect industrial land
IN3	Heavy Industrial	• Land for industries that need to be separate • Employment • Minimise adverse industry impact on other land uses • Protect industrial land
IN4	Working Waterfront	• Maritime-specific activities • Complementary industries that require direct waterfront access

The number of zones, and the unique restrictions that apply in each, may be overly prescriptive. The B7 Business Park zone, for example, is intended to provide a range of office and light industrial uses, employment opportunities and facilities to meet the day-to-day needs of workers in the area. To achieve this, the Standard Instrument mandates that the zone allows childcare centres, transport facilities, garden centres, office premises, warehouses, neighbourhood shops and light industries. However, it does not require councils to permit the more generic 'business premises', educational establishments, recreation facilities (for example a gym), food and drink premises (for example a bar), or industrial training facilities, which are permitted in many other business zones.

B6 Enterprise Corridor, B5 Business Development and IN2 Light Industrial zones also specify a relatively narrow set of activities. There is some evidence that excessive prescription in zoning is a contributing factor to land lying vacant: 37 per cent of land zoned B7 Business Park remains undeveloped in Greater Sydney, compared with 19 per cent for the other three zones noted above (Employment Lands Development Monitor 2019).[6]

Other jurisdictions have reduced the number of business zones: Victoria recently collapsed its business zones into just two, Commercial 1 and Commercial 2.

Zoning impacts on how creative industries access the space they need for studios and performance. Research published by the Sydney Fringe Festival (2018) highlights how prescriptive definitions of 'Community Facilities' can result in small community arts projects being assessed for planning approval under the definition of an 'Entertainment Facility'. The implications of this can be significant: the report cites the case of a morning yoga class proposed for the Fringe Festival being required to have two security guards present, as the proposal was assessed using the same standards as a nightclub.

Excessive prescription in zoning and other land use regulation can stop potentially productive businesses or activities from going ahead, even where they are unlikely to negatively impact neighbours. This can be due to onerous conditions, excessive paperwork and delays, or outright prohibition. Even where the business pushes ahead, for example by requesting a spot rezoning, this can cut against the broader benefits of coherent and consultative strategic planning processes.

Discussion questions

- How could the NSW zoning system be simplified and improved to encourage business innovation and competition?
- What other policies should the NSW Government consider to ensure the planning system supports job creation and responds to consumer preferences?

6 Multiple factors contribute to whether land remains undeveloped, including location and whether the land is connected to essential service infrastructure.

8.4

Building dwellings that better match our preferences

Sydney's population growth means delivering a supply of affordable housing will remain an ongoing challenge. Housing supply is impacted by regulations governing the type of dwellings that can be built (zoning), how they must be constructed (the building code) and other design guidance including the Apartment Design Guide (ADG). These regulations and guidelines are essential for the market to function because they address key market failures.

The core purpose of building regulation is to address the information asymmetry between developers, builders, and prospective purchasers and residents of new dwellings. Without building regulation it is difficult to know if buildings are at risk of collapse, or represent an undue fire risk, for example. Imposing standards allows those in the marketplace to concentrate on things such as personal preference that can be readily observed prior to purchase.

Building standards and design guides also target the potential impact of new developments on the wider community including overshadowing, privacy and lines of sight. At the same time, they manage the use of public resources including on-street parking and open space.

Aspects of the ADG that are not clearly targeted at any market failure can impose significant economic costs through unnecessarily restricting the sorts of developments that may be built. One example is the guidance provided to planners on minimum apartment sizes, outlined in Table 8.2.

TABLE 8.2: MINIMUM APARTMENTS SIZES

TYPE	MINIMUM SIZE
Studio	35 sqm
1 Bedroom	50 sqm
2 Bedroom	70 sqm
3 Bedroom	90 sqm
Additional bedrooms	+12 sqm/ bedroom

The ADG are not strictly regulations: they are guidelines that consent authorities need to take into account. Nonetheless, many councils adopt a strict approach to compliance with the ADG. Minimum apartment sizes effectively impose a limit on the number of new dwellings that can be built on a site, given other development controls such as floor space ratios and building heights. This either acts as a limit on housing supply within set development envelopes, which increases the price of dwellings overall, or results in larger development control envelopes than may otherwise be the case, impacting community amenity.

It also limits choice for prospective purchasers who may be prepared to trade-off additional space to be closer to a particular location or may not be able to afford the regulated minimum-sized apartment. The Urban Taskforce has estimated that minimum apartment sizes add an additional $100,000 to the cost of an average apartment in New South Wales compared with guidance on minimum apartment sizes in Victoria (Urban Ideas August 2017).

The costs of regulation may be justified where they provide an overall net benefit by addressing a market failure, but no such failure is evident for minimum apartment sizes. Information asymmetry is generally not an issue because prospective purchasers can clearly observe the size of apartments during inspections, although there may be a case for strengthening off-the-plan contract provisions to ensure prospective purchasers can have confidence in what they are purchasing.[7] Moreover, it is not clear what negative externalities would arise without minimum apartment sizes. Over 43,000 new apartments and attached dwellings were completed in New South Wales in 2018 (ABS 8752.0), adding to an apartment stock of around 520,000, so concerns that consumers will be forced into smaller apartments due to insufficient competition and lack of choice seem without basis.

The ADG also outlines the requirements by which councils can set minimum parking standards where properties are located within 800 metres of a train station or light rail stop. Guidance from Roads and Maritime Services, last updated in 2002, stipulates an upper limit to what councils can require. While minimum parking requirements address the overuse of public space for private parking, they increase the cost of housing in the same way as minimum apartment sizes. In doing so, the requirements implicitly prioritise the ownership and storage of private vehicles over other land uses.

Development and vehicle usage patterns have evolved since the guidelines were last updated 17 years ago. There are more higher-density developments located close to train stations, and car sharing has provided an alternative to private vehicle ownership in inner city areas where parking space is most valuable.

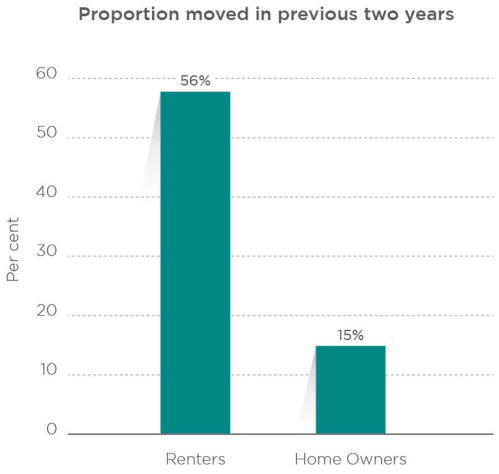
Discussion questions

- What steps could the NSW Government take to improve residential development regulations to support an adequate supply of affordable housing?
- How could the NSW Government ensure regulations around zoning, building codes and design guidelines are flexible and aligned with demand and preferences?

8.5 Providing greater housing choice to balance labour mobility with tenure security

Housing tenure (i.e. renting and home ownership) impacts the productivity of our economy because it is closely related to how often households move (see Figure 8.8).

FIGURE 8.8: NEW SOUTH WALES RESIDENTIAL MOBILITY BY TENURE TYPE



Source: HILDA Release 17.0; NSW Treasury. Note: NSW only.
Average proportion between 2001 and 2016. Private renters only.

7 Off-the-plan contracts generally allow a 10 per cent tolerance on apartment size, which can have significant impacts on smaller apartments.

Research published by the OECD (2011) found that:

- Higher voluntary residential mobility can improve productivity because individuals can move to areas with greater employment opportunities more easily. This improves matching between businesses and employees and enhances the speed by which the economy can adjust to changes in the economic environment.
- Higher involuntary residential mobility has costs over and above the transaction costs associated with moving. If families with school-aged children are forced to frequently move, educational performance can decline and the risk of behavioural issues increases. Excessive residential mobility is further associated with declining social capital as social networks and relationships are disrupted by frequent moving.

The variation in residential mobility between renters and home owners in New South Wales is one of the highest among OECD countries. While research does not indicate an 'ideal' level of residential mobility, the large gap between tenure types indicates that existing regulatory and tax settings are constraining options and in doing so may be inhibiting productivity growth.

One aspect that particularly limits the expansion of options in the rental market is the unlevel playing field between larger institutional investors and smaller 'mum and dad' investors.

A range of policy settings have contributed to this issue, including:

- the land tax threshold, which effectively taxes larger investors at higher rates than individual investors.
- Commonwealth tax settings, including negative gearing and the capital gains tax, which can lower rental yields across the sector, magnifying the impact of the land tax disparity.
- state and Commonwealth taxes on foreign investment, which can disincentivise investors who have more experience in professionally developing and managing purpose-built rental housing.

The current settings mean 90 per cent of rental housing investors own only one or two properties. HILDA data indicates housing assets typically constitute 60 per cent of the total asset portfolio for housing investors in New South Wales, excluding their own home (HILDA Release 2017). This increases pressures in the sector to maintain relatively short-term tenancy arrangements – most leases are for a term of one year or less. The high proportion of investors with a single investment property drives short-term leases, because investors want the flexibility to sell their property when they would like to.

The flexibility manifests in significant instances of involuntary tenancy terminations: ABS data suggests over 23,000 households are required to move due to their landlord giving notice every year in New South Wales. NSW Treasury estimates the total direct costs of such terminations at $116 million per annum, primarily due to relocation costs incurred by renters. Furthermore, because property managers work primarily for investors rather than tenants, this contributes to overall poor renter satisfaction (Choice 2017).

Build to Rent refers to purpose-built rental housing that is professionally managed and held for long-term rental use. Build to Rent is a more developed sector of the housing market in the United Kingdom, with nearly 30,000 completed dwellings and a further 43,000 in the pipeline across the country as of January 2019 (Savills UK). It is also the dominant form of higher-density housing in the United States – over 90 per cent of new apartments constructed over the past three years were Build to Rent (United States Census Bureau; NSW Treasury).

Build to Rent has some significant advantages for renters. As each individual dwelling would represent a small part of an institutional investor's portfolio, they are unlikely to evict tenants to sell and won't move in themselves. As larger operators with public reputations and branding to protect, they also have more incentive to provide high-quality professional service standards and to employ property managers whose customers are tenants, not investors.

Discussion questions

- Should the NSW Government level the playing field in the housing sector to support a more stable source of housing supply? If so, how?
- What is the most efficient mix of planning, regulatory and tax settings to deliver outcomes that get the balance right between tenure security and housing mobility?

8.6 Making the most of public and green space

Public and green spaces help ensure our communities are desirable places to live. The functions of public and green spaces are numerous and include:

- fitness, organised and unorganised sport and casual recreation, including areas for children to play and exercise areas for pets
- public and private social and cultural activities and events
- access and connectivity, including streets, pathways and public transport
- tree canopy and green cover to mitigate air pollution, the effects of climate change and create resilient cities
- cultural and community connection and civic pride including squares, public libraries, museums and important sites of Aboriginal cultural heritage, and
- ecological benefits, including habitats for flora and fauna and wilderness areas.

While the benefits of public and green space in creating liveable communities are relatively well established, public space is linked to productivity. There are numerous physical and mental health benefits linked to the provision of open space (World Health Organisation 2016). While these benefits are worthy ends in their own right, it is also true that healthier people are more likely to participate in the labour market and be more productive when they do so.

The provision of public space goes beyond just open space for environmental and recreational purposes. It encompasses land used for transportation and connecting communities with one another and the outside world, which goes to the heart of the benefits of agglomeration.

All levels of government play a role in providing public space because of its qualities as a public good. However, challenges are emerging. Rapid population growth has resulted in increasing demand for active open space such as playing fields (City of Sydney 2016) and our roads are becoming more congested (Australian Automobile Association 2018). This in turn means renewed pressure on those who manage public space to consider their approach to non-excludability: for what activities is it reasonable and feasible to charge users for the use of open space, and at what price?

While the focus of debate has so far centred on the quantity of additions – and this is a critical element of strategic planning – there are also benefits in considering how well we are utilising existing space.

Box 8.1 Gender differences in sport and physical recreation

The gap between male and female participation in sport and physical recreation in New South Wales is the second highest of all states: 64 per cent of men participated in sport and physical recreation in 2013-14 (most recent ABS data) compared with 59 per cent of women. Moreover, there are significant differences between genders in particular sports. For example, men are nearly five times more likely to play golf, while women are more than 13 times more likely to play netball. Governments should take these differences into account when considering how to best utilise public space.

TABLE 8.3: TOP 5 SPORT AND PHYSICAL RECREATION ACTIVITIES BY GENDER (PER CENT)

MEN		WOMEN	
Fitness/Gym	15.9	Walking for exercise	24.7
Walking for exercise	13.6	Fitness/Gym	18.9
Cycling/BMXing	8.5	Swimming/Diving	7.6
Jogging/Running	8.1	Jogging/Running	6.7
Golf	6.6	Netball	4.1

Source: ABS 4177.0

The NSW Government has been active in this area, appointing a Minister for Public Spaces, while the Premier has named improving access to quality open and green space and greening our city as key priorities for this term of government.

The NSW Government has also taken active steps to assist councils and agencies in planning for new and existing public and green space through the provision of strategic guidance. This has included:

- the Greater Sydney Commission's provision of quality public and green space as key objectives in the strategic planning document for Sydney: A Metropolis of Three Cities: The Greater Sydney Region Plan
- the NSW Government Architect issuing guidance on how to provide open space through:
  - — Aligning Movement and Place (2019)
  - — Open Space for Recreation Guide (2018), and
  - — Greener Places (2017).

Strategies contained within these documents include:

- better utilising open and recreational spaces within school grounds by opening these up for wider community use when not required by the school
- considering opportunities to increase public access where public land is leased to private providers such as golf courses
- increasing utilisation of public recreational space through better landscaping, more durable and high-quality facilities, better lighting and multi-use playing fields and courts, and
- considering opportunities to use surplus Government land for sport and recreation.

There is scope to improve the use of transport corridors by better aligning them with demand. Road networks have changed little in over 100 years in many areas of New South Wales (for example see Figure 8.9), despite the population growing several-fold, which has implications for the productivity of our roads. While maximising road space for private vehicle use may have made more sense in a city with a much smaller population, this is less sustainable as more people try to pass through fixed amounts of space. There are two key elements to the productivity of public space used for transportation: the allocation of space across modes, and the regulation of rights of way through intersections.

The Government has already made significant changes to public space allocation in the Sydney CBD with the closure of George Street to private vehicles in favour of pedestrians and light rail. New South Wales also has a history of innovation in rights of way. In the 1970s, the then Department of Main Roads developed one of the world's first intelligent traffic signalling systems: the Sydney Coordinated Adaptive Traffic System (SCATS). The system changes traffic signal cycles in response to traffic conditions, significantly improving throughput in intersections and reducing congestion. New South Wales is a market leader in the technology which has been licensed for use at over 37,000 intersections across 27 countries.

Other countries and jurisdictions have implemented novel innovations to rebalance the division in public space between open (recreation) space and that used for traffic. Barcelona is trialling 'super blocks', which has closed some local roads to through traffic, increasing the amount of space available for pedestrians and recreation. The Inner West Council has recently announced plans to pilot the closure of some quiet local roads to through traffic on weekends to increase public recreational space, an approach that was canvassed at the Greater Sydney Commission's Community Challenge.

Changing demands for the use of public space, which stems from its property as a public good and its provision (generally) free of charge, continues to raise barriers to productivity. The consequent lack of price signals in this area means the Government has a responsibility to continually monitor how public space is used and adjust it accordingly to ensure that our assets deliver the most value to the people who live in New South Wales.

Discussion questions

- Are there other innovative ways of providing new public space, particularly on underutilised land?
- What other opportunities are there to improve the use of transport corridors in high density areas?

FIGURE 8.9: SYDNEY MAP 1926

Source: State Records of NSW.

8.7

Moving toward more efficient and equitable developer contributions

Economic cost of taxation and value uplift from state funding of infrastructure

The NSW Government has in recent years funded the delivery of infrastructure whose costs are not recovered through user charges. These significant costs have been funded largely by tax revenue. As outlined in Chapter 7, most taxes levied by the State carry significant economic costs. The burden of funding major infrastructure costs (capital and recurrent) through the State's Budget means there is less opportunity to reduce taxes that impede productivity.

This practice also has equity and efficiency implications in the provision of infrastructure. To the extent that the project benefits the surrounding area (such as public transport projects), this tends to increase market willingness to pay for nearby housing and commercial space. The result is increases in rents and property values. In effect, full or substantial government funding for infrastructure acts as a transfer of wealth from the State to property owners. Moreover, if infrastructure projects became more reliant on financing mechanisms linked to the value created by the projects, allocative efficiency would be improved because those projects that generated greater value would be more likely to be selected. This would improve economic productivity.

Principles for determining infrastructure funding

Councils can apply for local infrastructure contributions, which are paid by developers to fund additional services associated with growth (*Environmental Planning & Assessment Act 1979*). The State can also levy Special Infrastructure Contributions (SICs) on developers to fund the infrastructure it delivers. Presently, there are no limits on the services funded by SICs. Traditionally, the State has applied SICs on a limited basis confined to greenfield growth areas (undeveloped land). Examples include the Western Sydney Growth Area SIC. Recently, however, there has been a move toward wider use of SICs, with proposals covering parts of the Hunter and Illawarra districts currently on exhibition.

Where developers are charged the additional cost associated with their development, developer contributions help ensure new developments deliver benefits above costs. Additionally, charges imposed in excess of efficient cost will, in some cases, render developments that would otherwise be feasible as unfeasible. This introduces the risk that efficient developments might not be delivered, while charges imposed less than efficient cost can render some developments that would otherwise be unfeasible as feasible. This effectively subsidises developers and introduces the risk of delivery of inefficient developments.

An efficient contributions regime is therefore essential to ensure that the State obtains the developments that enhance productivity while avoiding those that reduce productivity.

New South Wales has room to adopt a funding model that best supports this outcome. Broadly, infrastructure delivered by State and local government can be categorised as development-dependent and population-dependent:

- **development-dependent** costs are those associated with infrastructure that is contingent on particular developments proceeding. Examples include water, wastewater, and stormwater facilities servicing a new development, and
- **population-dependent** costs are associated with infrastructure necessary for a growing population, independent of whether individual developments proceed. Examples include motorways and the public transport fleet.

The efficiency of a new development is linked to the way it is funded:

- development-dependent infrastructure should be funded by local and State infrastructure contributions based on an attributable share of efficient cost of delivery, and
- population-dependent infrastructure should be funded by other sources, potentially some combination of user charges, local government rates, and Consolidated Fund and Restart NSW.

Some forms of infrastructure fall neatly into the development-dependent or population-dependent categories, while others are categorised as both. A challenge for developer contributions is distinguishing between the two and applying funding strategies to ensure efficient development outcomes as outlined above are realised. All these issues – value uplift, efficient costs, apportioning costs between funding mechanisms –could be addressed through a reformed, principles-based approach to infrastructure funding.

Discussion questions

- What principles could be applied to the developer contributions system to ensure transparent, consistent and efficient outcomes?
- How might developer contributions be improved to support growth in new areas and service growing community needs?

8.8

Minimising red tape and complexity

Most of this chapter has focused on the scope of planning regulations and the role of the planning system. This final section concentrates on the administration of the system itself and the direct cost of compliance, with a particular focus on development approvals.

The overall performance of the planning system cannot be measured solely by one element, such as compliance costs. For example, comprehensive strategic planning can deliver significant administrative efficiencies through better planning for the future. This can improve the efficiency of the system as a whole and remove the need for some administrative processes entirely.

Nonetheless, the development approvals process provides some useful information on the system's efficiency because it is a key gateway between the planning system and specific land-use proposals. If the cost of compliance is higher than necessary, this can inhibit productivity:

- directly through the time taken and the cost of fulfilling administrative requirements, and
- indirectly by effectively 'pricing out' otherwise productive economic activity through administrative complexity or unreasonable delays.

A key indicator of the planning system's efficiency on an administrative level is the time taken for the approval of Development Applications (DAs). DA approvals typically take around twice as long in New South Wales across most development types than the nearest Australian jurisdictions (Victoria, Queensland and Western Australia), according to research conducted by urban planning specialist consultancy Mecone for the Commission.[9] Moreover, the same research found that more documents were typically required for nearly all categories of DAs in New South Wales.

Measures that reduce approval times are not necessarily desirable if they also reduce the effectiveness of planning regulations. A key finding of the research is that the development assessment process in New South Wales is no more complex than in other states. Longer approval times are primarily driven by longer timeframes in each step – including the time taken by consent authorities to reach a determination. This section therefore focuses on measures that could improve the administration of the planning system without significantly impacting the procedural framework itself. Issues discussed below are somewhat more granular and incremental than those discussed elsewhere in this chapter.

Lodging an application

Lodging a DA is often a major administrative compliance burden. Different councils require different documents and this adds to the complexity because those who interact with the system on an ongoing basis need to keep track of the specific requirements of different councils. As noted above, the average number of documents required for a DA in New South Wales is 16 or more, compared with 13 in Victoria, 10 in Queensland and eight in Western Australia (Mecone 2019).

9 Mecone research for the New South Wales Productivity Commission, 2019. The Commission commissioned urban planning and development specialists Mecone to investigate typical approval times for standard Development Applications across New South Wales, Victoria, Queensland and Western Australia. DA processes were compared for low density residential, medium density residential, high density residential, high density commercial, industrial warehouse and greenfield subdivision.

There are also differences in the processes by which councils receive the applications themselves. Some councils provide pre-lodgement services to ensure all required documentation has been provided at the time of lodgement and is correctly filled out. This can reduce delays, which are not always captured in net approval time statistics because this enables councils to 'stop the clock'.

The ePlanning system (see Box 8.2) is one measure already addressing these issues, and will help ensure all necessary documentation is received up front.

Box 8.2 ePlanning

The ePlanning Program, an initiative of the Department of Planning, Industry and Environment, is using digital technology to streamline the New South Wales planning system and improve the customer experience. It has created an online NSW Planning Portal where community, industry and government can work together on proposed developments. All the main planning processes such as lodging, tracking, and reporting the progress of development applications, have been digitised and integrated into one central system, providing a seamless alternative to a disparate range of manual processes that can only be conducted in person during business hours.

By giving all parties to a proposed development (community, planners, certifiers, councils and State agencies) access to digital dashboards via the NSW Planning Portal, the planning workflow can be better monitored, ensuring faster determination times and greater planning process transparency. The provision of a payment gateway for the Concurrence and Referral process and automatic notification emails at key stages of the process encourage greater accountability for all stakeholders.

The platform that the ePlanning digital services are built on enables the ePlanning Program to take an incremental approach to system delivery. Each new service is co-designed with stakeholders to ensure customer needs are at the forefront of all design decisions.

The aim is to develop an end-to-end digital planning service for everyone in the State. Services will be further integrated and functionality expanded, producing greater efficiencies across multiple aspects of the planning system. This extends to the collection of contribution payments and the engagement of Sydney and Regional Planning Panels.

As of June 2019, more than 1000 DAs have been submitted to the new system across 13 councils, and more than 600 Concurrence and Referral cases have been raised. There are now 35 councils and 26 State agencies using the Online Concurrence and Referral service. The Planning Department has received positive reports from several councils, highlighting the ease of use for customers and staff, faster determination times and better engagement with agencies. The Online Concurrence and Referral service is expected to save up to 11 days on existing assessment times.

The ePlanning Program has significantly improved public confidence in the New South Wales planning system. It is reducing application determination times, improving planning process transparency and ensuring greater stakeholder accountability.

The ePlanning digital services and the platform on which they sit are also providing a model for other potential digital transformation projects across the NSW Government.

In addition to the ePlanning digital services on the NSW Planning Portal, the ePlanning Program has built a Development Data Warehouse and Application Programming Interfaces (APIs) to improve the flow of planning information between local and State government. The data captured from these combined initiatives will greatly improve the capacity for analysis which will inform better policy decisions for State and local government and the citizens of New South Wales.

The ePlanning system will become mandatory for all councils from 1 January 2020, and in doing so will directly address some of the key sources of planning delay identified in this chapter. The incremental nature of the system also means there is potential to add additional functionality, including a developer contributions calculator such as the one already made available by the City of Sydney, which outlines the total charges applicable on any specific development site.

Exhibition and assessment

Developments can impact the interests or remit of NSW Government agencies, and in those instances DAs are referred to those agencies for either comment (agency referrals) or formal approval (agency concurrence). This is a key source of planning delay identified by stakeholders and in independent research (Mecone 2019). Delays can arise from:

- the administrative process, including ensuring all documentation has been provided to the right person in the right agency
- inconsistent advice from multiple agencies, or between the pre-lodgement and formal assessment
- workload and associated agency resourcing pressures.

The ePlanning system is already helping to reduce timeframes arising from administrative delay by providing online tracking and referrals to relevant agencies and information to councils and the applicant over the status of agency assessments. Early indicative results suggest that ePlanning has halved the time taken to complete agency referrals and concurrence. There may be scope for further measures to cut approval times.

High-density commercial developments in the City of Sydney and Parramatta Council are required to undergo a two-stage development assessment process: a concept stage followed by a design competition, and a second, final assessment. The process for each stage is essentially the same, and as a result, it typically takes 410 days for high-density commercial development proposals to be assessed – around four times that of the next nearest jurisdiction.[10] Given the assessment process duplication, there may be scope to consider whether all components of such developments need to be assessed twice, or whether one of the two stages could be streamlined for features of the development that remain essentially unaltered across the two assessment phases.

The exhibition of proposals and associated submission periods for consent authorities to hear community views are key to ensuring developments do not unduly impact the rest of the community. But some features of the current process can contribute to planning delay and may even reduce the effectiveness of the public exhibition process.

In New South Wales, in contrast to other jurisdictions, submissions may be made on development proposals at any stage during the assessment period up to the day a decision is (due to be) issued. This can cause delays in decision-making where submissions are received late. Moreover, consent authorities may be unsure if all community views have been received, which can reduce the effectiveness of the exhibition process itself. Consideration of a cut-off date for public submission on development proposals can help ensure consent authorities assess the proposals with the confidence that all community submissions have been received.

10 Note this does not include the time taken to conduct a design competition. The next longest assessment period is for impact assessable high density commercial developments in Queensland which typically take 105 days.

The appeals process

There are two key features of the NSW appeals system that drive additional costs and delays

1. The lack of a tribunal to handle minor planning disputes or appeals. Tribunals differ from courts because the rules around procedure and evidence are more relaxed. They can also discourage the use of lawyers by encouraging or even mandating self-representation. This can reduce costs and result in more timely dispute resolution.

2. Appeals must be lodged within six months of the formal assessment period. It is common for the actual assessment period to exceed the formal timeframe, sometimes by more than six months, so parties have an incentive to lodge an appeal even before a decision is reached. This drives additional caseloads for the Land and Environment Court and in doing so adds delays to the assessment process.

Assessment pathways

The incremental measures described above can potentially reduce DA approval timeframes while leaving the overall planning assessment structure in place. Nevertheless, it is also worth considering whether a full merit assessment is necessary for all DAs.

The NSW planning system has a range of assessment pathways based on the scale and potential impacts of the development. Some minor developments, called exempt developments, do not require consent. These include the erection of a carport, balcony or garden shed. Another type of development, called complying development, can access a fast-track approval process for straightforward residential, commercial and industrial development. Full merit assessments are required for all other development assessments.

Expanding the reach of exempt and complying development assessment tracks could also significantly reduce approval times. Some 94 per cent of all single dwelling houses are currently assessed using the complying development assessment track (Mecone 2019) – so long as the development meets a set of standardised conditions, development consent can be obtained through private certification. For low-density residential developments, approval is typically twice as fast for those that qualify for complying development compared with those that need to undergo the full development assessment.

Discussion question

- What steps could the NSW Government take to improve efficiency in planning system administration and ensure economic and community benefits?

Forward-looking regulation that supports innovation and competition

Key points

Why we need to focus on regulation

- Regulatory settings are an integral component of attracting and retaining investment while protecting the interests of citizens. However, poorly designed regulation can prevent businesses from operating efficiently and can carry excessive administrative costs. This, in turn, can hinder job creation and productivity growth.
- The dynamic nature of digital technologies is at odds with a prescriptive approach to regulation and risk management. As the pace and reach of technology continues to gather pace, bringing new products and services to market, governments can no longer afford to play regulatory catch-up.
- High quality regulatory policy require ongoing and thorough consideration of the actual and potential impacts. The NSW Government is currently establishing a process to assure regulatory quality.

Conversation starters

- There are likely benefits to adopting a user-centric approach to managing risk, particularly in the context of rapid technological change, which may or may not involve regulation.
- New regulatory tools are available and can be harnessed to enable an adaptive, iterative and outcomes-based approach to managing risk and balancing stakeholder outcomes.

9.1

The role of regulation in productivity growth

Regulation comes in many forms that reflect a rule or expectation of compliance, such as laws and their associated administrative rules, licences, and contractual requirements. Good regulation, institutions, legal frameworks and tax policies are fundamental to supporting innovation, competition, and economic growth.

Regulation is one of the main policy instruments with which governments manage an economy. Regulation can improve the efficient working of markets by addressing market failures and can protect consumers and the community from harm. Effective regulation helps to address many of the challenges covered in other sections of this paper. For example, good planning frameworks ensure sustainable natural resource use while providing certainty for business investment.

Fit-for-purpose regulation is responsive to changes in markets, technology, and business models (see 'Future Directions in Regulatory Reform', in section 9.3). Poorly designed regulation, on the other hand, may impede innovation and investment that can capture benefits of new technologies. For example, in 2016 the National Transport Commission identified more than 716 provisions in transport-related laws and regulations that may be barriers to automated vehicles. This can create undesirable delays in new businesses becoming operational.

Recognising the importance of good regulation, the NSW Government commissioned and supported the recommendations made by the Independent Review of the NSW Regulatory Policy Framework in 2017. The Review followed a finding by the NSW Audit Office in 2016 that many of the regulatory proposals did not offer benefits that justified its costs. There was also a lack of accountability in Government due to poor transparency and no clear roles in overseeing compliance (NSW Audit Office, 2016).

The Government is also focusing on means to reduce compliance costs for business. Digital technology offers opportunities to improve the customer experience with regulation. The NSW Government's Easy to do Business initiative (see Box 9.1) is one example of this.

Box 9.1 Using digital technology to improve regulation – Easy to do Business

Easy to do Business, led by Service NSW, is a one-of-a-kind service in Australia, and the world, combining small business regulatory requirements across three levels of government into one digital platform.

To date, this pilot has demonstrated significant potential to reduce the regulatory burden for small business customers through a digital platform. The service provides a personalised dashboard for customers, clearly specifying how to ensure compliance. This is complemented by phone guidance available through a Business Concierge team.

Easy to do Business is pioneering a change to government thinking by placing the customer at the centre of its deliverables. The focus is not on reforming Service NSW business transactions but on the entire end-to-end small business customer regulatory journey and centralising and digitising the experience across government to make achieving small business goals faster and easier.

The result is reduced cost and administrative burden for small business owners who can open their doors quicker, thereby accelerating the introduction of new jobs and enabling owners to spend more time growing their business which drives economic benefits across the State.

9.2

Forward-looking regulation that supports competition and innovation

The need for a more consistent and dynamic approach to managing the lifecycle of regulation in New South Wales, one that applies long-term thinking and a strategic lens, was identified by the Independent Reviews of the NSW Regulatory Framework.

The proposed cornerstone of the Governments new regulatory policy framework is a 'regulatory stewardship' approach. This sees regulation as a community asset that is actively managed to deliver the best possible public benefit, now and into the future. This modern approach reflects international best practice.

Key to this approach will be three cornerstones of good stewardship practice, that will be applied by NSW's regulatory stewards – the regulatory agencies charged with the care and management of specific regulation:

1. effective and persistent monitoring of regulatory performance;

2. robust analysis for changes to regulatory systems; and

3. good regulatory practices.

Regulatory stewards will need a deep understanding of how individual regulations fit within a regulatory system and the contribution that individual regulations make to the desired outcomes of the system. Equipped with this understanding, their goal will be to ensure NSW's regulatory systems operate efficiently, effectively and serve the interests of the broad community.

Adopting a stewardship approach to regulation will require internal measures to:

- assess the condition and fitness-for-purpose of regulatory systems; and
- use this information to prioritise improvements.

Regulatory Stewardship Strategies will be developed annually. These strategies will provide information on the systems and processes that regulatory stewards have in place to manage the regulatory regimes that they administer. They will be a mechanism for facilitating co-ordinated engagement with stakeholders that have an interest in a regulatory system.

Regulatory Stewardship Strategies will also provide assurance to business and the community that the process used to develop and manage regulation will provide the best outcomes for community wellbeing. In addition, they will provide an opportunity to share information across government on possible linkages, opportunities for alignment, trends, threats, and examples of innovation and good practice.

Box 9.2 Regulatory stewardship in New Zealand

New Zealand first introduced a 'stewardship' approach in 2009, when agencies were required to start preparing annual Regulatory Plans, including their upcoming review priorities, to demonstrate a robust policy cycle for regulation.

This was followed by a formal requirement for 'regulatory stewardship' in 2013, where agencies identified their 'regulatory systems' as a basis for their stewardship plans. This was closely supported by New Zealand Treasury, which has oversight of stewardship. Major departments in New Zealand now publish their regulatory stewardship strategies annually.

However, the transition to regulatory stewardship will take time. Transitioning to stewardship will require removing the legislative mechanism in the *Subordinate Legislation Act 1989* that automatically repeals all regulations made under primary legislation (subordinate legislation) every five years unless remade by the relevant agency. Agencies will begin prioritising their regulatory reviews subject to their Regulatory Stewardship Strategies, rather than the arbitrary staged repeal timetable. Regulatory Stewardship Strategies will, over time, outline clear objectives for regulatory systems and forward plans of reviews.

9.3 Future challenges for regulatory reform

Regulations that are based on particular technologies or business models are bound, eventually, to impede the benefits of dynamism and innovation. Governments increasingly find the inherently disruptive nature of technology is at odds with a prescriptive approach to managing risk. Technological change will continue to gather pace, bringing new products and services to markets. Artificial intelligence, big data analytics, augmented reality, blockchain and the Internet of Things are all potential game changers for consumers and regulators.

Governments can no longer afford to play regulatory catchup: the complexity and unpredictability of change is proving a constant challenge for risk management. The fundamental question for governments is: How do we design regulation with in-built adaptability to changes in business models and technologies, while maintaining consumer and community protections?

For regulation to be a true public asset, it needs to understand its users – the community, businesses and consumers. A user-centric risk management approach evaluates regulation from the user's perspective. In some cases, new technologies can 'disrupt' regulatory regimes, prompting the question of whether there are alternative ways of managing risk and achieving policy objectives. Business or consumers may be given the option to decide the level of risk they wish to take, particularly when they have access to greater information and data from a digital platform.

Regulations have different users, with different needs and interests. Balancing multiple user outcomes is important and works to provide net benefits for society. Box 9.3 provides an example of an upcoming challenge to government from the development of remotely piloted drones.

Box 9.3 Balancing different 'user' outcomes – remotely piloted aircraft (drones)

Remotely piloted aircraft (drones) have a diverse range of uses, though drones are increasingly being tested as commercial delivery services – for meals, for example. The Civil Aviation Safety Authority (CASA) recently undertook a trial of drone delivery services by Wing in North Canberra. The trial involved an exemption from current CASA regulations.

The Commonwealth Government has announced a review of regulations affecting drone delivery services, partly as a result of community feedback from the Canberra trial. The review will consider the noise impacts of drone services and the existing regulations administered by CASA, as well as state and territory regulations that govern noise and its impact on amenities in urban areas.

This is an example of where Government needs to balance different user outcomes – those of the community, consumers and business. It also needs to decide if existing regulatory frameworks are fit-for-purpose in balancing these different outcomes.

Sources: Department of Infrastructure, Transport, Cities and Regional Development (2019); ABC news (18 June 2019).

Balancing multiple user outcomes reinforces the need for risk-based regulation that is outcomes-focused and periodically revised, where necessary. The challenge for governments with new technologies and business models is in understanding what, if any, risk protections are required. An adaptive and iterative approach can test what is needed, and governments have various tools available for achieving objectives:

- **allowing fixed-term regulatory exemptions** for specific regulatory requirements to enable innovative market entrants. An overarching legislative exemption could allow ministers to grant exemptions in specific circumstances, subject to conditions that ensure they meet community and consumer protections (Productivity Commission, 2016)
- **creating ad-hoc regulatory sandboxes** to provide a safe space for trialling new technologies, where certain regulatory requirements are waived on a case-by-case basis
- **delegating rights to regulators** to make decisions to authorise new activities, in appropriate circumstances, rather than requiring parliamentary updates of primary legislation to authorise activities (Productivity Commission and New Zealand Government Productivity Commission, 2019)
- **co-regulation with industry**, which may involve government developing principles/guidelines, scoping the issues that need to be addressed, while industry develops its own specific standards and codes of conduct. Regulators can then certify the standards developed by private industry (Eggers, Kishnani and Turley, 2018a), and
- **using the same disruptive technologies** that are challenging traditional regulatory models as tools to manage risk in adaptive ways. For example, using big-data analytics and, in the near future, analysing data collected from 'Internet of Things' sensors to assess and address risk in real time (Eggers, Kishnani and Turley, 2018b).

Box 9.4 New technologies and regulation – micro-mobility (electric scooters)

Electric scooters are infiltrating cities around the world. They have been contentious, but public debate has highlighted the fact that micro-mobility may be particularly effective for the 'first and last mile' in city/urban areas where a distance is too long to walk or too short to drive. Electric scooters may be part of the solution to addressing congestion and burdens on public transport.

It may also represent an opportunity for government to use some of the user-centred design tools outlined above such as partnering with micro-mobility service providers in regulatory sandboxes and sharing data as part of the process.

For example, the US city of Portland allowed e-scooters on a trial basis between July and November 2018, on the condition that they shared their data and operated in areas underserved by public transport.

London's Queen Elizabeth Olympic Park has become an ongoing sandbox for micro-mobility modes, including electric scooters, which are otherwise not allowed under UK transport legislation dating from the 19th century. The UK Department for Transport will be reviewing regulatory restrictions.

In New Zealand, electronic scooter provider Lime self-regulates by setting terms and conditions that are stricter than national traffic rules and shares usage data with the Auckland Council.

In Australia, Brisbane City Council is undertaking a trial, while Lime recently held electric scooter trials at Melbourne's Monash University.

New South Wales does not permit 'power foot scooters' on public roads as they cannot be registered in the same way as a motor vehicle. There is scope for a trial in a particular zone to explore the potential of micro-mobility to reduce transport congestion and to consider safety aspects.

‘Rules as code’ – another way regulation can be user-centred

Converting regulations into a digital ‘code’ that is readable by software can result in more user-centred regulation.

User centred services

‘Rules as a code’ can provide cross-agency access to government regulations relevant to specific industries or life events and help create integrated services. For example, government might offer an online platform that explains citizens’ eligibility for various programs and entitlements relating to life events such as birth or death.

In New South Wales, the Department for Customer Service’s Digital Government Policy Lab is developing a rules-as-code component of the NSW Digital Strategy. The initiative aims to provide guidance, in partnership with agencies, for developing regulations in a way that can be converted to a machine-readable code, starting with regulations applying to government service delivery.

For example, the New Zealand Government trialled a financial assistance eligibility tool called SmartStart for new parents. The tool is powered by ‘digital rules’ – rules in machine-readable code – and provides a platform for parents to access information regarding eligibility for financial support.

Accessible, streamlined regulatory compliance

Regulations can also be made readable by compliance software by converting regulation into a readable digital code. This gives private parties the option to design their software to interpret and comply with regulation.

Similarly, the CSIRO’s data science research division, Data61, has ‘regulation as a platform’ as a proof-of-concept project for partnering with Government agencies. It provides open access to Government regulation by allowing users to develop their own software tools to help reduce the compliance burden.

In the UK, the Financial Conduct Authority (FCA) developed a similar proof-of-concept in 2017, which could turn financial regulations into machine-readable form, making regulatory reporting easier for banks. The FCA partnered with various major banks on a pilot during 2018, for regulations relating to reporting on specific products such as mortgages. The pilot is currently being expanded to test its feasibility for reporting on other financial products.

Discussion questions

- What new tools can we harness to enable an adaptive, iterative and outcomes-based approach to managing risk and balancing different user outcomes?
- Is there scope for greater uptake of these tools in New South Wales?

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