

A comparison of the economic impacts of income tax cuts and childcare spending

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Almost 450,000 Australians with children under the age of 5 would like to work more hours. If these parents were able to work an extra 10 hours a week, the number of hours supplied to the labour market would increase by one per cent. By 2030, GDP would be 0.8 per cent higher than it otherwise would have been. In 2019 prices, this is equivalent to an increase in GDP per person of \$590 per year, or almost \$15 billion for the economy as a whole.

To enable 450,000 parents to work for an additional 10 hours a week, government-funded childcare could be supplied at just a fraction of the cost of the government's \$300 billion Personal Income Tax plan. Because the additional economic activity generated by greater labour supply would increase revenue from indirect taxation and taxation of profits, the net cost to the budget is less than the cost of the additional childcare. As the following analysis shows, this leaves only a small shortfall to be recouped from higher income taxes, or a reduction in the tax cuts outlined in the Personal Income Tax Plan. The economic benefits of well-targetted expenditure on childcare are such that it is largely self funding.

In order to offset the net cost of spending an additional \$33 billion on childcare over ten years, we find that the government would only need to increase in the average rate of income tax by 0.1 percentage points. This could be achieved by resetting the proposed income tax cuts, which will cost the government more than \$300 billion over ten years, by just one-tenth. In other words, the availability of government-funded childcare could be expanded to the extent that almost half a million Australian parents could increase their work hours, *and* taxpayers would still receive 90 per cent of the proposed income tax cuts.

1 Introduction and background

The Personal Income Tax plan (Commonwealth of Australia, 2019) will provide income tax cuts at a budgetary cost of over \$300 billion over the next decade (Parliamentary Budget Office, 2019). The magnitude of this cost suggests that Australia has the budgetary capacity to pursue other reforms by reducing the tax cuts.

Grudnoff and Denniss (2020) find that Nordic countries, where childcare is often provided free of charge, have higher rates of female labour force participation than Australia. They argue that if Australia could achieve average Nordic participation rates for men and women, GDP would be 3.2 per cent greater. In a similar vein, Wood et al (2020) find that an additional \$5 billion in childcare subsidies would deliver a dividend of an \$11 billion increase in GDP, due to increased workforce participation.

One barrier to higher participation rates is the cost and lack of availability of suitable child care. In this report we use a detailed computable general equilibrium (CGE) model to simulate the impacts of removing this barrier. We find that the additional childcare could be funded for a fraction of the cost of the tax cuts in the Federal government's Personal Income Tax Plan.

1.1 The problem

Almost half a million people with children aged 0-5 would like to work more hours (ABS, 6239.0). This represents a sizeable proportion (3.4 per cent) of Australian employment. One-third of these people are working part time and would like to work more hours. The remainder are either unemployed, or not participating in the labour market but report that they would like to work.

Table 1: People with children aged 0-5 reporting that they would like to work more hours ('000 persons).

	Current status			Total
	Part time	Unemployed	Non-participating	Total
Male	33.6	37.4	37.4	108.4
Female	118.6	66.9	152.1	337.5
Total	152.2	104.3	189.4	445.9

Source: Barriers and Incentives to Labour Force Participation, Australia, 2018-19 (ABS 6239.0)

If each of these people could work on average an extra 40 hours per month (just under 10 hours per week), there would be a substantial increase in aggregate hours worked across the Australian economy. The impact of such an increase on aggregate monthly hours worked is shown in Table 2 below.

Table 2: Impact on economy-wide monthly hours worked of people with children aged 0-5 working an additional 40 hours per month

	Aggregate monthly hours, 2019 average (million hours)	Increase in aggregate monthly hours (million)	% increase in hours
Male	1043.7	4.3	0.4
Female	726.2	13.5	1.9
Persons	1769.9	17.8	1.0

Source: Labour Force, Australia: Table 19. Monthly hours worked in all jobs by Employed full-time, part-time and Sex and by State and Territory - Trend and Seasonally adjusted (ABS 6202.0)

Table 2 shows that if people with children aged 0 to 5 who are seeking additional hours of work were each to work an additional 40 hours per month there would be a total increase in hours worked across the economy of 17.8 million hours per month, a 1 per cent increase in the economy wide number of hours worked.

Table 2 also highlights an important distributional pattern. If those with children aged 0-5 who are seeking additional hours of work were to work an additional 40 hours per month then the number of hours worked by women would increase by 1.9 percent while hours worked by men would grow by only 0.4 percent. This suggests that not only would the provision of additional child care lead to a significant increase in hours worked and GDP but it would lead to a significant reduction in the existing disparity between the labour incomes of men and women.

How much extra child care is required to supply 445,000 children with an extra 40 hours care per month? In 2019, there were 1.3 million children in care, for an average of 24.7 hours per week. The additional hours, represent an additional 12.6 per cent in aggregate child care hours.

Table 3: Existing child care hours supplied (2019 average) and additional hours required to meet increased demand

Children in child care	Average weekly hours per child	Total hours supplied per week (million)	Additional hours required per week (million)	Percentage increase
1,320,168	24.7	32.5	4.1	12.6

Source: Child Care data for December quarter 2019, from <https://docs.education.gov.au/node/53464>

1.2 The opportunity

The Personal Income Tax plan, at a cost of \$300 billion, shows that Australia can pursue large alternative reforms, at no additional cost to the budget if desired, by simply reducing the size of the planned tax cuts. Grudnoff (2019) demonstrates that the bulk of these tax cuts are to the benefit of individuals on high incomes, finding for example that the top decile of income tax payers will receive almost one-third of the benefit. These findings are supported by PBO analysis (Parliamentary Budget Office, 2019) that shows that individuals with taxable income over \$180,000 will receive 28 per cent of the benefit of the tax cuts over the next decade, and in excess of 30 per cent in some years. Grudnoff (2019) has also shown that a disproportionate share of the Personal Income Tax plan will flow to men.

While higher take-home pay may provide an incentive to work longer hours, it is unlikely that this has much effect for individuals on very high incomes, most of whom will not work longer hours in response to a tax cut because it is highly likely that they already work full-time. Given the low likelihood that very high income earners will respond to income tax cuts by increasing their hours of work, tax cuts to high income earners therefore represent little more than a transfer of funds from the government to high-income households, with limited spillover benefits to participation rates, total hours worked, or GDP.

On the other hand, the hours worked by individuals who work part-time, such as many parents of pre-school aged children, are sensitive to variations in net take-home pay. Net take-home pay is dependent on the out-of-pocket expenses of childcare, among other things. Cheap or free childcare is a driver of high female labour force participation, a fact recognized by the Henry Tax Review which recommended the promotion of higher workforce participation through improving support for quality child care (Henry, 2009).

While the Morrison Government has made clear that achieving budget balance is no longer a short or medium term goal, even if 'fiscal restraint' was desired it is clear that a small reduction to the planned \$300 billion tax cuts would present the opportunity to expand Australia's public investment in childcare and reap significantly greater economic benefits from increased labour force participation and GDP growth.

1.3 The modelling approach

We use a CGE modelling approach to evaluate the macroeconomic and industry impacts of a government-backed expansion of the childcare sector and the resulting increase in the participation rate. The simulation is run twice: firstly with a debt-funded expansion in government expenditure on childcare, and secondly with a budget-neutral expansion funded by a reduction in the planned cuts to income tax.

2 Description of the CGE model

We use the Victoria University Employment Forecasting – Gender (VUEF-G) Computable General Equilibrium Model of the Australian economy to analyse the economy-wide impacts of the provision of an increase in childcare services of 12.6 per cent (as outlined in Table 3) and an increase in hours worked (as outlined in Table 2).

We run two simulations. Scenario One covers the shocks to childcare output and labour supply described in the introduction. The increase in childcare output is absorbed by an increase in government expenditure, which is assumed to be funded by debt. This leads to an unambiguously good result in terms of higher employment and GDP, which is 0.8 per cent higher than it otherwise would have been by 2030.

In Scenario Two, the increase in government expenditure on childcare is assumed to be offset by a small reduction in the size of the planned cuts to income tax. In this scenario the net government budget position over four years remains unchanged from its (pre-covid) base case, after which it moves toward surplus relative to the counterfactual.

If the additional childcare is fully paid for by government, this is equivalent to an increase in government spending of about 0.75 per cent. The taxation revenue associated with an increase in aggregate hours worked of 1 per cent should cover this cost. However, it is probable that the extra hours of workers on low hours are taxed at a lower rate than average. To account for this, we assume that the average rate of income tax is reduced by 0.8 per cent. This is equivalent to assuming that the additional hours worked are subject to only 20 per cent of the average tax rate.¹ Taxation revenue can still increase through indirect taxation and taxes on profits, both of which also increase as a result of a higher labour supply.

To support the increase in the supply of childcare, we assume that investment in childcare increases one year in advance of the increase in government expenditure on childcare. This is privately funded by investors who expect to make a return as we assume the additional childcare expenditure is announced in advance. Other than this, investment is subject to the normal CoPS static-expectations theory. This means that investors only respond to the increase in labour supply in the period that it occurs, creating a lag in capital growth. In reality it is possible that investors would anticipate the increase in labour supply and respond more quickly, therefore the modelling approach and results err on the side of caution.

In the first simulation, we estimate that the net cost to the government budget over 4 years (2020-21 to 2023-24) is approximately \$11 billion, an average of \$2.8 billion per year. In the second simulation, we increase the rate of income tax by 0.8 per cent to offset this shortfall. This increase is less than the tax cuts announced in the Personal Income Tax Plan, suggesting that additional childcare could be funded by forgoing a portion of the income tax cuts.

We find that reducing take-home pay by reducing the income tax cut (relative to the base case in which the full income tax cuts take place) has a negligibly small negative impact on labour force participation and GDP relative to the positive impact of additional child care expenditure. By 2030, we find that the positive impact on GDP is 0.77 per cent as a result of the additional child care expenditure. If this expenditure is offset by reducing the planned income tax cuts, the impact on GDP is barely any different, at 0.76 per cent. The full package – child care funded by reduced income tax cuts – yields a large net positive for participation and economic activity.

The remainder of this section describes the model theory and shocks in more detail, and results are discussed in Section 3.

2.1 About VUEF-G

VUEF-G is a variant of the VUEF model which adds a gender dimension to the existing labour market modelling framework (J.Dixon and Nassios, 2020). We formulate labour supply in a labour-leisure framework in which we also introduce home-produced domestic services (“housework”), which covers activities such as cleaning, cooking, and caring for family members, particularly children. We assume that households choose leisure, domestic services and consumption to maximise utility subject to three constraints: (i) a time constraint on total labour, leisure and housework; (ii) a budget

¹ For example, in an existing economy with 100 workers, all pay the average tax rate, T . One extra worker joins the workforce (a 1% increase in employment) and pays a tax rate of $0.2 * T$. The average rate of tax is now $100.2 * T / 101$, or $0.992 * T$, which is 0.8% lower than the original average tax rate. The assumed discrepancy between the tax rate paid by existing workers and the new worker is large, especially given that in this example the workers are implicitly assumed to earn the same level of income. The large discrepancy was chosen to illustrate that even under unfavourable conditions (to the budget) the net cost of the policy is low.

constraint equating household wage income to expenditure on consumption (other than domestic services) and purchased domestic services (such as childcare); and, (iii) a production constraint for domestic services, which are a combination of home-produced and purchased domestic services.

VUEF-G contains all the features of a standard MONASH – style dynamic CGE model [P. Dixon and Rimmer (2002)], namely:

1. equations describing demand for domestic and imported goods and services by industries, investors, households, government and the rest of the world;
2. equations describing demand for factors of production by industries;
3. market clearing conditions for all goods and services and factors of production;
4. zero pure profit conditions determining basic prices of goods and services;
5. equations linking basic and purchaser prices through taxes and margins;
6. equations linking industry-specific capital supply to investment;
7. equations linking investment by industry to expected rates of return; and
8. equations to ensure that wage adjustment is sticky.

These equations are described in detail in many references including P. Dixon and Rimmer (2002) and Adams et al (2015).

VUEF adds to the standard MONASH framework a detailed specification for labour supply. In VUEF, the working-age population is disaggregated into many skill groups. Each skill group chooses its occupational composition of employment by maximising wage income subject to a transformation frontier.

VUEF therefore adds to the standard CGE framework a method for determining occupational employment and wages. However, participation and unemployment rates by skill group are typically exogenous, or simply indexed to their national equivalents. This treatment fails to acknowledge the likelihood that labour supply is more elastic among part time workers, particularly women. VUEF-G addresses this gap by formalizing the differences in time use between men and women.

VUEF-G comprises a large system of non-linear equations which is solved in the GEMPACK software (Horridge et al, 2018).

2.3 Implementation of model shocks

The shocks listed in Table 4 describe the two scenarios simulated. Both are simulated from 2020 to 2030. Results are shown in comparison to a bland baseline in order to clearly illustrate the marginal impact of the policy. The baseline does not take into account current macroeconomic conditions. In particular, it does not incorporate the economic effects of the Covid-19 pandemic.

Table 4: Model shocks and closure settings

	Scenario 1: unfunded	Scenario 2: funded	Notes
<u>Shocks brought in over 2 years 2021-22 and 2022-23</u>			
Labour supply (hours)	+ 1%	As for Scenario 1	
Childcare output	+ 12.6%	As for Scenario 1	
Income tax rate	Reduce <i>rate</i> by 0.8% to reflect worst case assumption that additional labour is not taxed (workers generally on lower incomes)	As for Scenario 1 AND Increase <i>rate</i> by 1.8% to eliminate increase in government deficit over four years. This means the net change in the average rate of income tax is 1%.	
<u>Shock brought in over 2 years 2020-21 and 2021-22</u>			
Investment in childcare	+12.6%	As for Scenario 1	Without this, CC supply too slow to expand
<u>Other macro settings</u>			
Household expenditure	Fixed proportion of household disposable income (factor income plus transfers less direct taxes)	As for Scenario 1	
Government expenditure	Expenditure other than childcare in direct proportion to household expenditure	As for Scenario 1	

3 Results

See Section 6 for Tables.

3.1 Macroeconomic impacts

Almost half a million Australians with children under the age of 5 would like to work more hours. If these people were able to work an additional 40 hours a month, aggregate labour input would increase by one per cent.

To facilitate an additional half million children in childcare for 40 hours a month, assuming no change in efficiency or utilization rates, requires an expansion in the childcare sector of 12 per cent. An expansion of this magnitude would require around 0.15 per cent of national employment, while facilitating an increase in employment of 1 per cent, which should allay any concerns that a government-funded expansion in the childcare sector would crowd out activity in other sectors.

The operational costs of the childcare expansion are equivalent to around 0.75 per cent of government expenditure, or 0.2 per cent of GDP. Therefore a potential increase in GDP of 1 per cent (derived from extra labour supply) could be achieved for an outlay of 0.2 per cent of GDP, a clearly a gain for national economic activity.

If the increase in government-funded childcare is debt-funded and no attempt is made to balance the budget over the simulation period, the results are unambiguously positive (see Table 5). But if costs are ignored, any stimulus would constitute good policy, so in this discussion we focus instead on Scenario 2 (Table 7 and Table 8), in which future income tax cuts are reduced to keep the budget impact approximately neutral. Under this more sober assessment, the policy still provides overwhelmingly positive economic impacts, as illustrated in Figure 1 below. This figure illustrates the strong response of employment to higher child care expenditure (Scenario 1), and the very small reduction in the employment response when income tax cuts are reduced to offset the budgetary cost of this expenditure (Scenario 2).

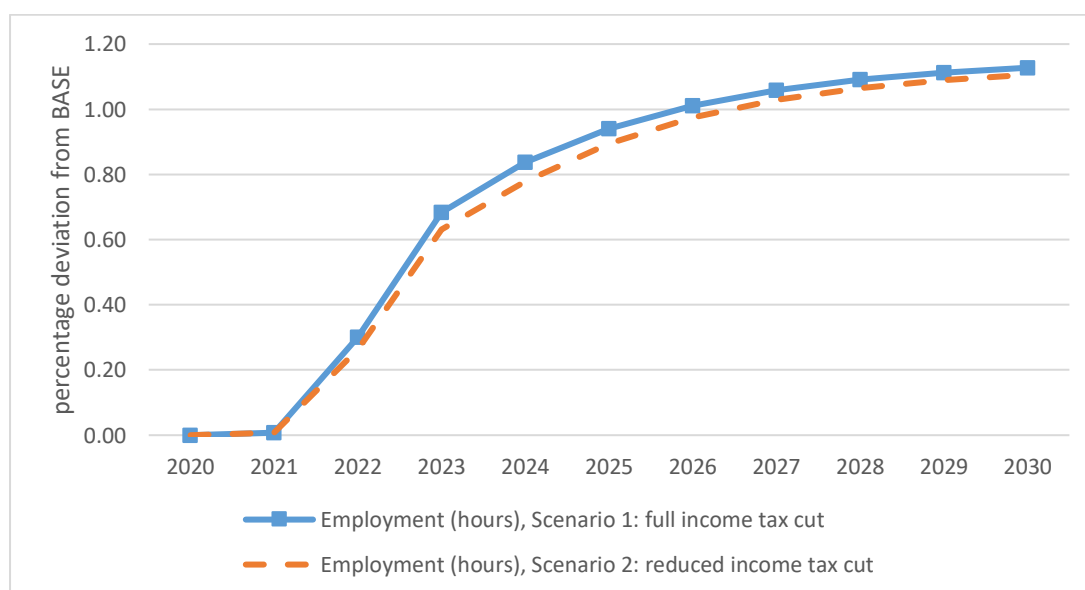


Figure 1: Impact of increased child care expenditure on employment, Scenario 1 (full income tax cut) and Scenario 2 (reduced income tax cut to offset budgetary cost of child care)

Further emphasizing the relative effectiveness of child care expenditure, Figure 2 shows a comparison of the impact on employment of child care expenditure and income tax cuts of an equivalent net cost to the budget. The clear superiority of childcare expenditure in stimulating economic activity reflects the concentration of the benefit on a cohort with much greater capacity for labour supply response: extra childcare facilitates paid employment for the more than 450,000 Australians who care for children and would like to increase their hours of work (135,000 FTE jobs), whereas the equivalent income tax cut is a transfer to most taxpayers, most of whom would not increase their hours of work in response to a relatively small increase in take-home pay.

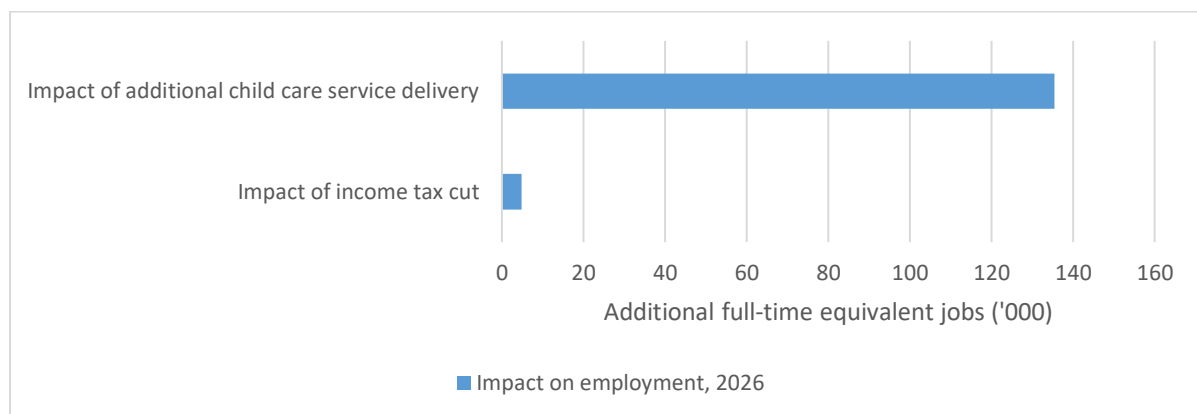


Figure 2: Comparison of employment impact of child care expenditure and income tax cuts of equivalent net budgetary cost

Figure 3 illustrates the main macroeconomic impacts of the increase in government spending on child care. We assume an increase in investment in 2021, anticipating the increase in childcare services in 2022 and 2023. In 2021 therefore, the trade balance moves toward deficit to fund the increase in investment. In 2022 and 2023, the large increase in government spending reflects the increase in childcare services, which is introduced over two years. Government spending on goods and services other than childcare also increases, as we assume government spending (on goods and services other than childcare) is indexed to aggregate household spending.

Over this period, labour supply also increases, leading to an increase in GDP. Although labour supply increases by 1 per cent, GDP increases by less than 0.4 per cent by 2023. This is because capital stocks are slower to increase, which drags on GDP growth. Over the whole simulation period, investment increases, gradually adding to capital stocks and enabling GDP to increase further.

At the beginning of the simulation period, relatively fast expansion in domestic expenditure crowds out trade, so the trade balance moves toward deficit. By 2023, government expenditure has increased relative to household expenditure, and from 2023 onward, government expenditure and household expenditure expand at the same rate (by assumption). The trade balance gradually moves back toward surplus, reducing debt incurred during the initial phase. Structural change by 2030 is evident: government expenditure accounts for a greater share of GDP and household expenditure and imports account for less, while the shares of investment and exports in GDP are relatively unchanged.

Taking into account the increase in GDP and the subsequent increase in tax revenue, particularly from consumption and profits, we estimate the increase required in the rate of income tax to fund the proposed increase in child care spending to be 0.1 percentage points. This is smaller than the income tax cuts announced in the government's Personal Income Tax Plan. This suggests that the

cost of additional childcare could be offset by simply winding back a small portion of the income tax cuts if maintaining projected budget balances was a priority. After accounting for the labour supply disincentive effects of disallowing some income tax cuts, the net impact on labour supply is still strongly positive.

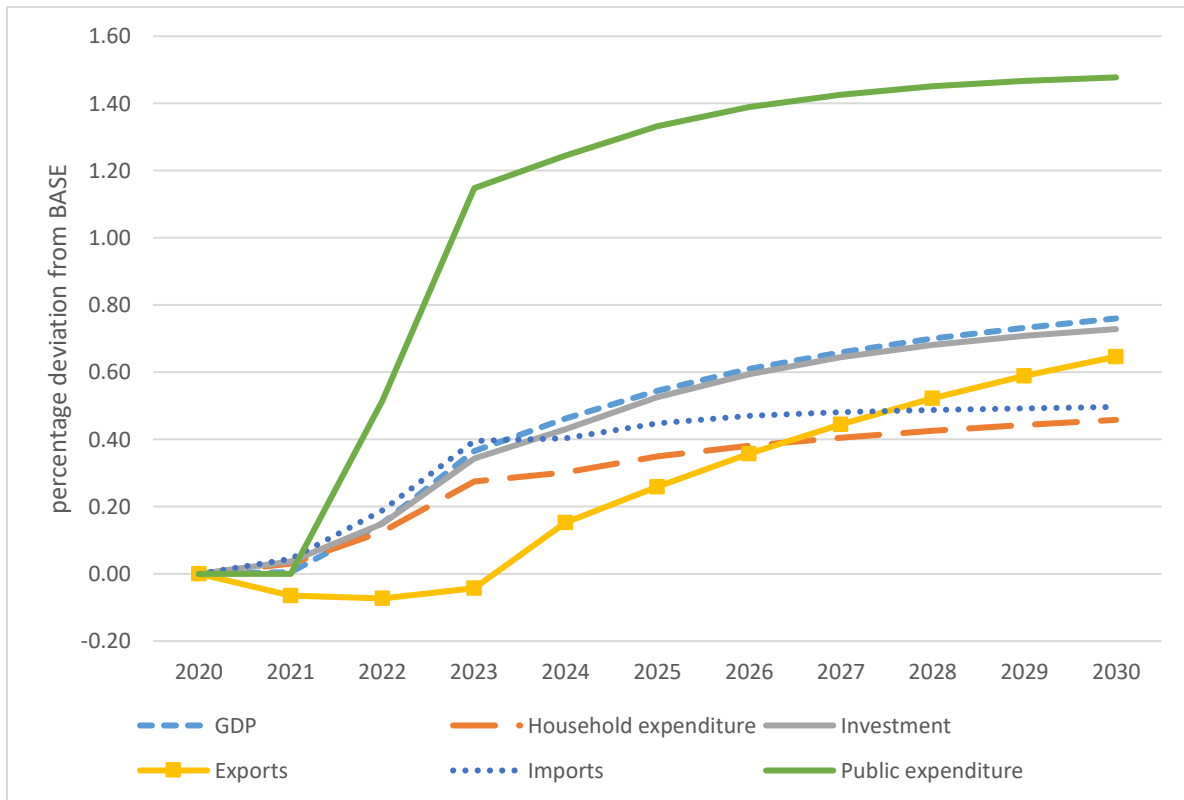


Figure 3: Macroeconomic aggregates, Scenario 2

Although labour supply is modelled to increase over two years, it takes longer for aggregate employment to catch up. This is because it takes time for capital to be put in place via investment (see Figure 4).

Even with a relatively slow take-up, more than 90% of the additional labour supply is absorbed by 2026, three years after additional childcare supply is rolled out. In VUEF-G, investment is determined in a static-expectations framework. This means that the increase in capital stocks lags behind the increase in labour supply, as investors respond only as the increase in labour supply occurs. Arguably, with the program announced in advance, investors would respond more quickly and the additional labour supply would be absorbed faster than suggested by the model.

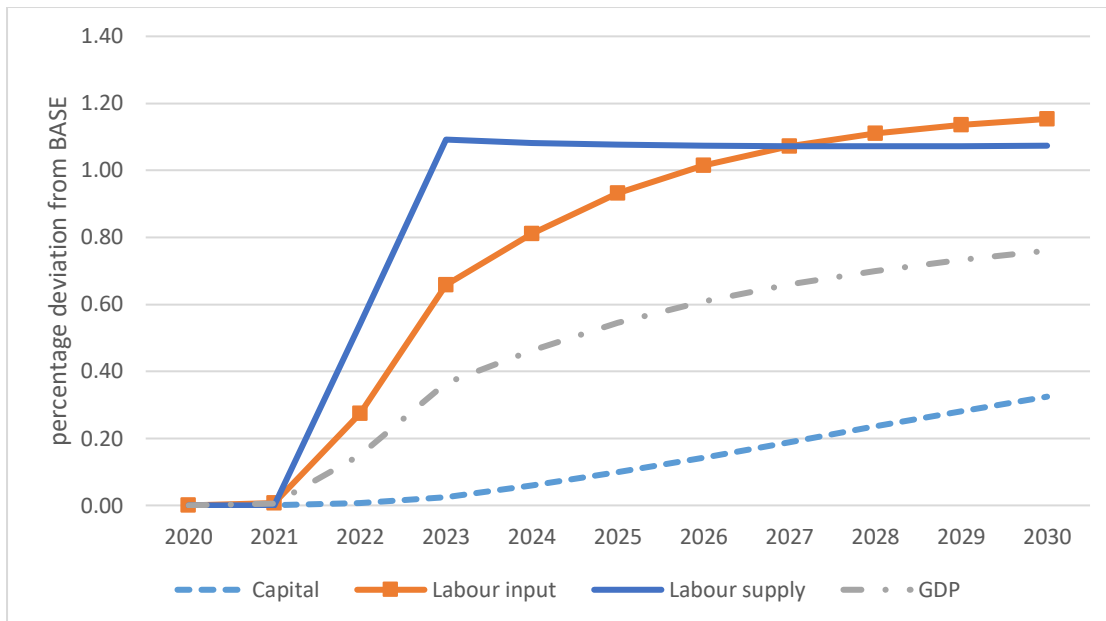


Figure 4: GDP supply-side aggregates, percentage deviation from base case

These results demonstrate a clear benefit to supplying additional government-funded childcare to working parents. In fact, the income tax cuts in the Personal Income Tax Plan could go much further towards increasing child care (such that free or subsidized childcare could be offered to existing users of childcare). Extra expenditure could also be used to improve the quality of care. However, while offering free, or better, childcare (or more subsidies) without explicitly expanding the size of the services is helpful to working families it is unlikely to create a further significant labour supply response.

3.2 Industry impacts

The additional output is distributed across all industries (Table 8).

There are two key drivers of industry effects. The large positive shock to the child care sector is the key driver of the expansion in Health Care and Social Assistance, of which child care is a part. The driver of effects outside Health Care and Social Assistance is the changes to the macroeconomic environment, and there is no obvious bias towards industries that primarily employ women. Rather, in all industries and occupations, employment of women expands by more than employment of men.

Expansions in most industries other than Health Care and Social Assistance is proportionately similar to GDP, and all industries are larger as a result of the provision of extra child care services. The impact on Retail is relatively small, commensurate with the relatively small impact on household expenditure. Two sectors are barely impacted: Mining and Ownership of Dwellings. Both of these sectors are heavily capital-intensive and poorly positioned to take advantage of an increase in labour supply. Ownership of Dwellings is driven by the household sector, which expands by less than GDP. Mining is driven by exports, which only begin to pick up in 2024. With high capital-intensity, mining activity cannot expand quickly.

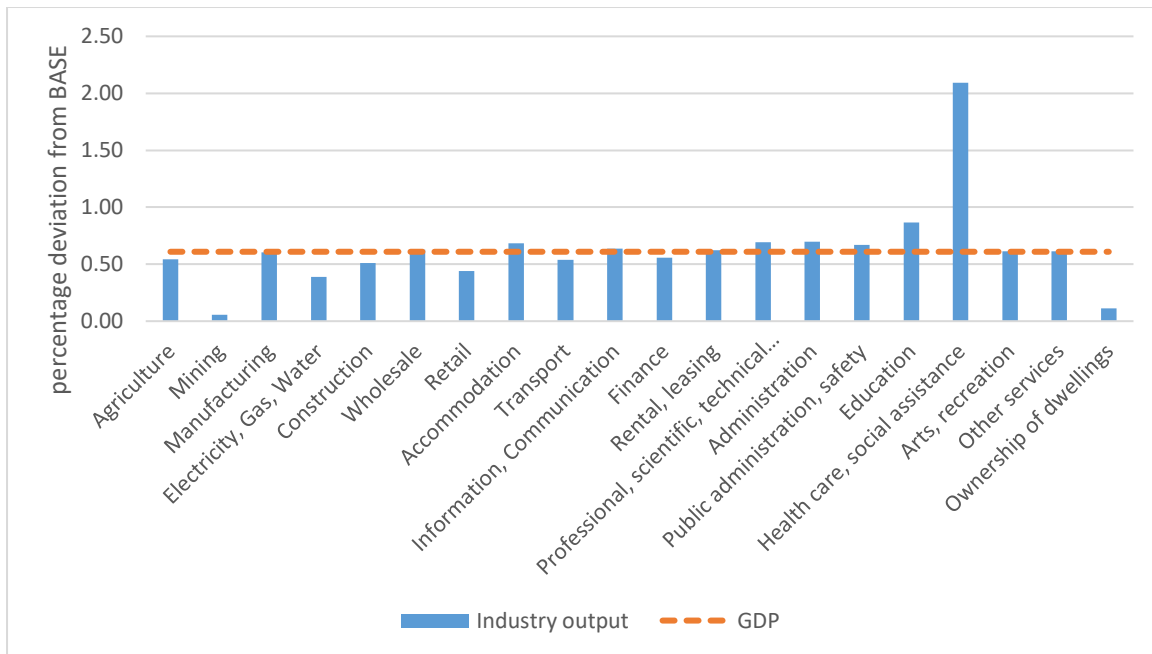


Figure 5: Industry output, percentage deviation from base case, 2026

4 Conclusions

Almost 450,000 Australians with children under the age of 5 would like to work more hours. If these parents were able to work an extra 10 hours a week, the number of hours supplied to the labour market would increase by one per cent. An increase in labour supply of this magnitude would have a significant macroeconomic impact. In 2030, GDP would be 0.8 per cent higher than it otherwise would have been, equivalent to an increase in annual GDP per person of \$590 in 2019 prices, or almost \$15 billion in total.

With no changes in costs or quality, the additional childcare required is equivalent to an expansion of the childcare sector of 12.6 per cent. The additional operational costs of a larger childcare sector add 0.75 per cent to government expenditure or around \$3 billion per year.

The Morrison Government is committed to personal income tax cuts at a cost of over \$300 billion over the next decade. An expansion in government-funded childcare could be funded at a fraction of this cost, while providing a significantly larger economic growth dividend driven by higher labour force participation, and addressing female disadvantage in the labour market.

The additional economic activity generated by greater labour supply would increase revenue from indirect taxation and taxation of profits, leaving a small shortfall to be recouped from higher income taxes, or a reduction in the tax cuts outlined in the Personal Income Tax Plan.

We find that forgoing income tax cuts of just 0.1 percentage points would be sufficient to recoup the net cost of additional childcare over four years, after which the budget would move towards surplus relative to where it otherwise would have been.

5 References

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6 Tables

Table 5: Scenario 1 macro results, percentage deviation from base case (unless otherwise stated)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Macro aggregates											
GDP	0.00	0.01	0.16	0.38	0.48	0.56	0.62	0.67	0.71	0.74	0.77
Household expenditure	0.00	0.03	0.26	0.51	0.57	0.61	0.63	0.65	0.66	0.67	0.68
Investment	0.00	0.04	0.18	0.37	0.49	0.58	0.64	0.69	0.72	0.75	0.77
Exports	0.00	-0.06	-0.34	-0.50	-0.39	-0.28	-0.17	-0.07	0.02	0.10	0.17
Imports	0.00	0.05	0.35	0.64	0.70	0.71	0.72	0.71	0.70	0.69	0.69
Public expenditure	0.00	0.00	0.63	1.35	1.46	1.54	1.58	1.61	1.62	1.63	1.64
Factors of production											
Capital	0.00	0.00	0.01	0.03	0.06	0.11	0.16	0.21	0.26	0.30	0.35
Labour input	0.00	0.01	0.29	0.67	0.83	0.94	1.02	1.07	1.11	1.13	1.15
Labour supply											
Male	0.00	0.00	0.21	0.41	0.41	0.40	0.40	0.40	0.40	0.40	0.40
Female	0.00	0.00	0.92	1.86	1.85	1.84	1.84	1.84	1.84	1.84	1.84
Persons	0.00	0.00	0.55	1.11	1.10	1.09	1.09	1.09	1.09	1.09	1.09
Government budget balance (\$m), deviation from base	0	-190	-2424	-4394	-4157	-3972	-3830	-3725	-3649	-3595	-3560

Table 6: Scenario 1 industry output, percentage deviation from base case

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Industry output											
Agriculture	0.00	-0.02	-0.02	0.07	0.19	0.29	0.38	0.45	0.51	0.56	0.60
Mining	0.00	-0.01	-0.07	-0.13	-0.14	-0.14	-0.13	-0.11	-0.08	-0.05	-0.02
Manufacturing	0.00	-0.02	-0.04	0.03	0.18	0.30	0.40	0.49	0.56	0.62	0.67
Electricity, Gas, Water	0.00	0.00	0.08	0.21	0.30	0.38	0.44	0.50	0.54	0.58	0.62
Construction	0.00	0.02	0.13	0.28	0.40	0.49	0.56	0.61	0.66	0.69	0.72
Wholesale	0.00	0.01	0.14	0.33	0.46	0.54	0.61	0.66	0.70	0.73	0.76
Retail	0.00	0.03	0.29	0.57	0.63	0.67	0.68	0.69	0.70	0.70	0.70
Accommodation	0.00	-0.01	0.09	0.28	0.42	0.54	0.63	0.70	0.76	0.81	0.85
Transport	0.00	-0.01	0.03	0.15	0.26	0.36	0.44	0.50	0.56	0.61	0.65
Information, Communication	0.00	0.00	0.12	0.33	0.47	0.57	0.65	0.71	0.76	0.80	0.84
Finance	0.00	0.01	0.15	0.36	0.47	0.56	0.62	0.67	0.72	0.75	0.78
Rental, leasing	0.00	0.00	0.12	0.31	0.44	0.53	0.61	0.67	0.71	0.75	0.78
Professional, scientific, technical services	0.00	0.01	0.13	0.32	0.46	0.57	0.65	0.71	0.76	0.80	0.83
Administration	0.00	0.00	0.13	0.35	0.49	0.59	0.67	0.74	0.79	0.83	0.86
Public administration, safety	0.00	0.00	0.26	0.59	0.72	0.80	0.85	0.89	0.91	0.92	0.93
Education	0.00	-0.04	-0.09	0.03	0.25	0.43	0.57	0.68	0.77	0.84	0.89
Health care, social assistance	0.00	0.01	0.94	1.97	2.09	2.17	2.22	2.25	2.27	2.28	2.29
Arts, recreation	0.00	0.01	0.23	0.51	0.62	0.70	0.75	0.79	0.82	0.84	0.86
Other services	0.00	0.01	0.20	0.45	0.57	0.64	0.70	0.74	0.77	0.79	0.81
Ownership of dwellings	0.00	0.00	0.00	0.03	0.08	0.14	0.19	0.25	0.31	0.37	0.42

Table 7: Scenario 2 macro results, percentage deviation from base case (unless otherwise stated)

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Macro aggregates											
GDP	0.00	0.01	0.15	0.36	0.46	0.55	0.61	0.66	0.70	0.73	0.76
Household expenditure	0.00	0.03	0.13	0.27	0.30	0.35	0.38	0.41	0.43	0.44	0.46
Investment	0.00	0.04	0.15	0.34	0.43	0.53	0.59	0.64	0.68	0.71	0.73
Exports	0.00	-0.06	-0.07	-0.04	0.15	0.26	0.36	0.45	0.52	0.59	0.65
Imports	0.00	0.05	0.19	0.40	0.40	0.45	0.47	0.48	0.49	0.49	0.50
Public expenditure	0.00	0.00	0.52	1.15	1.24	1.33	1.39	1.43	1.45	1.47	1.48
Factors of production											
Capital	0.00	0.00	0.01	0.02	0.06	0.10	0.14	0.19	0.24	0.28	0.32
Labour input	0.00	0.01	0.28	0.66	0.81	0.93	1.01	1.07	1.11	1.14	1.15
Labour supply											
Male	0.00	0.00	0.20	0.40	0.39	0.39	0.39	0.38	0.38	0.39	0.39
Female	0.00	0.00	0.91	1.84	1.83	1.82	1.82	1.82	1.82	1.82	1.82
Persons	0.00	0.00	0.54	1.09	1.08	1.08	1.07	1.07	1.07	1.07	1.07
Government budget balance (\$m), deviation from base	0	-190	-220	-187	510	787	1016	1206	1366	1501	1618

Table 8: Scenario 2 industry output, percentage deviation from base case

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Industry output											
Agriculture	0.00	-0.02	0.06	0.21	0.36	0.46	0.54	0.61	0.66	0.70	0.74
Mining	0.00	-0.01	-0.02	-0.03	0.00	0.03	0.06	0.09	0.13	0.16	0.20
Manufacturing	0.00	-0.02	0.06	0.22	0.39	0.51	0.60	0.68	0.75	0.80	0.84
Electricity, Gas, Water	0.00	0.00	0.06	0.17	0.25	0.32	0.39	0.44	0.49	0.53	0.56
Construction	0.00	0.02	0.10	0.26	0.35	0.44	0.51	0.57	0.61	0.65	0.67
Wholesale	0.00	0.01	0.14	0.35	0.46	0.56	0.63	0.68	0.72	0.75	0.78
Retail	0.00	0.03	0.15	0.33	0.36	0.41	0.44	0.46	0.47	0.49	0.50
Accommodation	0.00	-0.01	0.12	0.32	0.48	0.59	0.68	0.76	0.81	0.86	0.90
Transport	0.00	-0.01	0.08	0.23	0.36	0.46	0.54	0.60	0.66	0.70	0.74
Information, Communication	0.00	0.00	0.12	0.32	0.46	0.56	0.64	0.70	0.75	0.79	0.82
Finance	0.00	0.01	0.12	0.31	0.41	0.49	0.56	0.61	0.65	0.68	0.71
Rental, leasing	0.00	0.00	0.13	0.33	0.45	0.55	0.62	0.68	0.73	0.76	0.79
Professional, scientific, technical services	0.00	0.01	0.14	0.37	0.50	0.61	0.69	0.75	0.80	0.84	0.86
Administration	0.00	0.00	0.14	0.37	0.51	0.62	0.70	0.76	0.81	0.85	0.88
Public administration, safety	0.00	0.00	0.15	0.40	0.51	0.61	0.67	0.71	0.74	0.76	0.77
Education	0.00	-0.04	0.08	0.30	0.57	0.74	0.87	0.96	1.04	1.09	1.13
Health care, social assistance	0.00	0.01	0.86	1.84	1.95	2.04	2.09	2.13	2.16	2.17	2.18
Arts, recreation	0.00	0.01	0.15	0.37	0.46	0.55	0.61	0.66	0.69	0.71	0.73
Other services	0.00	0.01	0.15	0.36	0.46	0.55	0.61	0.66	0.70	0.72	0.74
Ownership of dwellings	0.00	0.00	0.00	0.02	0.04	0.08	0.11	0.15	0.19	0.23	0.27

