



Summary report: Economic impacts of the Best Start, Best Life extension

Victorian Department of Treasury and Finance

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Glossary and Definitions

Glossary

Acronym/term	Full name/description
BSBL	Best Start, Best Life
CCS	Child Care Subsidy
CGE	Computable General Equilibrium
DAE-RGEM	Deloitte Access Economics' in-house Regional General Equilibrium Model
DELWP	Department of Environment, Land, Water and Planning
DTF	Department of Treasury and Finance
ECEC	Early Childhood Education and Care
LDC	Long Day Care
NAPLAN	The National Assessment Program – Literacy and Numeracy
NVP	Net Present Value
OOP	Out-of-pocket
SEIFA	Socio-Economic Indexes for Areas

Key definitions

Acronym/term	Full name/description
Child care	Includes a long day care or family day care program, not including kindergarten
Early Childhood Education and Care	Includes kindergarten and child care.
Kindergarten	Educational program that is delivered in sessional services or long day care services for children aged between three and five years old.
Long Day Care	Does not include kindergarten programs delivered in LDCs.

Summary report

A well-functioning early childhood education and care (ECEC) system plays a dual role in supporting Victoria's economic and social prosperity.

Access to affordable ECEC is essential to enabling parents – especially primary carers – to participate in the labour force, supporting them to re-enter the workforce and to work their desired hours. It can also be instrumental in reducing the frequency and duration of career breaks and, in turn, support longer term productivity and human capital accumulation for primary carers. Given the vast majority of caring responsibilities fall to women, affordable ECEC also plays a role in the pursuit of greater gender equality.

At the same time, quality early childhood education also has significant benefits for children, particularly children from vulnerable or disadvantaged backgrounds. Attending kindergarten programs improves children's social, emotional and cognitive outcomes, and supports future engagement with education and the labour force with many of these benefits accruing well into the future.

The BSBL extension and CCS reforms

Given the range of benefits associated with affordable and accessible quality ECEC programs, the Victorian Government is undertaking an unprecedented series of ECEC reforms. In its 2020/21 Budget, the Victorian Government announced the progressive roll-out of 15 hours of funded three-year-old kindergarten across Victoria. Building on this reform, the Government has further committed to investing \$9 billion over the next decade through an expansion of the Best Start, Best Life (BSBL) program ('**BSBL extension**'). The BSBL extension encompasses three major new initiatives:

1. Making kindergarten free for three- and four-year old children across Victoria
2. Delivering a new year of universal pre-prep for four-year-olds, which would provide 30 free hours of play-based learning a week by 2032
3. Establishing 50 Victorian government-owned and affordable child care centres, supporting improved accessibility in areas with unmet demand.

The BSBL extension will be complemented by Commonwealth Government reforms to increase Child Care Subsidies (CCS) ('**CCS reform**').¹ These reforms have now been introduced to federal parliament to take effect from 1 July 2023 subject to the passage of legislation. Together, the BSBL extension and CCS reforms will considerably increase the accessibility and affordability of ECEC in Victoria.

Deloitte Access Economics was engaged by the Victorian Department of Treasury and Finance (DTF) to estimate the potential impacts of these reforms on the Victorian economy and to examine the benefits to children based on existing research.

Importantly, the analysis in this report focuses only on the BSBL *extension* reforms. It does not consider the additional benefits associated with the BSBL reforms announced in the 2020/21 budget to progressively increase funded three-year old kindergarten delivery to 15 hours. In this report, reforms announced in 2020/21 are treated as existing policies and the benefits potentially emanating from these reforms are captured in the 'base case' of the economic modelling.

¹ The CCS changes would increase the CCS to 90 per cent for households with annual incomes up to \$75,000; increase the CCS for households with annual incomes above \$75,000, with the specific rate tapering from 90 per cent to reach zero for households with annual incomes of \$530,000.

Modelling approach

In the analysis that underpins this report, Deloitte Access Economics quantifies the impact of the proposed reforms on the labour supply and productivity uplift for primary carers in three broad steps:

1. Model the 'base case' trajectory of kindergarten and day care usage in Victoria
2. Model the impact of reforms on labour force supply and productivity
3. Model the economy-wide impacts of reforms on labour supply and government investment.

The longer term benefits to children's development from increased access to quality education programs has not been captured in the modelling approach (they are explored only with reference to existing research) and, as such, the results potentially understate the full economic impact of the proposed reforms.

First, Deloitte Access Economics relied on publicly available and Victorian Government data sources to forecast kindergarten and ECEC usage in the 'base case', a scenario where the proposed BSBL extension and CCS reforms do not occur.²

Second, the impact of the proposed BSBL extension and CCS reforms on children's participation in ECEC and parents' labour supply and productivity is modelled. The modelling broadly draws on the approach used by NSW Treasury (2022) in their report entitled *Women's economic opportunities in the NSW labour market and the impact of early childhood education and care*.

There are two main ways in which ECEC usage could in principle impact a primary carer's participation in the labour force:

- **Cohort effects:** capturing the additional labour that can be supplied by primary carers for children aged five and under when a child attends ECEC (including both kindergarten programs and child care)
- **Lifetime effects:** capturing the longer term labour supplied by people who were previously primary carers for children aged five and under. This recognises that an extended career break can have longer term impacts by changing future labour market participation, hours worked and wages over time.

The existing Australian and international literature suggests a strong cohort effect, with increased child care use having a positive effect on workforce participation among primary carers. However, given the high degree of uncertainty on the potential effects two scenarios have been explored: a low elasticity scenario where the labour supply response of primary carers is at the lower end of what has been found in the academic literature and a high elasticity scenario where the labour supply response is at the upper end of that found in the academic literature.

The low elasticity scenario is based on an Australian study by Breunig and Gong (2012), which finds that 1% increase in child care hours is associated with a 0.24% in labour force participation for women with children aged five and under and a 0.39% increase in total hours worked (Table i).³

The high elasticity scenario has been derived from two studies examining the impact of ECEC reforms in Quebec, where highly subsidised, universally accessible childcare was introduced from 1997 to 2000.⁴ Lefebvre and Merrigan (2008) estimate the labour market impacts, while Baker et al (2008) estimate the change in net costs and child care usage. Based on the studies, it is

² Key data sources underpinning the modelling include (1) Unpublished Victorian Government Population Projections 2021 (2) Australian Bureau of Statistics (ABS) *Kindergarten Education, Australia* data on current kindergarten usage patterns, (3) ABS *Childhood Education and Care, Australia* data on labour market participation rates by primary carers, and (4) ABS *2016 Census of Population and Housing* data on the employment profiles of primary carers.

³ Deloitte Access Economics calculations based on elasticities from Gong, X., & Breunig, R. (2012), *Estimating net child care price elasticities of partnered women with pre-school children using a discrete structural labour supply-child care model* (No. 2012-01), Treasury Working Paper.

⁴ Lefebvre, P., & Merrigan, P. (2008), *Child-care policy and the labor supply of mothers with young children: A natural experiment from Canada*, *Journal of Labor Economics*, 26(3), 519-548;

Baker, M., Gruber, J., & Milligan, K. (2008), *Universal child care, maternal labor supply, and family well-being*, *Journal of Political Economy*, 116(4), 709-745.

estimated that a 1% increase in child care hours could be associated with a 0.34% in labour force participation for women with children aged five and under, and a 0.56% increase in total hours worked.

Table i: Modelling parameters (cohort effects)

	Low elasticity	High elasticity
Source	Derived from Gong and Breunig (2012)	Derived from Lefebvre and Merrigan (2008) and Baker et al (2008)
Participation	0.24*	0.34
Aggregate hours worked	0.39*	0.56

Source: Deloitte Access Economics (2022). * Gong and Breunig (2012) reported an elasticity for hours of formal care with respect to net child care price of -0.246, an elasticity of employment with respect to net child care price of -0.059, and labour supply hours with respect to net child care price of -0.096. These elasticities were used to derive the elasticity of participation and hours worked with respect to hours of child care use.

Existing research on the lifetime effects is more limited. Following NSW Treasury (2022), Deloitte Access Economics has drawn on a past study by Borooh and Arun (2004)⁵ and assumed that the following penalties applies to women who remain out of the workforce for the full period that their child is aged under five:⁶

- 22% of women who take an extended child-related career break (i.e. more than 12 months) do not return to the workforce.
- 22% of women who take an extended child-related career break and return to work are expected to shift from full-time to part-time work for their remaining working life.
- There is a *wage penalty* of 20% for women who take extended child-related career breaks, which permanently reduces their average earnings by 20%.

The NSW Treasury modelling assumes that the penalties associated with taking an extended period of leave will persist for the full remaining working life. However, the modelling for this study assumes that participation and wage effects taper uniformly from age forty and are eliminated by age 50. This is based on evidence from a study by Kahn et al (2014), which found that in the United States, the impact of children on women’s labour force participation and employment is reduced once women reach their 40s and 50s and that wage penalties also fade for women with fewer than three children.⁷

Further, there is some evidence to suggest that lifetime effects may accrue to those who take shorter career breaks. As such, the modelling assumes that those who return to the workforce when their child is aged three or four experience a 3.5% decrease in wages, consistent with Beblo et al (2009).⁸

Next, the impact of the BSBL extension and CCS reforms on kindergarten and child care usage are modelled, taking into account both the price and non-price related effects of the initiatives. The uplift in child care usage due to the CCS reforms are modelled through on a reduction in out-of-pocket child care fees, which increases usage in accordance with the assumed elasticity of demand.⁹ The BSBL reform package is designed to make kindergarten more affordable and increase engagement with the sector and parents on the benefits of kindergarten. By removing

⁵ Arun, S. V., Arun, T. G., & Borooh, V. K. (2004), “The effect of career breaks on the working lives of women”, *Feminist Economics*, 10(1), 65-84.

⁶ These benefits will apply to primary carers who enter the workforce due to the CCS reforms or the 50 new government-owned child care centres.

⁷ Kahn, J.R., Garcia-Mangano, J., and Bianchi, S.Z. (2014), “The Motherhood Penalty at Midlife: Long-Term Effects of Children on Women’s Careers”, *Journal of Marriage and Family* 76: 56-72.

⁸ Beblo, M., Bender, S., and Wolf, E. (2009), “Establishment-level wage effects of entering motherhood”, *Oxford Economic Papers* 61 (2009), i11–i34.

⁹ Across both scenarios, a demand elasticity of 0.246 was used based on a previous study by Breunig and Gong (2012).

cost as a barrier for all children and introducing 30 hours of Pre-Prep, the BSBL extension reforms are expected to increase the kindergarten participation rate towards the target of 96% – as stated in DET’s performance statement in Budget Paper 3. This is effectively full participation in a non-compulsory program. Further, the BSBL is targeting attendance of 30 hours per week for four year old children once the policy is fully implemented. The modelling also accounts for any potential substitution from child care to kindergarten as a result of the reforms, and estimates the net impact on ECEC hours.

The participation and productivity parameters based on the existing literature are then applied to the estimated net change in ECEC usage attributable to the BSBL extension and CCS reforms. This allows the change in the participation rate, average weekly hours worked and additional participants for primary carers with a child aged under five and women aged 15 and over to be estimated.

Lastly, based on the outputs of Step 1 and 2, the methodology uses Computable General Equilibrium (CGE) modelling to simulate the economy-wide impacts of the workforce changes generated by the BSBL extension. CGE models are a class of economic models that use actual economic data to estimate how an economy might react to changes in policy, technology or other external factors. CGE frameworks are the preferred approach for modelling counterfactual questions such as this one because they explicitly account for behavioural responses of consumers, firms, governments and overseas residents when evaluating the impacts of a given policy change. At the same time, they also observe resource constraints meaning that the estimated economic impacts account for competition for scarce resources (such as the acute competition for labour that the Australian economy is currently experiencing).

The modelling captures:

1. The potential impacts on labour supplied by primary carers (as estimated in Step 2).
 - With the vast majority of primary carers being women, the likely destinations of primary carers entering the workforce under the policy case are expected to differ compared to the typical worker (for example by industry of work).
 - Women with a dependent child already in the labour force are more likely to work in business services, health, education or retail and hospitality relative to the average employed Victorian.
 - The likely industry profile of additional labour supply provided by primary carers is incorporated in the economy-wide modelling, with the additional labour flowing to industries that have historically employed primary carers.
2. The expected increase in operational and capital expenditure associated with the reforms.
 - In doing so, the modelling implicitly captures the increased demand for workers in the ECEC sector, some of whom may need to be attracted from other sectors of the economy to meet increased demand for ECEC workers over time.
 - Consistent with the announced policy intent, the modelling assumes strategies are put in place to ensure sufficient ECEC workers to support growth in the sector. In the event that the required labour cannot be sourced, both the capacity to deliver the BSBL extension and the extent of the economic impacts will be compromised.

Two scenarios have been considered for this report:

- **Scenario 1:** captures the effects of the BSBL extension policies alone.
- **Scenario 2:** captures the combined effects of the BSBL extension policies in conjunction with the Commonwealth Government’s proposed changes to the CCS schedule.¹⁰

¹⁰ Scenario 2 is broadly consistent with Scenario 2 by NSW Treasury in NSW Treasury (2022) *Women’s economic opportunities in the NSW labour market and the impact of early childhood education and care*.

Impacts on usage of kindergarten and child care services

High fees are a key barrier to ECEC participation reported by Victorian families, with one in three citing it as a reason for not participating in the labour force.¹¹ In making kindergarten free for three- and four-year old children across Victoria, the BSBL extension will directly ameliorate affordability issues for families using kindergarten programs. At the same time, the CCS reforms will make child care a more viable option for more families, while encouraging existing families to increase their usage.

In addition to lowering fees, the BSBL extension reforms are also expected to increase kindergarten participation through a range of non-price initiatives. The 50 new government operated child care centres will help address current shortages, while a range of initiatives aimed at sector engagement and public communication on the importance of universal pre-prep will be deployed to lift kindergarten enrolment.

Modelling for this report finds that the BSBL extension would result in around an additional 8,900 children enrolling in kindergarten programs in 2032-33 and an additional 9,800 ECEC enrolments (Table ii).¹² When the effects of the CCS reforms are accounted for, the reforms are projected to support an additional 13,200 children enrolling in ECEC services by 2032-33.

These increases are on top of the significant impact that the three-year-old kinder rollout is already expected to have on kindergarten participation. Historically, rates of enrolment have exceeded rates of attendance with many children enrolled in kindergarten not attending on a given week or attending for fewer hours than they are enrolled. The introduction of universal kindergarten may also have a positive effect on rates of attendance which may increase the level of engagement (particularly for disadvantaged children, who currently attend kindergarten at below average rates).

Table ii: Estimated impacts of the reforms on kindergarten and child care usage

	Scenario 1 (BSBL extension)			Scenario 2 (BSBL extension + CCS)		
	2032-33	2051-52	2061-62	2032-33	2051-52	2061-62
Additional kindergarten enrolments						
<i>3-5 year olds</i>	8,900	11,000	11,400	8,900	11,000	11,400
Additional ECEC enrolments						
<i>0-5 year olds</i>	9,800	12,400	12,800	13,200	16,900	17,400

Source: Deloitte Access Economics (2022).

Impacts on labour force participation and productivity uplift among primary carers

Through expanding kindergarten and child care usage, the BSBL extension and CCS reforms are expected to allow more primary carers to return to the workforce or increase their hours worked.

Achieving the aspirations of the BSBL extension will support an additional 9,100 to 14,200 primary carers with a child aged under five to participate in the labour force by 2032-33, and increase total hours worked by primary carers with a child aged under five by between 8% and 11%.

With 94% of all primary carers being women, education services, health services, and retail and hospitality – all currently facing skills shortages – are the sectors most likely to benefit. Indeed, more than half of all hours will be directly added to these industries, supporting their future

¹¹ Productivity Commission (2020), *Report on Government Services 2020* <<https://www.pc.gov.au/research/ongoing/report-on-government-services/2020/child-care-education-and-training/early-childhood-education-and-care>>.

¹² These figures are estimates and are subject to change as key data inputs are updated such as population projections.

growth. When incorporating the CCS reforms, labour supplied by primary carers is projected to increase by between 11% and 23%.

Through greater engagement with the labour force while their children are young, the reforms are also expected to create long term career benefits for parents. Fewer extended career breaks increase the likelihood of primary carers returning to the workforce in the longer term as well as their likelihood of returning to a full time role. Shorter career breaks ensure workers' skills remain current, translating into a more productive and higher skilled workforce.

The lifetime benefits are expected to compound as more parents benefit from the policies over time. Given that the vast majority of primary carers are women, the policy is expected to reduce the gender gap in participation and wages over the longer term. By 2061-62, the BSBL extension reforms are projected to increase the participation rate among women aged 15 and over by between 0.5 and 1.1 percentage points; increase their average hours worked by between 0.3 and 0.5 hours per week; and increase their average hourly wages by between 0.3% and 0.5% (Table iii).

When incorporating the CCS reforms, the benefits are projected to be greater still. By 2061-62, the BSBL extension and CCS reforms together are expected to see between 22,300 and 55,000 additional women enter the labour force; increase their average hours worked by between 0.3 and 0.6 hours per week; and increase their average hourly wages by between 0.6% and 1.3%.

Table iii: Impact of reforms on labour supply and productivity

Financial year	Scenario 1: BSBL extension				Scenario 2: BSBL extension + CCS			
	Low elasticity		High elasticity		Low elasticity		High elasticity	
	2033	2062	2033	2062	2033	2062	2033	2062
Primary carers with a child aged under 5								
Participation rate (ppt)	+2.9	+3.8	+4.5	+4.4	+3.9	+3.9	+8.4	+8.3
Average weekly hours worked	+0.8	+0.7	+1.2	+1.2	+1.0	+1.0	+2.3	+2.2
Additional participants (no.)	9,100	12,200	14,200	19,100	12,600	16,700	26,800	35,700
Women aged 15+								
Participation rate (ppt)	+0.4	+0.5	+0.7	+1.1	+0.5	+0.6	+1.0	+1.4
Average weekly hours worked	+0.0	+0.3	+0.1	+0.5	+0.0	+0.3	+0.1	+0.6
Average wages (%)	+0.0	+0.3	+0.1	+0.5	+0.1	+0.6	+0.3	+1.3
Additional participants (no.)	8,800	12,400	13,800	19,400	13,200	22,300	29,700	55,000

Source: Deloitte Access Economics (2022).

Economy-wide benefits

A larger and more productive workforce is expected to enable faster growth for both the Victorian and Australian economy.

As a result of the BSBL extension reform, Victoria's economy is expected to be cumulatively larger by between \$23 billion and \$35 billion over the period from 2023 to 2062 in net present value (NPV) terms, representing an average uplift to real Gross State Product (GSP) of between 0.4% and 0.7% (Table iv). On average, GSP is projected to be higher by \$2.7 billion to \$4.3 billion per annum, or an average increase in GSP of between \$670 and \$1,050 per Victorian household, over the period to 2061-62. In cumulative terms (undiscounted), the uplift in Victorian GSP is projected at between \$9.6 billion and \$13.5 billion over the first 10 years of the policy (to 2032-33) (Table v). This represents an average increase of \$960 million to \$1.35 billion per annum over the first 10 years.

Alongside the additional economic activity, employment is expected to increase by between 22,600 and 39,800 full time equivalent (FTE), on average, between 2022 and 2062, as a result of the BSBL reforms.

A larger economy will lift Victorian Government real taxation revenue by an estimated \$138 to \$217 million on average each year over the period to 2062. The BSBL extension policy is also expected to generate an average of \$537 million to \$847 million in taxation revenue a year for the Commonwealth Government, and another \$88 million to \$139 million per annum in average Goods and Service Tax (GST) revenue collected by the Commonwealth.

When also incorporating the CCS reforms, the Victorian economy is expected to be larger by \$31 to \$65 billion in net present value terms from 2023 to 2062 and create an additional 32,200 to 74,900 FTE on average over this period (Table vi). The taxation revenue uplift is correspondingly higher for both the Victorian and Commonwealth governments.

When incorporating the CCS reforms, Victorian GSP is on average higher by \$3.6 billion to \$7.6 billion over the period to 2061-62. In cumulative terms (undiscounted), Victoria's GSP is projected to increase by \$13.9 billion to \$29.4 billion over the first 10 years of the policy to 2032-33 (Table vii). This represents an average increase of \$1.4 billion to \$2.9 billion per annum over the first 10 years.

The realisation of these benefits is ultimately dependent on the uplift in kindergarten and child care usage. This relies on the effective implementation of the policies (particularly non-price initiatives aimed at increasing kindergarten enrolment and attendance) and requires a sufficient workforce (and enabling infrastructure) to meet the increased delivery requirements while maintaining quality of delivery. The modelling has assumed that the required supply-side capacity is available to deliver these reforms. To the extent that labour supply constraints may lower the level or growth rate of ECEC workers, the economic impacts presented in this analysis may be lower. On the other hand, the longer term benefits to children's development from increased access to quality education programs has not been captured in this analysis, and the results may therefore underestimate the full economic impact of the proposed reforms, particularly in the longer term.

Table iv: Point-in-time estimates of the economy-wide impacts of the BSBL extension reforms

	Low elasticity			High elasticity		
	Avg to 2061-62	2032-33	2061-62	Avg to 2061-62	2032-33	2061-62
Change in Victorian real GSP (\$million)	2,689	1,938	4,758	4,300	2,805	7,855
Change in Victorian GSP (%)	0.42	0.40	0.54	0.67	0.58	0.91
Change in real GDP (\$million)	2,753	1,965	4,902	4,422	2,854	8,125
Change in Victorian FTE employment	22,600	14,900	40,000	39,800	24,800	72,500
Change in Victorian FTE employment (%)	0.48	0.42	0.64	0.82	0.70	1.15
State taxation (\$m)	138	99	244	217	144	403
GST contribution (\$m)	88	66	124	139	97	225
Commonwealth taxation (\$m)	537	383	955	847	556	1,582

Source: Deloitte Access Economics (2022).

Table v: Cumulative economy-wide impacts of BSBL extension reforms

	Low elasticity		High elasticity	
	NPV	Cumulative undiscounted to 2032-33	NPV	Cumulative undiscounted to 2032-33
Change in Victorian real GSP (\$million)	22,810	9,640	34,905	13,455
Change in real GDP (\$million)	23,261	9,760	35,750	13,671
Commonwealth taxation (\$m)	3,731	1,518	5,643	2,106

Source: Deloitte Access Economics (2022). Note: To estimate the NPV, a real discount rate of 7% per annum has been used.

Table vi: Point-in-time estimates of the economy-wide impacts of BSBL extension and CCS reforms

	Low elasticity			High elasticity		
	Avg to 2061-62	2032-33	2061-62	Avg to 2061-62	2032-33	2061-62
Change in Victorian real GSP (\$million)	3,597	2,474	6,335	7,599	4,788	13,526
Change in Victorian GSP (%)	0.56	0.51	0.73	1.19	1.00	1.59
Change in real GDP (\$million)	3,693	2,517	6,541	7,838	4,897	14,014
Change in Victorian FTE employment	32,200	20,700	56,400	74,900	46,400	131,500
Change in Victorian FTE employment (%)	0.68	0.59	0.90	1.56	1.31	2.09
State taxation (\$m)	183	127	325	380	246	694
GST contribution (\$m)	117	84	176	244	164	409
Commonwealth taxation (\$m)	714	490	1,274	1,488	954	2,729

Source: Deloitte Access Economics (2022).

Table vii: Cumulative estimates of the economy-wide impacts of BSBL extension and CCS reforms

	Low elasticity		High elasticity	
	NPV	Cumulative undiscounted to 2032-33	NPV	Cumulative undiscounted to 2032-33
Change in Victorian real GSP (\$million)	31,000	13,928	64,924	29,393
Change in real GDP (\$million)	31,714	14,162	66,738	30,037
Commonwealth taxation (\$m)	5,110	2,267	10,716	4,895

Source: Deloitte Access Economics (2022). Note: To estimate the NPV, a real discount rate of 7% per annum has been used.

Child developmental benefits

While the study has quantified increased primary carer participation in the labour market, this only captures one dimension of the benefits of ECEC. Indeed, potentially more significant benefits are likely to arise from better child development outcomes due to increased access to quality education programs.

It is well established that investments in children's learning and development in their earliest years of life are among the highest return investments that can be made in education. The benefits materialise throughout later years of education, reducing the need for funding to redress educational inequities, and in post-schooling economic, social and life outcomes. As such, it is very clear that the BSBL reforms will deliver enduring benefits for children.

The evidence with respect to the benefits the BSBL reforms will generate is strongest in instances where children access and participate in early childhood education programs where they otherwise would not have. A majority of the leading Australian and international literature finds that attending kindergarten programs has a positive impact on a child's social, emotional and cognitive outcomes in school. For example, the *Early Bird Catches the Worm* (2013) study which draws on data from the Longitudinal Study of Australian Children finds that kindergarten attendance is equivalent to an improvement of 10-20 NAPLAN points or 15-20 weeks of schooling at the Year 3 level.¹³ This, in turn, flows through to their post-schooling economic, social and life outcomes. These effects were found to be stronger for those whose teacher had at least a diploma level qualification.

A number of studies find that kindergarten programs that are considered by the researchers to be high quality have larger impacts on children's developmental outcomes.¹⁴ A key pillar of quality concerns the nature of interactions between children and their educators or teachers.

How quality within this frame is measured and used within studies varies, but can include minimum staff qualification levels, staff-child ratios, assessments against set quality standards or frameworks (such as the National Quality Framework), amounts of indoor/outdoor space and frequencies of contact between staff and children.^{15,16} Several key papers, including the E4Kids

¹³ Warren, D. and Haisken-DeNew, J., 'Early Bird Catches the Worm: The Causal Impact of Pre-School Participation and Teacher Qualifications on Year 3 National Naplan Cognitive Tests' (October 2013). Melbourne Institute Working Paper No. 34/13.

¹⁴ See for example: Tayler, C., Thorpe, K., Nguyen, C., Adams, R., & Ishimine, K. (2016). The E4Kids study: Assessing the effectiveness of Australian early childhood education and care programs: Overview of findings at 2016. Melbourne, Australia: The University of Melbourne: Melbourne School of Graduate Education and Gilley, T., Tayler, C., Niklas, F., and Cloney, D. (2015), 'Too late and not enough for some children: early childhood education and care (ECEC) program usage patterns in the years before school in Australia', *International Journal of Child Care and Education Policy*, 9.

¹⁵ 'Starting Strong: A Quality Toolbox for Early Childhood Education and Care' (2011) Organisation for Economic Co-operation and Development.

¹⁶ Martha Zaslow, Rachel Anderson, Zakia Redd, Julia Wessel, Paula Daneri, Katherine Green, Elizabeth Cavadel, Louisa Tarullo, Margaret Burchinal & Ivelisse Martinez-Beck, 'Quality thresholds, features and dosage in early care and education: Introduction and literature review,' (2016) 81(2) Monographs of the Society for Research in Child Development 7.

Study (2016), utilise more sophisticated measures that get closer to observing the nature of interactions between educators and children (rather than reliance on proxies). The Classroom Assessment Scoring System is one such tool that measures quality across three key domains: the emotional support for children, the organisation of activities that facilitate children's learning and engagement and the level of instructional support provided by educators during play-based activities. The evidence from the E4Kids study suggests that the quality of educator-child interactions makes a real difference to child outcomes.¹⁷

Australian empirical evidence on the social, emotional and cognitive benefits for children of increasing attendance in kindergarten programs from 15 hours a week to 30 hours is far less conclusive. This in part reflects the nation's legacy policy settings and the absence of universal, quality 30 hour programs. The absence of evidence in the Australian literature on the benefits of increasing hours of learning beyond 15 hours for kindergarten programs is consistent with the fact that Australian jurisdictions are yet to embark on policies that increase hours to 30 hours. With Victoria being among the first states to move in this direction, this will provide opportunities to assess the impact of expanded kindergarten programs in the future.

International evidence on the benefits to increasing attendance at kindergarten programs past 15 hours is more encouraging as far as the presence of benefits is concerned. The majority of studies suggest that disadvantaged children experience social, emotional and cognitive benefits from additional hours of kindergarten programs. Indeed, there are a number of longitudinal studies that find social, emotional and cognitive benefits to disadvantaged children attending kindergarten programs that are sustained and realised in later life outcomes.

Research on the benefits of universal 30 hour programs is more limited, however there are examples of programs similar to BSBL producing benefits as a result of their increase in hours of delivery. A critical conclusion of this research is that the quality is a key prerequisite to the realisation of benefits.

Concluding comments

The BSBL extension reforms represent a significant opportunity to increase kindergarten and ECEC participation and have the potential to generate sustained benefits for Victoria's economy and community. Supporting more primary carers to participate in the workforce while their children are young will both address short-term labour shortages, lift longer term productivity and support greater gender equality in the labour market.

The labour participation and productivity uplift associated with the BSBL extension is expected to increase GSP by between \$23 billion and \$35 billion over the next 40 years (in net present value terms). In annual terms, this equates to an average increase in GSP of \$2.7 billion to \$4.3 billion per annum or an average increase in GSP of between \$670 and \$1,050 per Victorian household. These impacts are significantly larger when considered in conjunction with the Commonwealth Government's proposed changes to CCS.

When including the longer term benefits that are likely to arise from better child development outcomes due to increased access to quality ECEC programs, the benefits are likely to be higher still. Realisation of these benefits is contingent on the successful implementation of the reforms and, in particular, meeting the prerequisite conditions with respect to workforce and quality.

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¹⁷ Tayler, C., Thorpe, K., Nguyen, C., Adams, R., & Ishimine, K. (2016). The E4Kids study: Assessing the effectiveness of Australian early childhood education and care programs: Overview of findings at 2016. Melbourne, Australia: The University of Melbourne: Melbourne School of Graduate Education.

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