Labour supply and policy

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Abstract

This article provides a framework for thinking about labour supply policy in Australia. Several major future challenges for labour supply are identified and the main types of policies that can be used by government to deal with those challenges are described. Recent developments for groups likely to feature in discussions about increasing labour supply are briefly reviewed.

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This article is an expanded version of a talk to the EY Pre-Summit Summit on Jobs and Skills on August 17 2022. It has been influenced by the opportunity to hear talks by my co-panellists Leonora Risse and Ian Yates, and by questions from Cherelle Murphy and the audience.

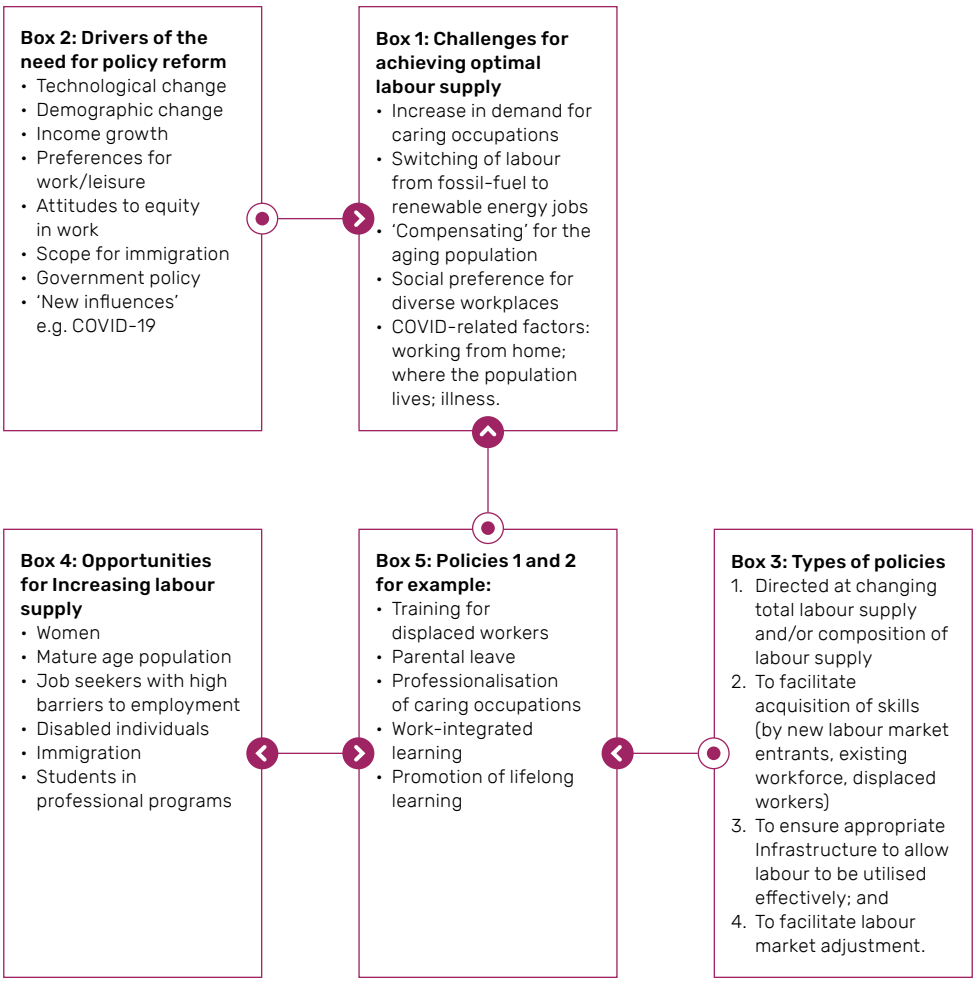
Introduction

Labour supply is about the size, composition and skills of the available workforce. It constitutes 2 of the 3 P's, Participation and Productivity, that together with Population, determine national output. As an indicator of the opportunity to engage in and realise one's potential in paid work, and to achieve economic independence, labour supply is an important element of individual wellbeing. Having a sufficient supply of labour, with appropriate composition and skills, is therefore essential for a country to achieve its output and equity goals.

Achieving this target for labour supply necessarily involves a substantial role for government, since market outcomes cannot be relied on to be either efficient or equitable. A major difficulty for government in taking on this role is that the target for labour supply is always moving. The labour market is constantly beset by forces pushing it in new directions. As a result, the optimal skill set, composition and rate of growth of the workforce are constantly shifting.

This article provides a framework for thinking about labour supply policy in Australia. Figure 1 summarises the framework. Core to the framework is a set of challenges for labour supply policy that exist at any time (Box 1). Those challenges derive from various drivers – many long-term such as technology and demography, and some short-term such as (at present) COVID-19 (Box 2). Government can draw on a range of types of policies to seek to address the challenges (Box 3). As one example, how those types of policies might be used to achieve an objective of increasing the size and skills of the workforce is displayed (Boxes 4 and 5).

Figure 1. Framework for labour supply policy



The rest of this article develops the framework in more detail. Section 2 presents examples of some major current drivers of challenges for labour supply policy. Section 3 describes the types of policies available for influencing labour supply. In section 4 several general principles for policy-making are presented. Section 5 briefly discusses recent labour market outcomes for three groups likely to feature in thinking about how to increase labour supply.

The focus throughout is on government policy. Labour supply is determined both by economy-wide and workplace-specific factors, and hence potentially government

policy has a role across both dimensions. Examples of economy-wide factors that can be influenced by government policy are how incentives to acquire skills depend on the cost of university education; and how incentives to join the labour force depend on influences such as tax rates and availability of childcare. It is also the case that much of what happens to labour supply depends on employers. Workplace practices, pay/promotion policies and other job conditions are an important influence on individuals' willingness and capacity to supply labour. Training on-the-job is a critical element of the skills that workers develop. Government policy to achieve labour supply objectives therefore can also be directed at practices within workplaces.

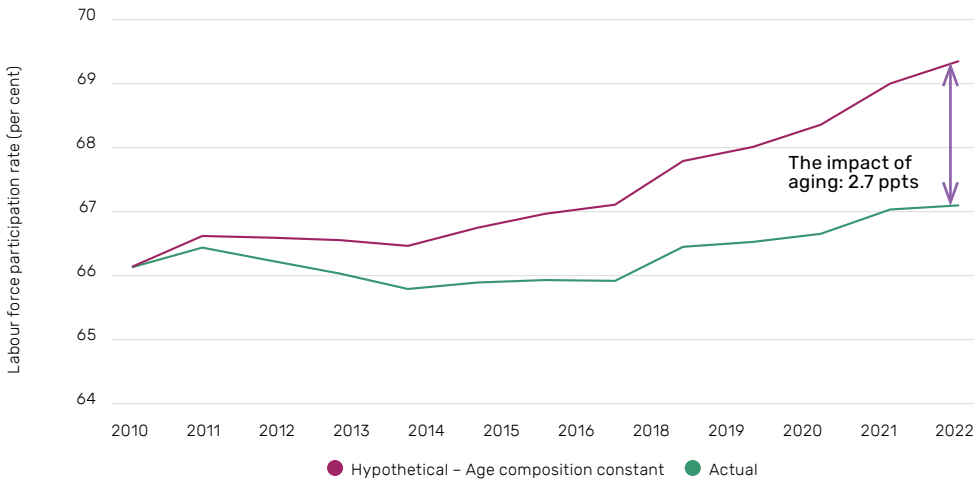
Labour supply as a forever policy issue

Labour supply is a **'forever'** policy issue. Factors such as demographic change and income growth alter the composition of product demand, and consequently the types of jobs that need to be done and the skills workers require. Similar effects follow where government policy directs resources towards activities deemed social priorities. Technological change, by affecting the tasks where labour is best deployed, also changes the types of jobs available and skills needed by the workforce. New opportunities for profitable production, associated for example with an export boom, can increase the desirable size of the workforce. At the same time, shifts in preferences and norms about work, as well as demographic change, directly impact on the supply of labour.

Example 1: Aging population

An aging population brings a challenge for maintaining the level of aggregate labour supply. Because the older population are less likely to want to be in paid work, as their share of the population increases, other things equal, Australia's aggregate labour force participation rate declines. Figure 2 illustrates this phenomenon. It shows the actual Labour Force Participation (LFP) rate and a hypothetical rate assuming that the age composition of the Australian population remained constant from 2010 to 2022. The difference between the series shows that an aging population over that period reduced Australia's LFP rate by 2.7 percentage points. An aging population means that labour supply policy has to run just to remain in the same place.

Figure 2: Labour force participation rate, Actual and hypothetical, 20210 to 2022 (March) (sa)

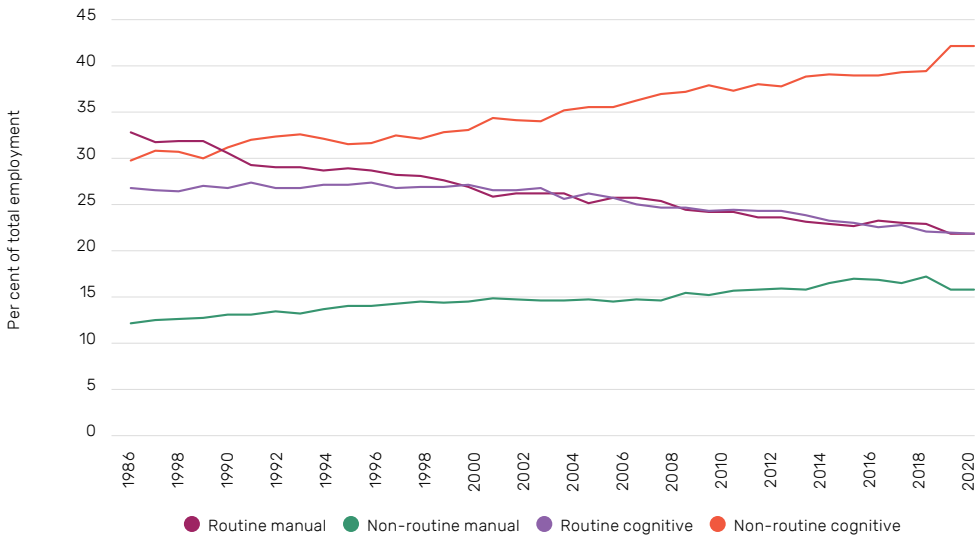


Source: ABS, Labour Force Australia – Detailed, Table 01.

Example 2: Technological change

Technological change has brought – via automation – a steady long-run change in the composition of demand for labour: away from workers who perform jobs that involve 'routine' tasks, which can be precisely described and hence implemented via instructions to machines or computers, and towards labour to perform 'non-routine' tasks. Figure 3 shows how the composition of employment in Australia has shifted towards non-routine jobs and away from routine jobs, by about 0.45 percentage points per year since the mid-1980s. Supply-side adjustment to higher demand for workers to perform non-routine jobs has been through a massive increase in the proportion of the workforce with higher levels of education attainment. The proportion of the working-age population with a Bachelor's degree or higher qualification has grown from around 5 per cent in the early 1980s to over 30 per cent in 2021 (ABS, Education and Work, Table 19).

Figure 3: Share of employment by occupation type, Australia, 1986 to 2021 (August)



Sources: ABS, Labour Force Australia – Detailed, EQ08; and author's classification of occupations (Borland and Coelli, 2017, Appendix).

It is likely that this trend in the composition of employment will continue as new developments in IT-based technologies, such as robotics, increase the range of tasks that can be routinised. Autor (2022) also suggests that AI – through machine learning – is expanding the capacity of technology to undertake non-routine tasks, such as prediction. At the same time, however, technological change will continue to create new jobs: using those new technologies in production and producing new goods and services that embody new technologies. As a country that is primarily an importer of new technologies, what is most important in Australia is to have a workforce with skills that allow it to use those technologies (Productivity Commission, 2022, pp.47-48).

Example 3: Demographics and the demand for caring

A combination of demographics and government policy is causing a major growth in labour demand for carers. At present, growth in demand appears to be outstripping supply growth. Table 1 summarises recent estimates of required growth in caring workforces and likely shortfalls based on current rates of growth in supply.

The challenge is therefore to increase labour supply of carers (and at the same time to up-skill the workforce). For this there seem only two options: immigration

or increased supply from the workforce already in Australia, which will require higher wages and professionalisation. The only other alternative is to accept a long-run labour shortage, with consequent low standards of care.

Table 1. Caring workforces: Supply and demand

Type of workforce	Estimate of required increase/likely shortfall in workforce
Aged care	Require a net increase of 170,000 in the direct care workforce from 2020 to 2030 to meet a standard of 3-star staffing level. Estimated annual attrition from the direct care workforce is 45,000.
NDIS workforce: Community-based and home-based support workers	Workforce of 242,000 in 2020. Needs to expand to 313,000 in 2024. Estimated exits from 2020 to 2024 = 164,000. Hence net expansion needed is 235,000.

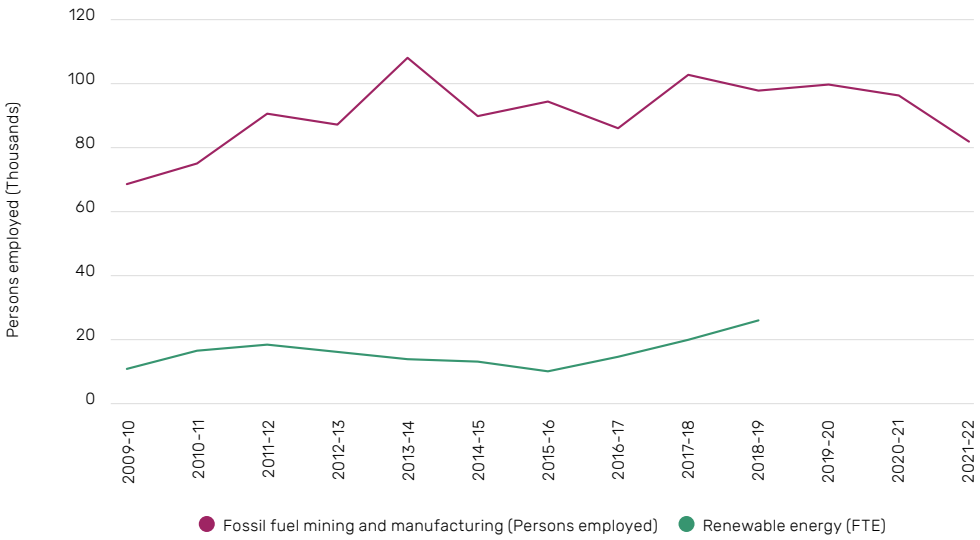
Sources:
1. Aged care: Committee for Economic Development for Australia (2021), Duty of Care: Meeting the Aged Care Workforce Challenge, https://cedakenticomedia.blob.core.windows.net/cedamediacontainer/kentico/media/researchcataloguedocuments/recent%20research/pdfs/aged-care-workforce-2021-final_1.pdf ;
2. NDIS: Commonwealth Department of Social Services (2021), NDIS National Workforce Plan 2021-25, https://www.dss.gov.au/sites/default/files/documents/06_2021/ndis-national-workforce-plan-2021-2025.pdf

Example 4: Government climate change policy

A shift in employment towards production of renewable energy and away from old energy sources is being driven by new technologies and government policy. Figure 4 provides a perspective on the extent of adjustment that will need to occur. Over the past decade, on average about 90,000 persons have been employed in the mining of fossil fuels and production of fossil fuel energy.

The policy challenge presented by this type of structural change is twofold: first, to ensure that there is a workforce with skills needed for production in the expanding sector; and second, to enable workers displaced from the contracting sector to move into new jobs. Over the past several decades Australia has done well in the first task, much less well in the second task.

Figure 4: Employment, By type of energy production, Australia, 2009-10 to 2020-21



Notes:
a] Fossil fuel mining and manufacture = Coal mining; Oil and gas extraction; Petroleum and coal product manufacturing; Gas supply;
b] Renewable energy = activities principally motivated by the production of renewable energy, and/or by the design, construction and/or operation and maintenance of renewable energy infrastructure.
Sources: ABS, Employment in renewable energy activity, 4631.0, Table 1; ABS, Labour Force Australia – Detailed, EQ06.

Example 5: COVID-19

COVID-19 is an example of a new driver than can emerge unexpectedly with potential implications for labour supply. It is possible to think of quite a lengthy list of potential implications of COVID-19.

First, COVID-19 may have affected preferences about labour supply in several ways. Most notably, it has been suggested that a fundamental change in relative preferences for work and leisure (the Great Resignation) is underway. Thus far, however, there is little evidence for this in Australia (Borland, 2022). Where change does seem to have occurred is in preferences for working from home, as the need to reduce social contact brought a forced experiment in that practice. Table 2 shows that at present there appears to be a difference of about a day per week in workers' and employers' expectations of the optimal amount of time to work from home (see also Petrie, 2022). Some adjustment will be needed to reconcile these differing preferences. A further short-term effect of COVID-19 has been to shift population in Australia away from Victoria and NSW and towards other states, especially Queensland; and within Victoria and NSW away from capital cities and towards regional areas. This population mobility

also necessitates adjustment – such as via an increase in working from home, extra travelling, or job mobility. In addition, a shift in home ownership in regional areas towards second (holiday) home ownership is affecting the capacity for workers to obtain rental housing in those areas.

Table 2. Preferences for working from home, Australia, 2022

Question	Average response
After COVID-19, how often would you like to work from home?	1.89 days
After COVID-19, how often is your employer planning for you to work full days at home?	0.95 days
How would you respond if your employer announced that all employees must return to the worksite 5+ days a week (share of employees who would quit or look for a job with scope to work from home)?	22.27%
How much of a pay rise [cut] (as a percentage of your current pay) would you value as much as the option to work from home 2 or 3 days a week?	5.36%

Source: Aksoy *et al*. (2022)

Second, COVID-19 has brought major disruption to immigration. Table 3 shows the impact on temporary migration. For the three categories included, the number of temporary migrants was 300,000 less in December 2021 than two years before. Whether migration will return to its previous levels, and the consequences for labour market tightness, are important issues for labour supply policy. For example, whereas it is usually thought that migration has close to a net zero effect on the rate of unemployment (see Boucher *et al*., 2022), in the case of COVID-19 it seems likely that the withdrawal of labour supply has been larger than the reduction in labour demand (due for example to the continuation of construction activity premised on previous migration levels), so that there is likely to be a slight upward effect on the rate of unemployment as levels of temporary migration increase.

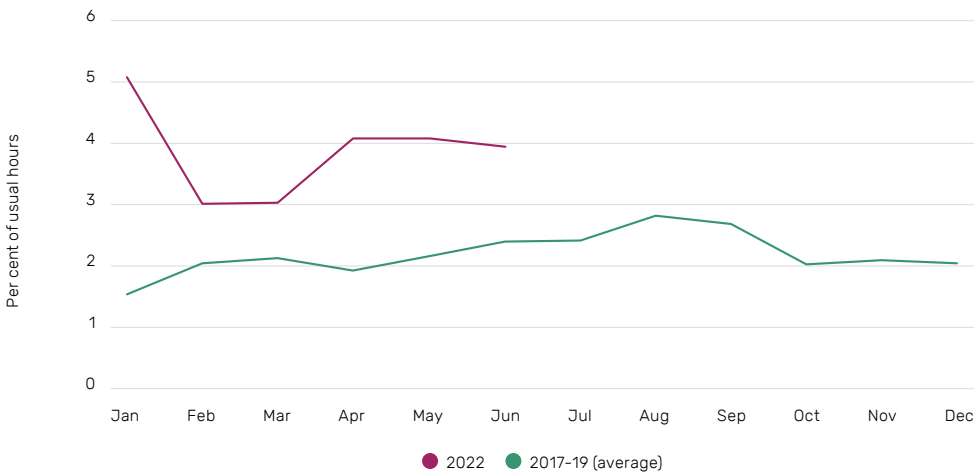
Table 3. Temporary migration (Stocks), Australia

	Student and temporary graduate program	Working holiday maker program	Temporary resident (Skilled)	Total
December 2019	480,543	141,142	64,590	686,275
June 2020	555,310	85,691	71,400	712,401
December 2020	449,932	49,542	61,140	560,614
June 2021	374,056	36,526	55,030	465,612
December 2021	315,949	19,324	49,580	384,583

Source: Compiled from https://www.homeaffairs.gov.au/research-and-statistics/statistics/visa-statistics/overview

Third, COVID-19 is affecting labour supply via its health effects. Workers who contract COVID-19 need to spend time away from work, thereby reducing the effective labour supply. Figure 4 presents estimates of the percentage of usual hours lost due to 'own illness, injury or sick leave' in 2022 and on average in 2017-19. Hours lost due to illness in the first six months of 2022 were almost double in 2017-19 (3.8 per cent compared to 2.0 per cent). As time goes on, with an increasing proportion of the population having contracted COVID-19, long COVID may also affect labour supply, depending on its incidence.

Figure 5: Per cent of usual hours lost due to illness, injury & sick leave, by month, 2022 v. 2017-19 (average)



Source: Author's calculations from ABS, Labour Force Australia – Detailed, EM1a and EM2a.

How policy can affect labour supply

A variety of approaches are available for government to seek to affect labour supply policy. In this section these approaches are briefly summarised.

i] Change total labour supply and composition of labour supply.

The **size** of labour supply (both in total and in specific occupations) affects the extent to which it is possible to take advantage of available production opportunities that will provide a gain to society. The **composition** of labour supply is about the characteristics of the potential workforce, which matters because it is related to skills in the workforce and can be an indicator of the equity in participation. The output and equity benefits of increasing participation by females and the mature age population, for example, are well-established (see for example, Hsieh *et al.*, 2019).

A role for government in seeking to influence the size and/or composition of labour supply can derive from the need to address sources of market failure, such as where the market system does not provide sufficient incentives for working in specific jobs relative to socially optimal labour supply or where discriminatory workplace practices are adversely affecting labour supply by some groups. It can also be motivated by social equity objectives, such as ensuring that all groups in society have an equal opportunity to engage in paid work. In addition, government's role can come about as a by-product of other activities it undertakes. For example, once government assumes a role in regulating the volume of immigration, it automatically has a role in determining labour supply; or where government is a major source of funding for an activity such as aged care, and hence a major influence on wages paid to workers providing that service, it is also influencing labour supply.

ii] Facilitate post-school acquisition of skills.

The skills of the workforce need to evolve according to changes in labour demand and new opportunities for education and training. Ideally, entrants to the workforce will be equipped with skills suitable for the jobs they will do early in their careers, and workers already in jobs or who are displaced from work will have the opportunity to update their skills as conditions require.

Government's role in post-school skill acquisition (via education and training) is mainly to correct for a variety of types of market failure. Some examples are where government funding is required due to workers and/or firms being unable or unwilling to finance training because of capital market imperfections or scope for poaching of workers with transferable skills; where setting minimum quality standards is necessary to address potential effects of information asymmetry between workers, firms and training providers; or to correct incentives for skill acquisition where social return is above private return.

iii] Ensure appropriate infrastructure to allow labour to be utilised effectively.

Communication and transport infrastructure are critical for making the most of the available workforce and its skills. For example, workers need to be able to travel to their workplaces from home and need to be able to communicate with co-workers and with customers and suppliers. The public good dimension of infrastructure motivates a role for government in its provision.

iv] Facilitate labour market adjustment to allow labour to be utilised effectively.

Realising potential output means that workers have to be matched to the jobs that generate the greatest output from their skills. Changes in labour market conditions necessitate continual rematching of workers and jobs/firms for that to happen. The extent to which that rematching can occur has important implications for output and productivity (Andrews and Hansell, 2021).

Government can assist to make the process of matching efficient in several ways. First, it can seek to remove sources of market failure that might otherwise exist. For example, mobility is easiest when workers' skills can be established by potential employers. Government may therefore have a role in establishing credentialling systems, that might otherwise not exist (due to a public good problem). Second, it should ensure that benefits of worker mobility are properly accounted for in the design of policies mainly intended for another purpose. For example, occupational licensing may be introduced to ensure minimum quality standards, but may have the cost of reducing worker mobility where different geographic regions adopt different standards. Third, it should ensure that worker mobility doesn't occur unnecessarily; for example, by providing an industrial relations framework that allows workplace issues to be resolved that might otherwise cause the end of an employment relation and loss of valuable firm-specific human capital.

Principles for policy-making

1] The problem for policy is not just to increase labour supply, but to increase labour supply with the skills needed (for jobs available). Discussion of labour supply sometimes seems to narrow down to the question: 'How can we get more of group x into the labour force?' But just getting more of some group to be willing to supply labour is not enough by itself. It is also necessary that the extra workers from group x have skills that enable them to fill available jobs.

2] Policy works best when it is simultaneously case-based and holistic. The optimal policy to increase labour supply or to improve workers' skills is likely to differ between demographic groups and between occupations. Hence

policy must be tailored to what will work in each case. But at the same time, it is important for there to be a sense of the whole – of what the set of policies for different groups or workforces add up to. It is not much use, for example, having a policy to attract workers from aged care to address labour shortages in disability care, when that creates an equal shortage in aged care; or to increase labour supply of the mature age population at the cost of creating a gap in childcare for working families who had previously relied on that population for informal care. Instead, there needs to be a sense that the aggregate implications of labour supply policy are feasible.

3] Policy must be organised with a sense of priority. It is possible to put together a very long list of groups who could be targeted for increasing labour supply and occupations to which extra labour supply should be targeted. It's necessary therefore to have some sense of priority: What are the areas where labour shortages are having the most adverse effect on national wellbeing, and what are the groups from whom extra labour supply can be most readily and efficiently accessed to address those shortages?

4] Policy needs to be evidence-based. Labour supply policy needs to be based on what is, by now, a relatively extensive literature on what works for different groups, but also recognising the gaps in current knowledge.

Background on labour supply of some key groups

This section provides a short background commentary on the evolution of labour market outcomes for each of three groups likely to feature in future attempts by policy-makers to increase labour supply:

Women

In Australia the female share of total hours worked has increased across recent decades: for example rising from 32.5 to 42.0 per cent in the past 35 years (from 1986-87 to 2021-22). Over that same time, however, there has been little change in occupational segregation. The share of total hours worked by females in occupations where they account for at least 70 per cent of employment was 37 per cent in 1986-87 and 43.5 in 2021-22. As well, the top quartile of female-employing occupations (25 per cent of total hours worked) had an average female share of employment of 66.2 per cent in 1986-87 and 70 per cent in 2021-22.

Mature age (55 plus years)

Declining labour force participation (LFP) rates for the mature age population exerted a major negative influence on labour supply in Australia from 1966 to 1993. But since then, the reverse has happened. Strong increases in the LFP rates of the mature age population up until 2019 explain the entire increase in the aggregate LFP rate during that time. These opposed patterns before and after 1993 are shown in Table 4. Focusing on the period after 1993, in recent times there has been some slowing in growth in the LFP rate for the 'younger' mature age population. For example, the annual rate of growth in the LFP rate for the population aged 55 to 59 years was 1.0 percentage point per year from 1993 to 2012, but then just 0.4 percentage point per year from 2012 to 2019; whereas the annual increase for the population aged 65 years plus remained steady at 0.4 percentage point per year across the whole period. The LFP rate of the mature age population has remained relatively steady since the onset of COVID-19 in 2020, but without displaying any evidence thus far of a 'Great Retirement' (Borland, 2022).

Table 4. LFP rates, Mature age population, 1966 to 2019 (August)

	1966	1993	2019
55 to 59	58.8	53.5	75.8
60 to 64	47.5	30.6	58.7
65 plus	12.5	4.8	14.8
Total (15 years plus)	59.9	61.7	65.8
Change in total LFP rate		+1.8	+3.9
Contribution of change in LFP rate of population aged 55 plus years		-2.2	+4.2

Source: ABS, Labour Force Historical Timeseries Australia, Table 2; ABS, Labour Force Australia – Detailed, Table 01.

Long-term unemployed

Prior to COVID-19 there had been commentary suggesting that the rate of long-term unemployment in the second half of the 2010's was above the level that would be expected given the overall rate of unemployment (Borland, 2019). That higher rate of long-term unemployment also appeared to be associated with a decrease in matching efficiency in the Australian labour market (reflected in an outward shift of the Beveridge curve). At present, the rate of long-term unemployment is even more elevated compared to its historical relation with the rate of unemployment. To what extent that is due to the

speed of labour market adjustment during COVID-19 causing an exaggerated adjustment path for long-term unemployment, or some further structural rise in the rate of long-term unemployment, is not yet clear. One hypothesis is that the elevated rate of long-term unemployment during the second half of 2010's may have reflected the increasing failure of the *jobactive* system to deal effectively with job seekers with high barriers to employment.

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